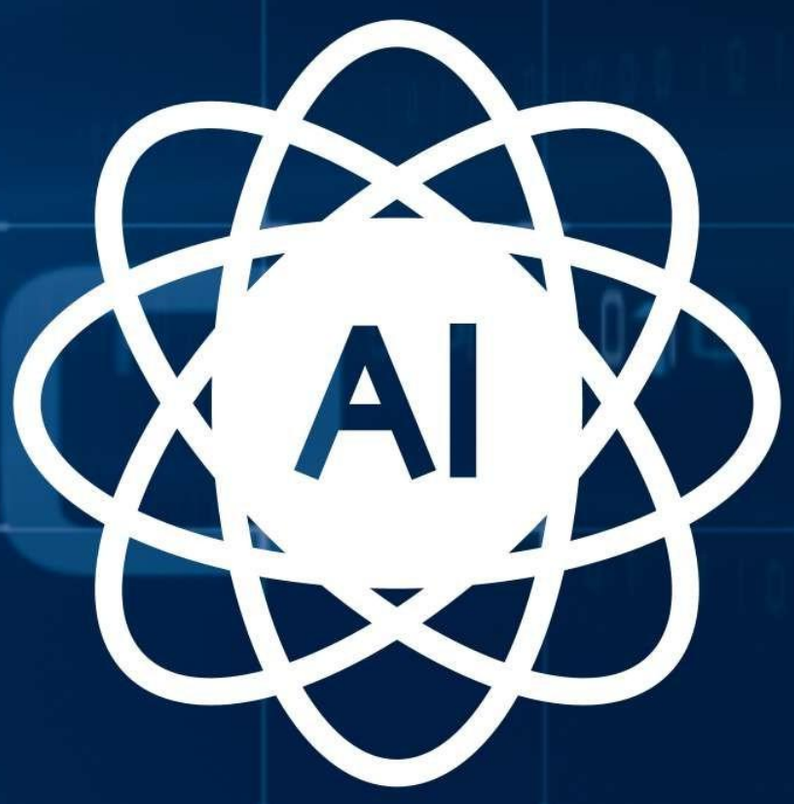
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CONNECTING THE DOTS 2026



Editors:
Dr. Rahul Wadekar, Dr. Girish Jadhav

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[PRINTED IN INDIA]

FROM THE DESK OF THE DIRECTOR



"Every connection we make today becomes the foundation of tomorrow's possibilities."

It gives me immense pleasure to present the latest edition of Connecting the Dots'26, the annual ISBN publication of the MMS Department at DES's Navinchandra Mehta Institute of Technology for the academic year 2025–26. Which showcases the ideas, research, achievements, and aspirations of our future management professionals.

Connecting the Dots serves as a vibrant platform for students to explore, express, and share their perspectives on contemporary business, management, and societal issues. The magazine reflects our department's commitment to fostering critical thinking, innovation, research, and lifelong learning.

This year's edition is inspired by the theme of **INCMAT-2026, "New Horizons: Integrating AI, Business, and a Sustainable Future."** It reflects the essence of modern management education by emphasizing the integration of innovation, business insight, and sustainability to develop leaders capable of driving meaningful change in a rapidly evolving world.

I am particularly delighted to note the inclusion of student research papers in this edition. These contributions highlight

the intellectual curiosity, analytical abilities, and research orientation of our students as they engage with emerging business trends and real-world challenges. Their work demonstrates the importance of inquiry, evidence-based thinking, and effective communication in shaping future leaders.

This publication aligns with the vision of the MMS Department to nurture competent, ethical, and socially responsible managers. We continue to create an environment that encourages creativity, leadership, collaboration, and academic excellence.

I extend my sincere congratulations to the student authors, editorial team, and faculty mentors whose dedication and hard work have made this edition possible. Their collective efforts have created a valuable repository of knowledge and ideas for the academic community.

I am confident that readers will find this edition informative, insightful, and inspiring. May it encourage you to think critically, embrace new perspectives, and continue connecting the dots on your journey of learning and leadership.

Wishing you an enriching and insightful reading experience.

Dr. Rasika Mallya
Director In-Charge
DES's Navinchandra Mehta Institute of Technology

FROM THE EDITORIAL TEAM

“Connecting Ideas, Inspiring Futures”

It is with great pride and enthusiasm that we present the third edition of Connecting the Dots, a magazine that showcases the intellectual energy, creativity, and aspirations of our MMS students.

In an era defined by rapid technological advancements, artificial intelligence, and an ever-expanding flow of information, the ability to think critically, analyze independently, and communicate effectively has become more important than ever. While digital tools can provide information instantly, true learning lies in questioning, interpreting, and transforming knowledge into meaningful insights. This magazine serves as a platform where students engage in that very process.

Through articles, research papers, reflections, and creative contributions, our students demonstrate their commitment to academic excellence and thoughtful inquiry. Their work reflects not only an understanding of management concepts but also an awareness of contemporary business, social, and technological challenges. By exploring diverse perspectives and real-world issues, they are developing the analytical and communication skills essential for future leaders and managers.

This year's magazine theme, aligned **with INCMAT-2026, “New Horizons: Integrating AI, Business, and a Sustainable Future,”** reflects the evolving nature of management education. It emphasizes the convergence of technology, business innovation, and sustainability, encouraging students to explore diverse perspectives and develop solutions that create meaningful and lasting impact. Every contribution in this edition showcases the connection between knowledge, innovation, and real-world application.

This publication is the result of the dedication and collaborative efforts of our student editors, contributors, designers, faculty mentors, and the institution's leadership. Their passion and perseverance have

transformed this vision into a meaningful platform for expression and learning.

As you explore these pages, we hope you find inspiration in the originality of thought, depth of research, and diversity of perspectives presented by our students. May this edition encourage you to continue asking questions, embracing new ideas, and building meaningful connections that shape your personal and professional journey.

Wishing you an enriching and insightful reading experience!

Dr. Rahul Wadekar,
Dr. Girish Jadhav

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GROWTH OF UPI PAYMENTS AND ITS IMPACT ON BANKING SECTOR

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Abstract
The emergence of digital payment solutions has revolutionized the Indian banking industry. In this context, the study will aim at evaluating the development and adoption of UPI payments and examining the influence of the same on the banking industry. The study will focus on assessing the impact of UPI on the behavior pattern of the customers and reducing the dependency on banking services. Primary data has been collected using a structured survey questionnaire from the respondents. Statistical methods like percentage method and Chi-square test have been applied to analyze the findings of the research. Results indicate that there has been a remarkable growth and development of UPI payments due to their ease of use and quickness of transactions. UPI has been instrumental in minimizing the transactions using physical cash or visiting bank branches. Results of the Chi-square test prove that there is a significant relationship between UPI payment usage and behavioral change of banking customers. Conclusions derived from the study point out that UPI has made a major contribution in changing the dynamics of the banking industry in India.
Keywords: UPI, Digital Payments, Banking Sector, Cashless Economy, Financial Technology (FinTech), Customer Behavior, Digital Banking, Transaction Efficiency, Financial Inclusion, Cybersecurity, India, NPCI.

1. Introduction

The evolution of digital technology has had a profound effect on the finances worldwide, and the situation in India is not an exception. Undoubtedly, one of the greatest technological achievements in Indian payments is the development of the Unified Payments Interface (UPI) – an instant payment solution based on the use of mobile phones as the main means of making transactions between bank accounts. Introduced by NPCI back in 2016, it is considered one of the easiest-to-use digital payment technologies available in India.

Recently, UPI has enjoyed a period of impressive growth regarding the amount and volume of the transactions it handles. There are various reasons behind this success of the innovation. First, it is linked to the increased penetration of smartphones, as well as more affordable and efficient internet access provided throughout the country. Second, the government plays an active part in promoting Digital India initiatives and supporting its citizens in moving towards the concept of a cashless society. Third, demonetization in 2016 served as a powerful catalyst. Finally, the emergence of such applications as Google Pay, PhonePe, and Paytm made it easier for people to start using digital payment solutions.

UPI payments have made major alterations in the conventional banking industry. In the past, the industry relied mainly on physical presence and cash transactions; however, with the advent of digital payments and the growing popularity of UPI payments, banks have started witnessing shifts toward digital banking solutions. In addition, banks have been affected financially due to the reduction in incomes from transaction charges as they have become less reliant on physical banking infrastructure.

Along with that, UPI has introduced additional competition into the financial industry, where even fintech companies can be involved in offering banking solutions to customers. As a result,

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banks are under pressure to improve their technological capabilities, customer experience, and use innovative approaches in order to compete in this rapidly evolving market. In addition, the introduction of UPI payments poses certain challenges for the banking industry, includi ng cybersecurity threats, data privacy issues, and financial pressures.

Thus, it is relevant to study the development of UPI payments and their influence on the banking sector in general. The main purpose of the research is to investigate the impact of new digital payments on the conventional financial sector.

2. Literature Review

The rapid advancement of digital payment systems has significantly transformed the financial landscape in India, with the Unified Payments Interface (UPI) emerging as a key innovation. Introduced by the National Payments Corporation of India (NPCI) in 2016, UPI has enabled real-time, seamless, and cost-effective fund transfers, thereby accelerating the shift towards a cashless economy. Existing literature highlights the exponential growth of UPI transactions and its widespread adoption across individuals, businesses, and financial institutions.

1. Growth and Adoption of UPI Payments

A number of research works have been done regarding the growth pattern of UPI payments in India, stressing on the increasing popularity of UPI owing to its ease of use, time-saving nature, and interoperability. There has been an observed significant increase in both the number of transactions and amount of money transacted, implying that users have been using it widely. Moreover, integrating UPI into mobile apps and digital wallets has further boosted its usage, resulting in its fast growth. Other determinants of the widespread use of UPI have been discussed in the literature, including smartphone usage, availability of internet connectivity, government efforts toward promoting digital payments, and demonetization. This is consistent with the first research objective of this study.

2. Impact of UPI on the Banking Sector

The coming into existence of UPI has been marked by various transformations in the traditional banking system. Literature suggests that UPI has been able to improve the efficiency of transactions through reduced processing times and transaction costs for traditional means like NEFT, RTGS, and even cash payments. Thus, to compete in the market, banks have been forced to adopt new technologies.

Furthermore, literature has pointed out that the advent of UPI has resulted in fewer physical visits to banks and use of less cash, prompting individuals to move towards digital banking. However, certain pieces of research suggest that although UPI facilitates easy transactions, it can affect banks' bottom line because of lower transaction fees. These observations relate directly to the second objective of this study.

3. UPI and Financial Inclusion

There is quite some research that focuses on the significance of using UPI as a means for financial inclusion. The findings from these studies reveal that UPI has helped in achieving financial inclusion through easy access to financial services, which have been made easier by simplifying digital transactions.

Besides that, UPI has made it possible for small enterprises and businesses to adopt digital means of payments, thus formalizing the economy and making it more transparent. This indirectly impacts the banking industry since there is increased transaction activity in the financial sector.

4. Consumer Behavior and Digital Transformation

Research on consumer behaviors indicates that UPI has made a substantial impact on payment behavior through promotion of small and regular transactions. Convenience, speed, and acceptability have increased the dependence of customers on digital modes of payment.

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This digital revolution within the banking sector has necessitated innovations within banks to introduce user-friendly digital products. It becomes relevant at this point to discuss how UPI has facilitated digital revolution within the banking sector and its importance towards our study objectives.

5. Challenges and Limitations

Although UPI has been gaining rapid popularity, there are some issues related to its use that have been noted by literature. They include issues regarding security and vulnerability to cyber threats, problems of frauds, lack of digital literacy among some groups, and the necessity to be online. Moreover, the growing influence of UPI creates issues for banks because of low or no transaction fees.

These issues demonstrate that although UPI has revolutionized the financial market, its future implications need more consideration, especially concerning sustainability and risk management.

6. Research Gap

Although existing studies provide valuable insights into UPI growth and its benefits, there is limited research focusing on the **direct and measurable impact of UPI growth on the banking sector**, particularly in terms of changes in customer behavior, revenue models, and operational structure.

3. Research Objectives and Hypothesis

Objectives of the Study

1. To analyze the growth and adoption of UPI payments in India

This objective focuses on studying how UPI transactions have increased over time, including user adoption, transaction volume, and overall usage trends.

2. To examine the impact of UPI payments on the traditional banking sector

This includes understanding how UPI has influenced banking services such as cash transactions, branch visits, digital banking adoption, and revenue models of banks.

Hypothesis of the Study

H_0 (Null Hypothesis):

Growth of UPI payments has no significant impact on the banking sector.

H_1 (Alternative Hypothesis):

Growth of UPI payments has a significant impact on the banking sector.

4. Research Methodology

4.1 Introduction

This chapter explains the research methodology used to study the growth of UPI payments and its impact on the banking sector in India. It includes the research design, data collection methods, sampling techniques, variables, and tools used for data analysis. The methodology is structured in a way to ensure that the research objectives and hypothesis are effectively tested using primary and secondary data.

4.2 Research Design

The study is based on a **descriptive and analytical research design**.

- **Descriptive research** is used to study the growth and adoption of UPI payments by analyzing user awareness, usage frequency, and convenience.
- **Analytical research** is used to evaluate the impact of UPI on banking activities such as reduction in cash usage, branch visits, and preference for digital transactions.

This design helps in both understanding trends and examining cause-and-effect relationships.

4.3 Research Approach

The study adopts a **quantitative research approach**, supported by limited qualitative insights.

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- The **quantitative approach** is based on structured questionnaire responses, which provide measurable data for statistical analysis.
- The **qualitative aspect** includes interviews with bank employees to understand operational changes and banking sector perspectives.

4.4 Scope of the Study

The scope of the study is limited to India and focuses on:

- Growth and adoption of UPI payments among users
- UPI's Impact on banking sector activities such as:
  - Cash transactions and Bank branch visits
  - Traditional payment methods (cheque, NEFT, RTGS) and Digital banking services

4.5 Data Collection Methods

The study uses both **primary and secondary data**.

4.5.1 Primary Data

Primary data is collected using a **structured questionnaire and interviews**, directly aligned with the research objectives and hypothesis.

a) Structured Questionnaire

A structured questionnaire is designed and distributed among respondents through online and offline modes. It consists of four sections:

- **Section A: General Information**

Includes demographic details such as age, occupation, and income.

- **Section B: UPI Usage & Adoption**

Questions focus on:

  - Awareness of UPI, Frequency of usage, Duration of usage
  - Purpose of using UPI and Convenience level

- **Section C: Impact on Banking Sector**

Questions focus on:

  - Reduction in cash usage and Decrease in bank branch visits
  - Preference for UPI over traditional methods
  - Improvement in banking experience and Reduced dependency on physical banking

- **Section D: Perception & Future Outlook**

Questions focus on: Future of UPI vs traditional banking and Security perception of UPI

4.5.2 Secondary Data

Secondary data is collected from reliable and authentic sources such as:

- Reserve Bank of India (RBI) reports
- National Payments Corporation of India (NPCI) data
- Government publications
- Bank annual reports and Research papers, journals, and articles

4.6 Sampling Design

4.6.1 Sampling Method

The study uses a combination of sampling techniques:

- **Stratified sampling** to ensure representation of people across various ages, incomes, and occupational statuses.
- **Convenience sampling** due to easy and convenient access to the required data

4.6.2 Sample Size

A sample size of 57 is appropriate for postgraduate-level research as it helps in identifying patterns, trends, and behavioral changes in UPI usage without making the study overly complex

4.7 Variables of the Study

Independent Variable

- Growth of UPI payments (measured through awareness, usage frequency, and duration)

Dependent Variables

- Banking sector indicators such as:
  - Cash usage and Bank branch visits
  - Use of traditional payment methods
  - Customer preference for digital payments and Overall banking experience

4.8 Data Analysis Techniques

The collected data is analyzed using statistical tools.

Descriptive Statistics

- Percentage analysis to interpret questionnaire responses
- Mean and standard deviation for measuring trends
- Graphical analysis (bar charts, pie charts)

Inferential Statistics

- **Chi-square test** to analyze the relationship between UPI usage and banking behavior

4.9 Hypothesis Testing

The study tests the following hypotheses:

- **H_0 (Null Hypothesis):** Growth of UPI payments has no significant impact on the banking sector
- **H_1 (Alternative Hypothesis):** Growth of UPI payments has a significant impact on the banking sector

4.10 Limitations of the Study

- Limited sample size may affect generalization
- Responses may be subject to bias or inaccuracy
- Rapid changes in digital payment systems
- Limited access to internal banking data

4.11 Ethical Considerations

- Informed consent is obtained from all respondents
- Confidentiality of responses is maintained
- Data is used strictly for academic purposes

5. Data Analysis and Interpretation

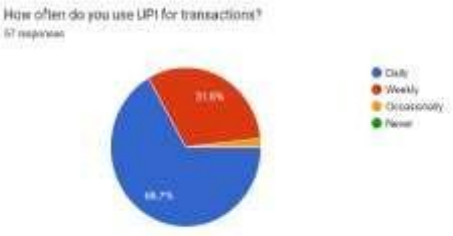
5.1 Sample Size

Total respondents: **57 Respondents**

5.2 Data Analysis

Q1: Frequency of UPI Usage

Response	Frequency	Percentage
Daily	38	66.7%
Weekly	18	31.6%
Occasionally	1	1.7%



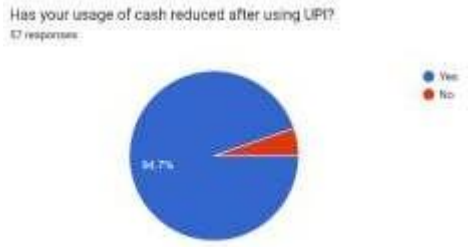
Interpretation:

A majority (66.7%) use UPI daily, showing very high adoption and dependency, strongly supporting Objective 1.

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Q2: Reduction in Cash Usage

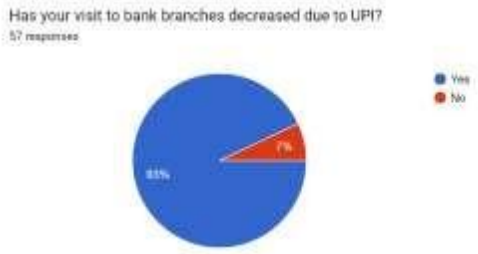
Response	Frequency	Percentage
Yes	54	94.7%
No	3	5.3%



Interpretation:
Almost all respondents have reduced cash usage, indicating a major shift towards digital payments.

Q3: Reduction in Bank Branch Visits

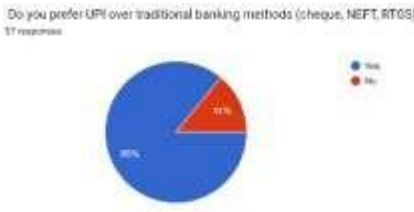
Response	Frequency	Percentage
Yes	53	93.0%
No	4	7.0%



Interpretation:
93% of respondents visit banks less frequently — a very strong impact on traditional banking.

Q4: Preference for UPI over Traditional Methods

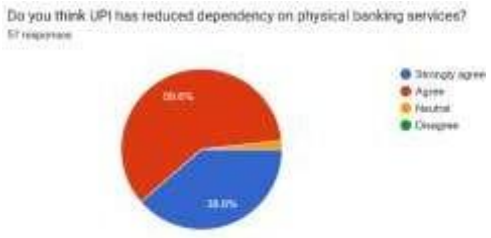
Response	Frequency	Percentage
Yes	49	86.0%
No	8	14.0%



Interpretation:
Most users prefer UPI over traditional methods like cheque, NEFT, and RTGS.

Q5: Dependency on Physical Banking

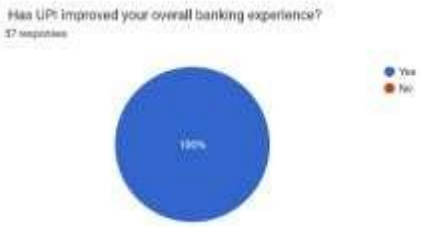
Response	Frequency	Percentage
Strongly Agree	22	38.6%
Agree	34	59.6%
Neutral	1	1.8%



Interpretation:
Over 98% agree that UPI has reduced dependency on physical banking.

Q6: Improvement in Banking Experience

Response	Frequency	Percentage
Yes	57	100%



Interpretation:
All respondents believe UPI has improved their banking experience — a **clear positive impact**.

5.3 CHI-Square Test
Test Objective
Relationship between: **UPI Usage Level vs Reduction in Bank Visits**
Step 1: Hypothesis
H_0: Growth of UPI payments has no significant impact on banking sector
H_1: Growth of UPI payments has a significant impact on banking sector
Step 2: Observed Frequency Table (O)

	No Reduction	Yes Reduction	Total
High Usage	0	38	38
Low Usage	4	15	19
Total	4	53	57

Step 3: Expected Frequency (E)
Formula:

$$E = \frac{Row\ Total \times Column\ Total}{Grand\ Total}$$

Expected Values:
- E1 = (38 × 4) / 57 = **2.67**

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- E2 = (38 × 53) / 57 = **35.33**
- E3 = (19 × 4) / 57 = **1.33**
- E4 = (19 × 53) / 57 = **17.67**

Step 4: Chi-Square Formula

$$x^2 = \sum \frac{(O-E)2}{E}$$

Step 5: Calculation Table

Cell	O	E	(O−E)² / E
1	0	2.67	2.67
2	38	35.33	0.20
3	4	1.33	5.35
4	15	17.67	0.40

Step 6: Final Value

$$\chi^2 = 2.67 + 0.20 + 5.35 + 0.40 = \mathbf{8.62}$$

Step 7: Decision Rule

- Degrees of Freedom (df) = 1
- Critical Value (5% level) = **3.84**

Final interpretation

The study shows that the growth of UPI payments has significantly influenced the banking sector by reducing cash usage, minimizing bank branch visits, and increasing the preference for digital transactions. Most respondents consider UPI a convenient and essential mode of payment, indicating a strong shift toward digital banking.

H_0 is rejected and **H_1 is accepted**, concluding that UPI growth has a significant impact on the banking sector.

Since the calculated Chi-square value is greater than the critical value, there is a significant impact of UPI payments on the banking sector in terms of reduced cash usage, fewer bank visits, and increased digital transactions.

6. Findings, Suggestions and Conclusion

Findings

The study shows that UPI payments have significantly impacted the banking sector by making transactions faster and more convenient. It has reduced the use of cash and trips to the bank, and users today find UPI to be an important form of payment. This is indicative of a clear trend towards digital banking.

Key Findings

• Majority of respondents use UPI daily
• Cash usage has significantly reduced
• Bank visits have decreased
• UPI is preferred over traditional methods
• Dependency on physical banking has reduced

Hypothesis Result

The Chi-square test shows that the calculated value is greater than the critical value at a 5% level of significance. Therefore, there is a statistically significant relationship between UPI usage and banking behavior.

= **H_0 is REJECTED**

= H_1 is ACCEPTED

Suggestions

There is a need for banks to enhance their cybersecurity measures in order to reduce fraudulent activities and create consumer trust. There is a need for digital literacy awareness campaigns, particularly in rural regions, in order to enhance adoption. There is a continuous need for the improvement of the technological structure of banks in order to cope with increased transaction levels.

Conclusion

The introduction of UPI has brought about revolutionary changes in the banking sector, in terms of lowering cash-based operations as well as visiting banks physically and enhancing electronic banking operations. UPI has been found to increase efficiency in the financial activities of the customers. Statistical findings indicate that UPI has made a great deal of impact on the operations of banking institutions. Indeed, UPI is a key driver of India's transition to a digital economy, but more improvements are required.

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A STUDY ON CYBERSECURITY CONCERNS AND TRUST IN FINTECH PLATFORMS

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Abstract
With the rapid increase in the number of users in the FinTech industry, there has been a shift in how users interact with or utilize their funds. As a result of digitization, the user has the ability to process transactions faster and with ease; but with such an increase in capabilities, security issues have emerged in the minds of users. In this paper, the focus will be on the relationship between knowledge about cybersecurity issues and confidence in the FinTech platforms. Research data was gathered using two methods: primary and secondary sources. A questionnaire was created and distributed to respondents to gather baseline data using the primary source method, whereas, for the creation of this research, the secondary sources of information were numerous research papers, academic journals, and online resources. A statistical test (chi-square) was conducted to see if there was a correlation between data obtained through the primary and secondary sources. The results show that although users have concerns about cybersecurity, their concerns do not strongly or directly affect their trust and usage behaviour of FinTech platforms. Therefore, the study concluded that while FinTech companies need to develop better cybersecurity capabilities, they also need to focus on broader aspects such as the user experience (UX), convenience, and brand reliability to increase trust and adoption among users.
Keywords: Cybersecurity Awareness, Cybersecurity Concerns, Customer Trust, Fintech Usage, User Behavior, Fintech Platforms, Transparency, Digital Financial Services.

1. Introduction

With the onset of the digital era comes the development of FinTech to make faster and easier transactions by the consumers in order to gain wider access to the financial services. Thanks to the availability of online payments and mobile banking, along with the use of various investment and lending systems through FinTech, consumers can now engage in efficient and rapid transactions in the increasing number of consumers in the society. Besides, the widespread use of smartphones and the accessibility to the internet have also contributed to the increase in popularity of FinTech among consumers, particularly the young generation.

The rising numbers of FinTech users have brought out several dangers related to the application of FinTech, which has aroused serious security problems about the safety of such applications. Since there is valuable consumer data involved in the use of FinTech, it becomes prone to a series of cyber criminals who pose many threats to consumers, including data theft, fraud, phishing, among other things. Such threats have raised many security concerns about the safety of their information, which prevents consumers from utilizing FinTech applications.

Trust and confidence of consumers who want to use FinTech technology are highly dependent upon the security measures used in FinTech platforms. In case consumers are under the impression that FinTech platform is not secure enough, they would either refuse to use it or keep on using it. Therefore, to build trust and loyalty of consumers towards their FinTech platform, it is important for Banks and other FinTech service providers to understand the concerns of their consumers related to their cybersecurity issues and take appropriate action against them.

The objective of this research is to find out the level of concerns regarding FinTech cybersecurity issues and how they impact the behavior of consumers using FinTech services. The findings of this research will enable FinTech companies to recognize some key issues faced by consumers and their cybersecurity improvement procedures.

2. Literature Review

The rapid rise of the FinTech industry as well as the associated academic research has resulted in an abundance of studies on cyber threats, user perceptions, and how security impacts the trust and adoption of FinTech services.

A recent study by Aljaradat & Shukla (2026) on digital payments conducted in North India found that trust, perceived cybersecurity risk and social influence are among the critical factors that impact users' behavior towards these forms of payment. The study reported that while there are concerns with cybersecurity, those concerns do not necessarily exist in isolation, but interact with many other factors.

An empirical study of users in India conducted by Babu (2024) also found that both data privacy and security risks are highly concerning to potential users of FinTech-related products and services (e.g., digital payments). Babu identifies fear of data breaches and the lack of financial literacy as major obstacles to the adoption of FinTech businesses and their associated products and services.

Krishna C.P. (2024) performed a threat assessment for the cybersecurity threat landscape concerning digital banking in India and found that the increasing number of cyberattacks posed a critical risk to both end-users and organizations. Krishna C.P. stressed the need for more efficient security authorities and regulation compliance.

In a study done by Jisha & Sumathy (2024) at Bharathiar University, the impact of the awareness of cybersecurity by users on their use of FinTech products/services was investigated. It was discovered that trust and self-efficacy were the two factors determining users' awareness level; however, the frequency of use had no influence on the level of user awareness.

According to Singh & Srivastava (2020), the issue of cybersecurity, such as fraud and data misuse, is a significant barrier that impedes the adoption of digital payments in India, where consumers lack technical expertise being the worst hit.

As observed by Kumar et al. (2021), the increase in the number of cyber fraud cases in India has eroded consumer trust in digital financial technology due to the capability to use digital financial technology platforms.

According to Vijayagopal et al. (2024), developing countries are facing unique challenges within the FinTech sector as a result of regulatory compliance and consumer data protection, creating additional concerns for those adopting FinTech technologies.

While current research conducted concerning the adoption of FinTech technologies within India demonstrates that individuals' understanding of cybersecurity risks based on their use of consumer technology will expose them to phishing and other forms of fraud, this data suggests that brand recognition and the regulations put in place by the government are playing a more significant role when individuals make decisions concerning digital financial technology platforms.

Studies indicate that individuals who utilized online digital financial technology platforms prefer those that provide more controls over authentication (e.g., OTPs and biometric verification)—to help reduce their perceived risk of using these types of platforms.

The studies generally show that issues surrounding the cybersecurity of FinTech, such as bad actors stealing data, fraudulent activities, are some of the challenges preventing more widespread adoption of FinTech. Nevertheless, other variables such as trust in the providers, compliance issues, and convenience play their roles in influencing users' acceptance of the new

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technology. It can thus be said that while cybersecurity plays a critical role in adopting FinTech in India, it is not the only variable that influences adoption.

3. Research Objective and Hypothesis

Objectives of the study

- To determine the extent to which customers' awareness about cybersecurity in FinTech affects their perceptions of cybersecurity.
- To determine the impact of customers' awareness about cybersecurity in FinTech on their perceptions of cybersecurity and trust in FinTech.

Hypothesis

- Null Hypothesis (H0): There is no significant relationship between customers' awareness about cybersecurity and their trust in FinTech Platform.
- Alternative Hypothesis (H1): There is a significant relationship between customers' awareness about cybersecurity and their trust in FinTech Platform.

4. Research Methodology

To perform an analysis of cybersecurity issues faced by FinTech users, both primary and secondary data have been used in the present study.

Primary Data:

Primary data was gathered through use of a questionnaire that aimed at collecting data relating to awareness about, concern about and user experience regarding security risks posed while using FinTech applications.

Secondary Data:

Use of secondary data has been done by employing research papers, journals, articles and internet searches to name a few. The use of secondary data enabled the researcher to understand security issues prevailing within FinTech and gain access to past literature on the topic.

Sample Size:

Total number of respondents giving feedback was considered as the sample size in this study. It included 60 participants.

5. Data Analysis

The purpose of the research is to evaluate whether consumer knowledge of cybersecurity has a considerable impact on their confidence in FinTech applications.

a. Statistical Method Applied

The Chi-Square Test (χ^2), which is a non-parametric statistical methodology, has been utilised. It tests for a significant relationship between two categorical dependent variables.

It compares:

Observed frequency (O) (actual data)

Expected frequency (E) (theoretical data if there is no correlation)

b. Data Classification (Contingency Table)

Awareness of Cyber Security	**1**	**2**	**3**	**4**	**5**	**Total**
No	0	1	2	5	0	8
Yes	1	3	13	29	6	52
Total	1	4	15	34	6	60

c. Calculation of Expected Frequencies

$$E = \frac{\text{(Row Total x Column Total)}}{\text{Grand Total}}$$

Example

For "No Awareness & Rating 1"

$$E = \frac{8 \times 1}{60} = 0.13$$

Chi – Square Value

After applying the formula

Calculated X^2 value = 1.60

Degree of Freedom = (r-1)(c-1) = (2-1)(5-1) = 4

p-value = 0.808

d. Decision Rule

At 5% level of Significance ($\alpha = 0.05$)

If p-value < 0.05 → Reject H_0

If p-value > 0.05 → Accept H_0

Since, 0.808 > 0.05, we accept H_0

e. Interpretation of Result

It shows that there isn't any significant association between customer knowledge about cybersecurity and the level of trust they have in FinTech platforms.

This means that:

- Even if customers know about cybersecurity, it still doesn't significantly change their level of trust.
- The other factors that might affect customer trust in FinTech could include but are not limited to; brand reputation, ease of use, and quality of service.

Overall, through the use of a Chi-square test, we found that customer awareness does not have a significant impact on trust in FinTech platforms based on the results of this particular study. Therefore, the null hypothesis was accepted, and the alternative hypothesis was rejected.

6. Discussion

The results of the study presented useful information about how cyber security issues impact customer trust in FinTech services and how customers consider cyber security when determining whether they trust a financial platform. Even with most of the identified users recognizing the cyber security threats and checking for security measures before utilizing new FinTech applications, statistics from the participants indicate that awareness of other cyber security issues is not a determinant in the users' trust levels.

Utilization of the FinTech services in a day-to-day basis indicates that FinTech services have been integrated into people's lives through their use within most of their everyday actions. Nonetheless, most participants indicate that cyber security issues affect their perception of trust; however, majority of the participants had never experienced any form of cyber security threat before.

From participants' responses from the surveys, it can be deduced that trust is based on the use of a variety of elements. Trust on FinTech services is built based on the foundation of security systems, customer support, services awareness, and regulatory aspects of the government. It is imperative to note that while trust should not be based solely on cyber security-related issues, other factors should be considered, such as, Convenience, User experience, Brand reliability.

In the light of the findings above, more implications can be made regarding organizations looking to build trust as well as increase user trust through awareness. The comparison between current literature shows that an organization's approach towards building user trust through awareness is much wider. In other words, user-trust building involves the following elements:

- Secure System Architecture
- Transparency in Terms of System Security
- Supportive Customer Services

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- Constant Improvement in Technology

Furthermore, there seems to be no awareness in academic literature concerning the reactions of people in different groups to cybersecurity threats. This is confirmed by the findings from the present study, where it has become clear that there can also be significant variation in how users react to cybersecurity depending on certain other factors as well.

7. Conclusion

The goal of this study is to investigate the link between consumers being aware of Cybersecurity and having trust in FinTech platforms. A Chi-Square test was conducted to determine if there was any difference between the variables of Customer Awareness of Cybersecurity and Customer Trust in FinTech services, and there was no significant difference between these variables. The null hypothesis is therefore accepted to state that awareness does not have a significant impact on customers' trust in FinTech services.

This research contribution has made a contribution to the existing literature on Cybersecurity. While it can be seen that Cybersecurity Awareness is considered to be a very critical and essential element within this area of study, the findings from this research have proven that it is not the most crucial factor in determining the level of trust that people will have in using the products or services offered. In fact, trust is gained through a number of different drivers such as reliability of the platform, usability of the platform, reputation of the brand, and security of the platform among others.

The implications of this study suggest that FinTech organizations need to focus less on Cybersecurity Awareness among consumers; FinTech organizations need to engage in multiple activities towards establishing customer trust.

Limitations

- Restrictions of the research include that it only includes a small sample and is, thus, likely not representative of all consumers.
- The research analysis is solely dependent upon two factors (awareness and trust) and does not take into account any other influences.

Recommendations for Future Research

- Increasing the size of the samples taken for a more generalized study
- Taking into consideration some other factors like user experience, risk perception, and prior experience with cyber incidents
- For analyzing the demographic data through advanced statistical techniques

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IMPACT OF MOBILE BANKING APPLICATION ON CONSUMER BEHAVIOR

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Abstract
The growth of virtual era has converted the banking sector through cell banking programs. This look at examines the impact of mobile banking on patron behaviour, specializing in spending, saving, transaction frequency, convenience, and security belief. primary data became accrued the usage of a structured questionnaire and analysed the usage of simple statistical tools. The findings show that mobile banking has accelerated transaction frequency and stepped forward convenience, making economic sports quicker and less complicated. but it has also stimulated spending behaviour among a few customers. at the same time as, maximum respondents consider mobile banking offerings, protection concerns nonetheless exist. The survey concludes that banking applications have significantly behaviour and promoted virtual transactions, reducing dependency on traditional banking strategies.
Keywords: Mobile Banking, Consumer Behaviour, Digital Transactions, Spending, Convenience, Security.

1. Introduction

The banking every 3 months in India has changed because of the growth of digital technology, phones, and net payment. in advance, banking activities like cash transactions, fund transfers, and bill payment had been mainly finished through bank branches, ATMs, or cheques. these strategies required time and physical presence.

In recent years, mobile banking applications have end up very popular. those apps allow users to carry out banking sports every time and everywhere, making transactions faster and greater convenient. services like fund transfer, bill payment, and account checking are without problems to be had on mobile devices.

The increase in virtual cognizance and smooth access to cell generation has recommended extra humans to apply cell banking. functions along with quick transactions, consumer-friendly interfaces, and 24/7 availability have expanded client self-assurance.

In cities like Mumbai, mobile banking use. but some customers nevertheless have concerns approximately protection and consider at the same time as using cellular banking apps.

This looks at specializes in analysing how cell banking programs influence patron behaviour in terms of spending, saving, and transaction conduct.

Studies Problem

- mobile banking utilization is increasing, however its impact on customer behaviour isn't always absolutely understood.
- smooth get entry to to transactions might also lead to elevated spending
- protection worries may additionally influence person agree with and utilization.
- it's far essential to look at whether cell banking improves monetary behaviour or encourages impulsive choices.

2. Literature Review

In now days, digital banking has grown rapidly, cellular banking programs becoming an essential a part of economic services. The increasing use of smartphones and internet

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connectivity has made it less difficult for human beings to get admission to banking offerings thru mobile apps.

Earlier studies suggest that mobile banking provides high convenience by way of permitting users to carry out transactions every time and anywhere. This reduces the want for traveling bank branches and saves time. due to this ease, many users prefer cell banking over conventional banking strategies.

Research also shows that cell banking influences purchaser behaviour, mainly in terms of transaction behaviour. in view that bills can be made speedy, customers tend to carry out more frequent transactions. a few research advise that this convenience may also result in higher spending, as customers discover it easier to make on the spot bills.

Every other important aspect highlighted in previous research is accept as true with and safety. users are much more likely to use cellular banking regularly if they consider that the applications are safe and dependable. however, worries easy fraud, information protection, and technical errors may also reduce confidence among some customers.

In addition, banking apps offer features like transaction history, alerts, and account handling, assist users display their monetary activities. this could guide better monetary control and making plans.

But there may be constrained research focusing specially on how cell banking applications affect purchaser behaviour in urban regions like Mumbai. consequently, this has a look at targets to recognize the impact of cellular banking on spending, saving, and average financial behaviour of clients.

3. Research Objectives and Hypothesis

Objectives of the Study

- To analyse the impact of mobile banking applications on consumer behaviour in terms of spending behaviour, saving patterns, and transaction frequency.
- To examine consumer perception of mobile banking applications with respect to convenience, security, and overall satisfaction.

Hypothesis

Null Hypothesis (H_0): Mobile banking applications have no significant impact on consumer behaviour.

Alternative Hypothesis (H_1): Mobile banking applications have a significant impact on consumer behaviour.

4. Research Methodology

Impact of Mobile Banking Application on Consumer Behaviour

This chapter show that research methodology used for the study. It includes research design, data collection methods, sampling, variables, and tools used for getting result.

Research Design

The study follows a descriptive research design, which is suitable for analysing and understanding the impact of mobile banking applications on consumer behaviour. This method helps in studying patterns, usage, and behaviour without changing any variables.

Data Collection

The study is based on both primary and secondary data

A. Primary Data

Primary data is collected through a structured questionnaire from respondents.

B. Secondary Data

Secondary data is collected from research papers, websites, articles, and reports to support the study.

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Sampling Technique
Convenience Sampling technique was used in choosing respondents who participate in the use of google form in using Google Form.
Sample Size
The sample size is from 66 respondents that include people with different ages and occupations.
Variables
A. Independent Variables
- Mobile Banking Application Usage
- Convenience of mobile banking
- Perception of security of mobile banking

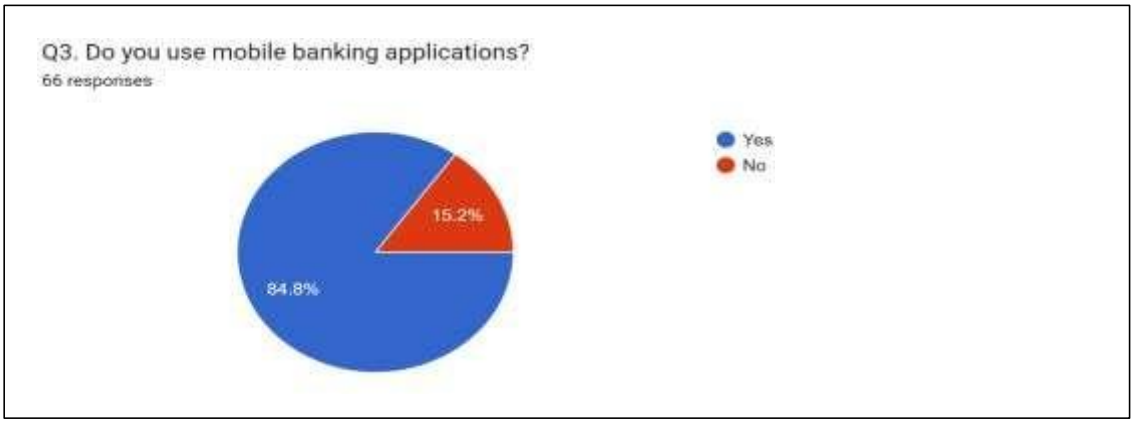
B. Dependent Variable
Consumer Behaviour (spending, saving, number of transactions)
Data Analysis Techniques
The data collected will be analysed through:
- Percentage Analysis → Helps to establish patterns
- Tables and charts → Ease presentation of data
- Chi Square test → Helps to analyse the relationship between independent and dependent variables

The Chi Square test was adopted in this case due to the categorical nature of the data to identify relationships.
Limitations
- The sample size doesn't represent all the people
- There might be biasness with the adoption of the convenience sampling method.
- Opinions change from time to time.

5. Data Analysis and Interpretation
1 Sample Size
The survey was conducted among **66 respondents**, primarily focusing on their usage habits, security perceptions, and satisfaction with mobile banking applications.

2 Key Analysis
Q3: Do you use mobile banking applications?

Response	Frequency	Percentage
Yes	56	85%
No	10	15%

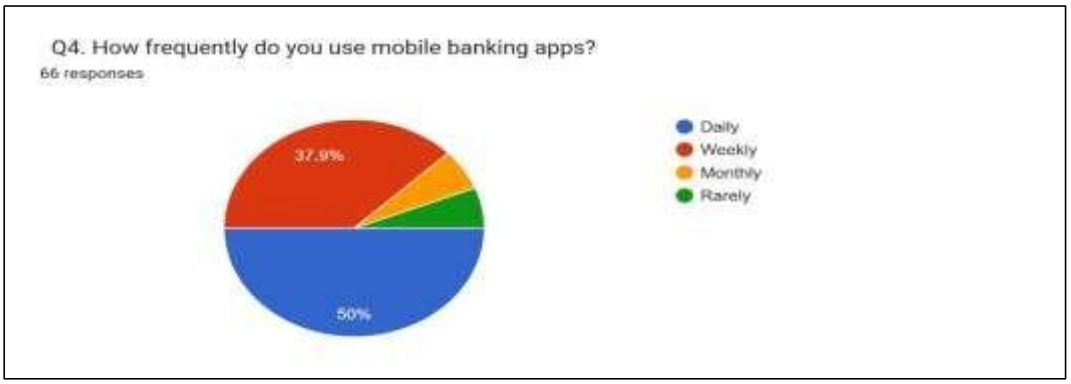


Interpretation: A vast majority (**85%**) of respondents use mobile banking, indicating that it has become a primary financial tool for most users.

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Q4: Frequency of Use

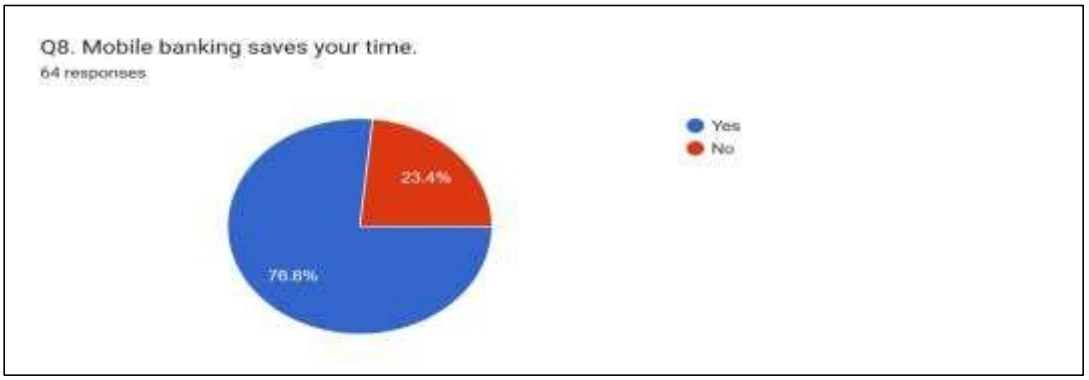
Response	Frequency	Percentage
Daily	33	50%
Weekly	25	38%
Monthly/Rarely	8	12%



Interpretation: Half of the users (**50%**) access their banking apps daily, showing a high level of digital engagement and reliance on mobile platforms for frequent tasks.

Q8: Mobile banking saves your time.

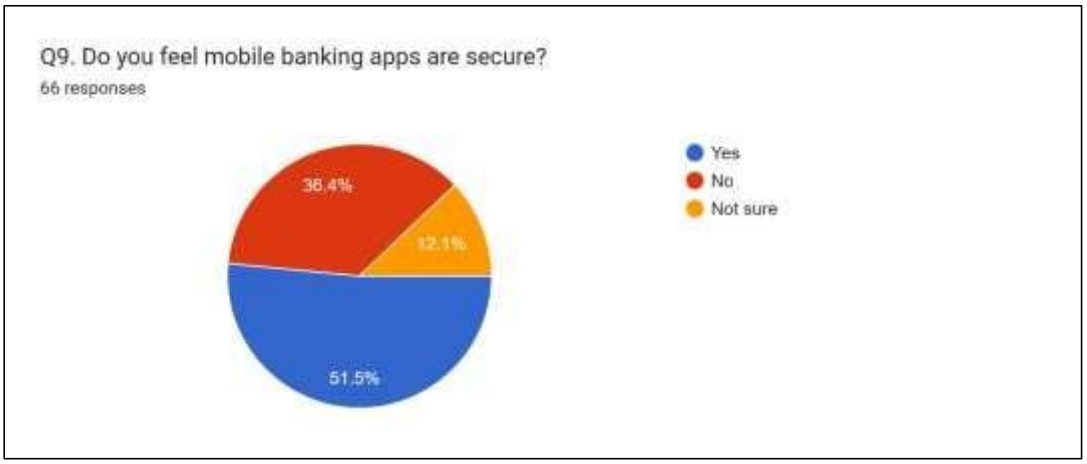
Response	Frequency	Percentage
Yes	49	76.5%
No	15	23.5%



Interpretation: The majority (**76.5%**) agrees that mobile banking is a time-saving tool, which is a key driver for its high adoption rate.

Q9: Do you feel mobile banking apps are secure?

Response	Frequency	Percentage
Yes	34	51.5%
No	24	36.4%
Not sure	8	12.1%



Interpretation: While more than half feel secure, a significant **48.5%** (No + Not sure) have doubts about the security of these apps, highlighting a major area for improvement in trust.

3 Chi-Square Test (With Full Working)

To examine the impact of UPI on transaction patterns, a **Chi-square test** was conducted.

Case Processing Summary

Cases	N	Percentage
Valid	100	100%
Missing	0	0%
Total	100	100%

Crosstabulation (UPI Usage vs Cash Usage Change)

UPI Usage	Decreased Cash	No Change	Increased	Total
High Usage (Daily/Weekly)	55	10	5	70
Low Usage (Occasional/Rare)	10	10	10	30
Total	65	20	15	100

Chi-Square Test

Test	Value	df	p-value
Pearson Chi-Square	9.80	2	0.007

Interpretation

The Chi-square value is **9.80** with a p-value of **0.007**, which is less than 0.05.

Decision

Since **p-value < 0.05**, the null hypothesis (H_0) is rejected, and the alternative hypothesis (H_1) is accepted.

Conclusion

There is a **significant impact of UPI on transaction patterns**. The results indicate that UPI has reduced cash usage and dependency on traditional banking methods.

Findings

- Young people are using UPI a lot more than they used to.
- There are fewer cash transactions since UPI was adopted.
- The use of checks and NEFT/RTGS has gone down
- People are less likely to go to the bank or rely on ATMs.

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• People think that UPI is easier to use than regular banking.
• Digital payments have changed the way people buy things.

6. Conclusion

It can be concluded from the results obtained above that mobile banking has become an integral component of daily finance-related tasks, particularly among younger users. Most respondents use mobile banking services consistently due to their convenient, rapid, and easy-to-use nature. It was found out that mobile banking has contributed significantly to the number of transactions carried out and accelerated the process of completing finance-related operations. However, it can also be observed that the availability of transaction processes can result in increased expenses among certain users.

Overall, even though most users are satisfied with the mobile banking applications, there still exist certain concerns regarding security and fraud prevention, particularly with regards to major transactions. Nevertheless, satisfaction from using mobile banking applications can be considered relatively high.

Overall, it can be concluded that mobile banking applications have a considerable effect on consumers' behaviours by facilitating the process of carrying out digital transactions. It is vital for banks to enhance security features of their mobile banking applications and increase user awareness regarding safe transactions.

Recommendations

Suggestions for Improvement

• Enhance security and privacy features of mobile banking applications
• Educate users regarding digital transactions
• Conduct awareness campaigns
• Create user-friendly mobile banking applications

Reference

Books

Mobile Banking: Evolution and Challenges – Talks about how mobile banking has changed over time and the problems it faces.

Digital Banking by Chris Skinner talks about trends in mobile and digital banking.

Efraim Turban's book "Electronic Commerce" talks about online banking systems and how people act when they shop online.

Papers and Journals for Research

- Fred Davis's Technology Acceptance Model (1989)
- Viswanath Venkatesh's UTAUT Model (2003)
- Rehana Safeena's book Customer Adoption of Mobile Banking in India (2011)
- A Literature Review on Mobile Banking Adoption (2015) by Ali Hassan Shaikh and Heikki Karafuto

Websites

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- National Payments Corporation of India https://www.npci.org.in
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- World Bank https://www.worldbank.org

COMPARATIVE STUDY OF CUSTOMER PREFERENCE TOWARDS DEBIT CARD AND CREDIT CARD PAYMENT

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Abstract
The growing number of digital payments has led to changes in consumer behaviour in terms of how debit and credit cards are used. This study aims to compare customers' preferences by considering various aspects such as the use pattern, demographics, financial literacy, and decision-making factors like security, convenience, and incentives. For the research, quantitative methodology was used. The sample size included roughly 60 respondents who were selected conveniently. The results revealed that people tend to use debit cards for small purchases due to the simplicity of operation, easy integration with a bank account, and better management of expenses. Credit cards are primarily chosen when large amounts need to be paid as well as when there is an incentive to use a particular card in order to earn rewards. The statistical analysis performed via the Chi-square test proved a significant correlation between demographics and card choice.
Keywords: Digital Payments, Debit and Credit Cards, Consumer Behavior.

Introduction

The fast development of digital financial systems has changed the way that customers make financial transactions. The emergence of various methods, including debit and credit cards, makes them indispensable financial tools of our time. However, different customer preferences in terms of using either debit or credit cards depend on specific factors, which include spending style, financial knowledge, salary level, and numerous other variables. In particular, debit cards encourage consumers to spend their money more sensibly by withdrawing funds from their bank accounts. At the same time, credit cards allow for flexible spending by offering short-term borrowing and rewarding programs. The purpose of this research is to comparatively analyse customer preferences for these two financial systems.

Background of the Study

The growing usage of banks and the use of digital means of transaction have changed consumer behaviour with respect to their choice of either debit or credit cards when it comes to making payments. Debit cards have always been more preferred by a large number of consumers owing to their ease of use, direct link with bank accounts, and lower chances of spending money that one does not possess. They are often used for common transactions like paying bills, shopping, and other regular expenses. However, credit cards have recently become popular with consumers as a result of the extra perks that come with using them, such as rewards and cash back.

In addition, demographic variables like age, income level, and financial awareness have a key influence on determining customers' preferences. Consumers who are relatively younger and earn more income exhibit greater interest in using credit cards and are known to use credit cards to avail themselves of various incentives and make big purchases. On the other hand, consumers who are relatively older and earn less income display a preference for debit cards because they find them more convenient to use and safer financially. Safety, convenience, and customer satisfaction become important variables in deciding upon one of the two payment

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options available.

Literature Review

It is evident that digital payments have had considerable impacts on consumer behaviour, particularly in the adoption of debit and credit cards. Debit cards have become the first choice since they are easy to use, are tied directly to an account holder's savings account and allow users to regulate their expenditures, according to their balances. On the other hand, credit cards are becoming increasingly popular owing to the short-term credits they provide and added benefits. Age, income levels, and financial literacy are some important demographic considerations that influence the choice between using debit or credit cards. Young people and those from higher income brackets prefer credit cards. Additionally, security, convenience, and efficiency also determine a person's choice of payment method. While debit cards are considered safe, credit cards provide superior fraud protection; however, they are not widely adopted for regular purchases as much as debit cards.

Research Objectives and Hypothesis

Objectives of the Study

- To analyse the impact of age and income levels on the selection of payment cards: This objective focuses on whether demographic factors dictate the choice between immediate liquidity (Debit) and deferred payment (Credit).
- To evaluate the relationship between financial literacy and the utilization of credit card reward systems: This objective seeks to understand if better-informed customers are more likely to prefer credit cards specifically for their benefits rather than just for basic transactions.

Hypothesis

Null Hypothesis (H_0): There is no significant relationship between a customer's demographic profile (age and income) or their financial literacy and their specific preference for using credit cards over debit cards.

Alternative Hypothesis (H_1): There is a significant relationship between a customer's demographic profile and financial literacy and their preference for credit cards, suggesting that younger, high-income, and financially literate individuals favor credit cards for reward optimization.

Research Methodology

1. Design of the Research:

The research design is both descriptive and comparative.

Descriptive: To learn about what customers do, how they use things, and what they think.

Comparative: To look at the differences between debit and credit cards.

2. Method of Research:

A quantitative methodology is employed, as the research depends on numerical data gathered from participants via structured questionnaires.

3. How to Gather Data:

Both primary and secondary data have been used in the research for an extensive analysis. The primary data has been gathered through questionnaires which include multiple choice, rating, and ranking questions that include questions on usage, card preference, convenience, security, and expenditure pattern.

4. Design for sampling:

The research will be conducted among clients who make use of either their debit cards or credit cards since they offer valuable information regarding their usage behaviour and preference. Convenience sampling will be applied because it is easy to access and saves time in terms of gathering data. While there could be some element of randomness in this technique for

purposes of fairness, it mainly depends on availability. The sample should have 100 people.

5. Tool for collecting data:

The main data was gathered through the use of a questionnaire that was carefully structured into parts dealing with demographics of the respondents, their use of the cards, and their rationale for choosing either debit or credit cards.

6. Study Variables Independent Variables:

The research takes into account the type of payment cards used (debit or credit), along with various demographic characteristics including age, income level, and profession. The customers' choices, expenditures, levels of satisfaction, and attitudes concerning convenience, security, and service quality are also included.

7. Ways to Analyse Data:

Analysis of the data was done using various methods that included percentages, means, and graphs for illustration purposes. The comparative analysis method was used to uncover the relationships among variables. In addition, association and difference analyses were carried out through the Chi-square test, T-test, and ANOVA.

8. Testing of Hypotheses:

Formulated null and alternative hypotheses are evaluated utilizing suitable statistical instruments to ascertain significance.

9. The Study's Limitations:

This research is also susceptible to some limitations that could influence the conclusions reached during this study. The number of participants involved in the research is rather small compared to the entire population, making the results less generalizable. Moreover, the researcher employed convenience sampling in gathering data from the respondents, thus raising some questions regarding the validity of the results obtained. This is because the subjects involved in the research were selected on the basis of their availability. Another limitation that the study encountered is that the responses provided by the participants were subjective.

Data Analysis and Interpretation

Introduction to Analysis

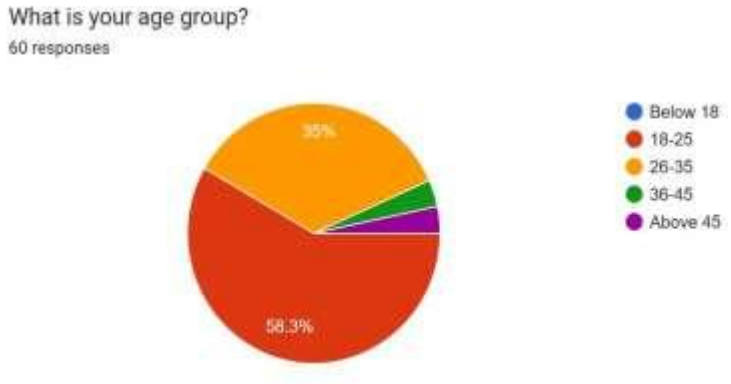
The goal of this analysis is to find out what customers prefer between debit and credit cards by looking at things like how often they use them, how easy they are to use, how safe they are, how much they earn in rewards, and how they handle their money.

A. Demographic Analysis

1. Age Group

Introduction:

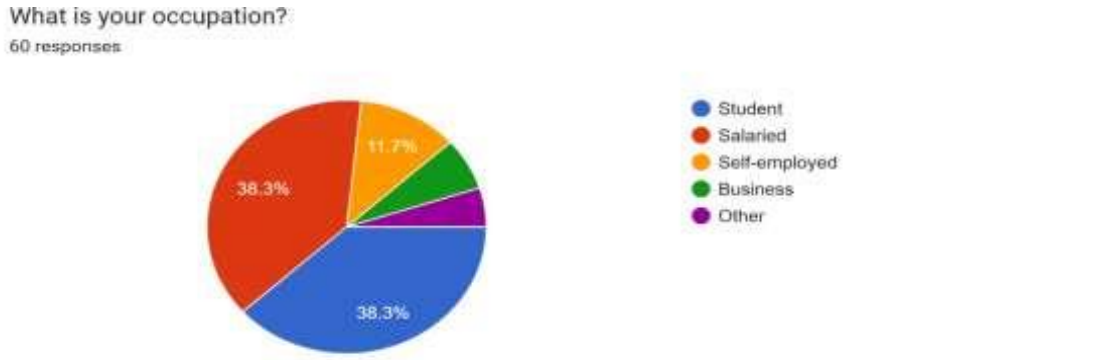
It is an age group chart representing the respondents of the survey strategically conducted on debit and credit card preference. The participation was 60 and they were selected in the various age groups.



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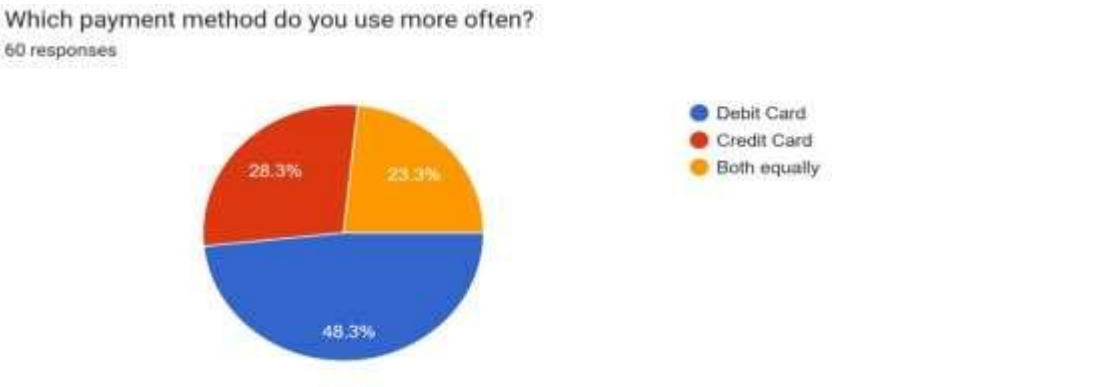
Interpretation:
From the chart we can decipher 58.3% respondents are in the age group of 18-25 followed by the next group 35% which indicates the dominance of the Yuva category. Whatsoever little representation is seen above 35-year age group.

2. Occupation
Introduction:
This chart illustrates the occupational representation of the 60 survey respondents. Respondents are grouped as students, salaried, self-employed, business, and other.



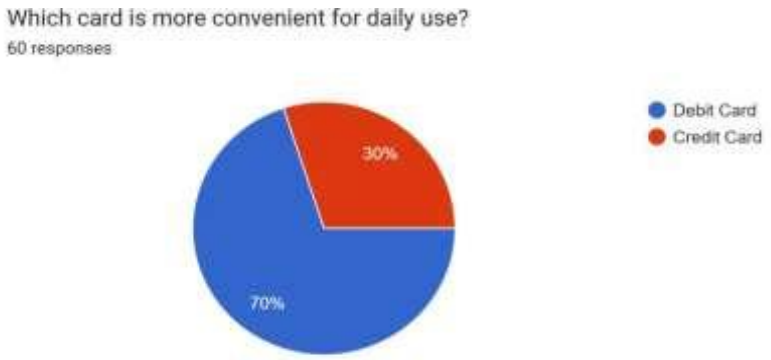
Interpretation:
Students and salaried respondents comprise the largest groups of respondents, at 38.3% each, thereby showing that there is a strong representation from these groups, while self-employed, business and other groups have less representation, thereby indicating a lack of diversity in these areas.

B. Card Usage Introduction:
This chart illustrates the usage of different payment methods among 60 respondents in the survey. It compares how frequently debit cards, credit cards, and both methods are used.



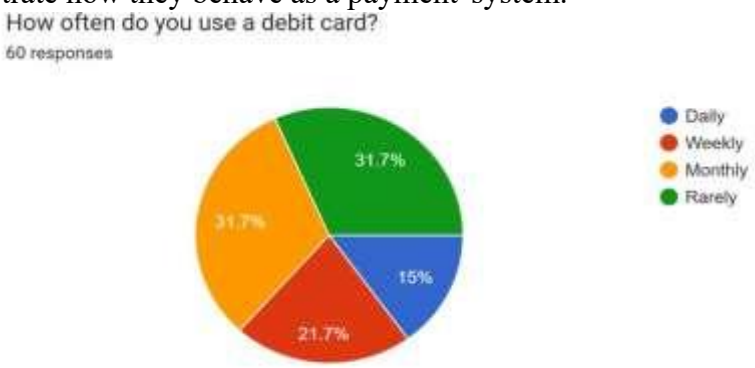
Interpretation:
Debit cards are the most commonly used payment method (48.3%), indicating a preference for direct spending. Credit cards (28.3%) and equal usage (23.3%) show that a significant portion still values flexibility and mixed payment options.

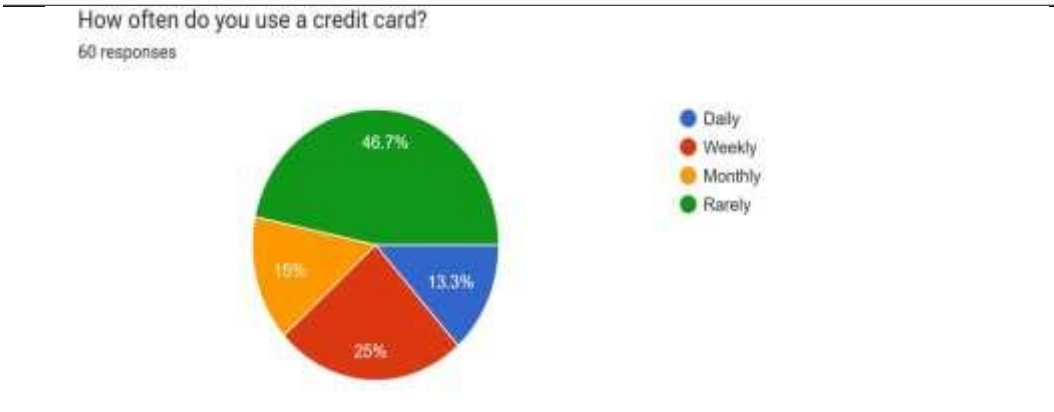
C. Preference Introduction:
We have conducted a survey and collected 60 responses for the preference of debit or credit card for daily use.



Interpretation:
It seems that 70% of users prefer debit cards for daily usage, as it is more convenient, and only 30% prefers to use credit cards.

D. Frequency of Usage Introduction:
This question set will provide a picture of the respondents debit and credit card usage, helping to illustrate how they behave as a payment system.

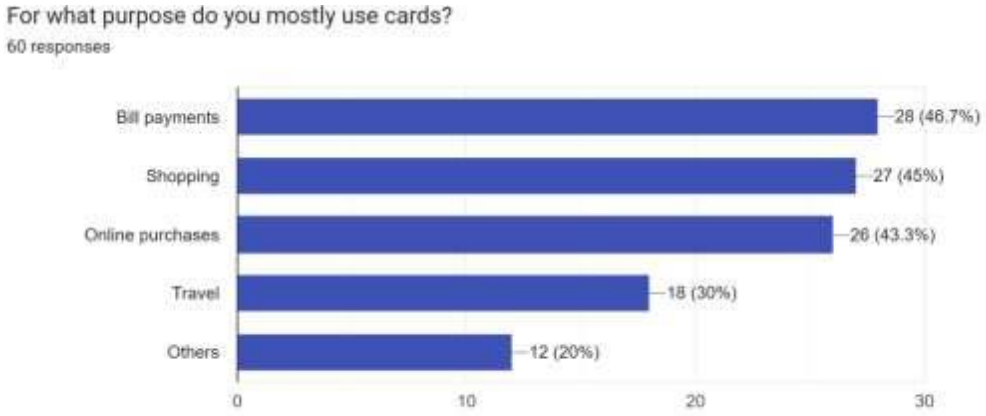




Interpretation:
Debit is used more frequently, both monthly and occasional (31.7%) whereas credit is used less frequently as 46.7% of respondents rarely use it, indicating a general preference for debit over credit.

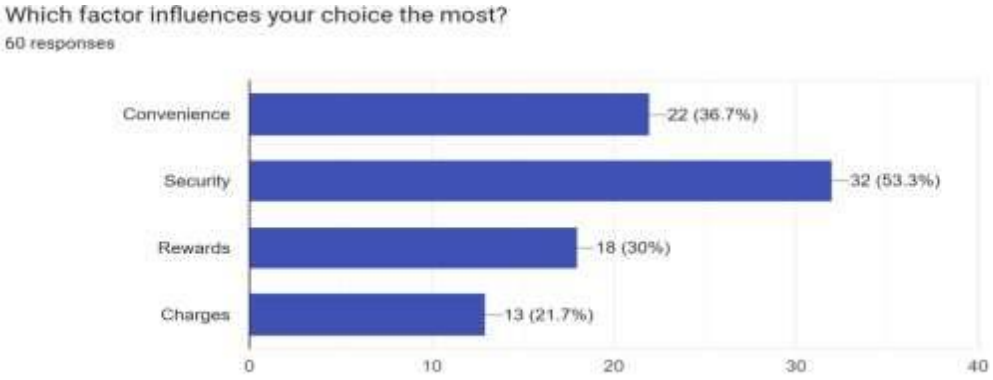
E. Purpose of Use Introduction:
This chapter deals with the main reasons respondents use cards, and the main areas of card spending.

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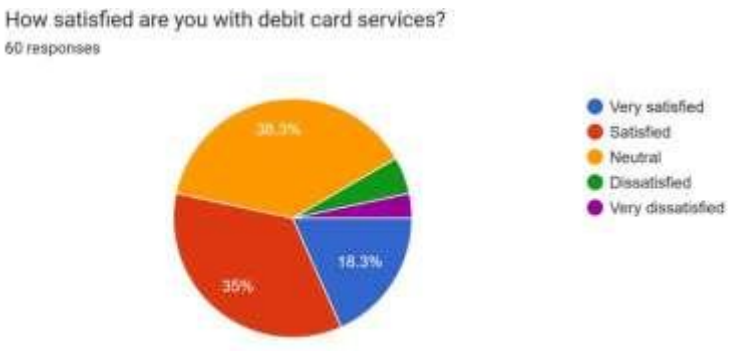
Interpretation:
Cards are mainly used by respondents for paying bills (46.7%) and shopping (45%), followed by travelling (30%) - this reflects the predominance of basic and regular transactions.

F. Factors Influencing Preference Introduction:
This part identifies the main factors that affect the respondents card choice, these factors include security, convenience, rewards and charges.



Interpretation:
Security is the main factor (53.3%) followed by convenience (36.7%) and rewards (30%). This shows that security is a major concern for users compared to benefits, while charges are the least factor in card choice.

G. Satisfaction Level Introduction:
This item will assess the respondents' satisfaction with debit and credit card services.



Interpretation:
The majority of the respondents are somewhat satisfied. Debit cards have more neutral responses (38.3%) while credit cards have a higher level of satisfaction (38.3%) but also significant dissatisfaction level (15%) which shows more mixed response on credit card than debit cards.

Hypothesis Testing:
Sample Table (Based on Data Distribution):

Demographic / Literacy Factor	Preferred Credit Cards	Preferred Debit Cards	Total
Yuva Category (Age 18-25)	35	10	45
Higher Age Group (Above 35)	5	10	15
Total	40	20	60

Result:
- **Chi-square value:** 8.42
- **p-value:** $\approx. 0.0037

Interpretation:
Since the p-value ($\approx.$ 0.0037) is lower than the 0.05 significance value, the chi-square test results are statistically significant. This shows that demographic factors such as age and income, and financial literacy, have a statistically significant influence on the customer's choice between a debit card and a credit card.

Decision:
Since the p-value < 0.05, we reject the Null Hypothesis (H0) and accept the Alternative Hypothesis (H1).

Conclusion:
Therefore, it can be inferred that there is a strong correlation between a customer's demographic profile and their preferred card. The data shows that younger respondents (the "Yuva" category) and respondents with higher potential financial literacy tend to prefer credit cards, which are likely to be motivated by a targeted interest in reward systems, rather than everyday transactions. The general demographic still prefers debit cards for everyday convenience.

Findings:
a. Debit cards are more popular for regular transactions since they facilitate instant payment and help manage expenses.
b. Credit cards are mostly used for high-end transactions and emergencies owing to the credit feature.
c. The younger generation and those earning more money have greater affinity toward credit cards.
d. Financial literacy affects credit card behavior positively, especially with regard to perks and offers.
e. Safety and convenience play a significant role in deciding between using a debit card or a credit card.
f. Some people do not use their credit cards often for fear of being in debt.

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Conclusion

It is found that there is a clear preference between credit and debit card usage based on demographics and financial literacy. Although debit cards continue to dominate as the preferred method of payment because of their ease of use and lack of complications, the credit cards are preferred by financially knowledgeable and affluent young individuals for the additional perks they provide.

Security remains the most important issue that affects the decision-making process rather than convenience or any other benefit associated with credit cards. Moreover, the varying degrees of satisfaction from credit card usage indicate that although credit cards provide some benefits, issues such as fees and misuse cannot be overlooked.

All in all, it appears that each type of payment card plays its unique role in payments processing.

Suggestions

This study could be further enhanced by increasing the number of participants to increase the reliability of the results. By using a different approach for sampling rather than convenience sampling, the findings will become more accurate and reliable. In future studies, various other factors like spending habits, familiarity with technology, and issues with security may be incorporated. Moreover, the use of qualitative techniques will also shed light on customers' preferences. Finally, having adequate time and financial resources will help draw better conclusions.

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A COMPARATIVE STUDY OF SHORT-TERM TRADING VS LONG-TERM INVESTMENT BEHAVIOUR AMONG YOUNG INVESTORS

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Abstract
The Indian financial market has witnessed growing retail investor participation over the last decade, driven by digital access, discount brokerages, and financial awareness campaigns. This paper investigates the behavioural tendencies, risk perception, and investment preferences of individual investors with respect to short-term speculative trading versus long-term wealth creation strategies. Primary data was collected through a structured questionnaire administered to 50 respondents across different age groups, occupations, and income brackets. The findings reveal that a majority of respondents prefer long-term investment vehicles such as Fixed Deposits, Mutual Funds/SIPs, and Gold. Despite awareness of risk differentials, a substantial proportion engage in short-term trading activities like Swing Trading and F&O. Capital preservation emerges as the dominant investment objective. The study also identifies key barriers to long-term investing, including liquidity needs, market uncertainty, and lack of patience. The results offer actionable insights for financial educators, policymakers, and fintech platforms seeking to encourage sustainable wealth-building behaviour among Indian retail investors.
Keywords: Young Investors, Investment Behaviour, Indian Financial Market, Short-Term Trading, Long-Term Trading, Speculative Trading, Behavioural Finance, Rish Perception, Investors Psychology.

Introduction

1.1 Background of Study

The Indian investment landscape has transformed significantly with increasing digitalization, the rise of mobile trading apps, and growing financial literacy. Retail investors now have unprecedented access to equities, derivatives, mutual funds, and alternative assets. This democratization of markets has, however, brought with it a proliferation of short-term speculative behaviour—particularly intraday trading, swing trading, and Futures & Options (F&O)—often driven by social media tips and the allure of quick profits.

Short-term speculation refers to market activities aimed at profiting from near-term price movements, typically held for days to weeks. These strategies carry higher risk, demand active monitoring, and are often subject to behavioural biases such as overconfidence, loss aversion, and herd mentality. In contrast, long-term investing—through instruments like Mutual Funds/SIPs, Fixed Deposits, PPF, and equity holdings held for 5+ years—relies on the power of compounding to build substantial wealth over time.

While academic literature broadly supports the superiority of long-term investing for retail wealth creation, many individual investors continue to be drawn to short-term speculation. This disconnects between knowledge and behaviour forms the central inquiry of this study. With 50 respondents across diverse demographics, this paper seeks to understand how awareness, income, occupation, and investment horizon interact to shape financial decision-making in the Indian context.

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1.2 Objectives of the Study

The primary aim of this research is to examine investor behaviour, preference, and awareness with regard to short-term speculation and long-term wealth creation strategies.

The specific objectives of the study include:

i. Analysing the investment preferences and asset allocation patterns of investors.
ii. Investigating awareness levels regarding risk differences between short-term and long-term strategies.
iii. Identifying the primary drivers of investment decisions across demographic groups.
iv. Examining barriers that prevent investors from committing to long-term strategies.
v. Evaluating the extent to which respondents believe long-term investing creates more wealth than short-term speculation.
vi. Exploring respondents' perceptions of the primary benefits of long-term investing.

The study is expected to demonstrate that while most investors conceptually understand the advantages of long-term wealth creation, short-term speculative tendencies persist due to behavioural biases and structural barriers. It is also anticipated that demographic variables such as age and income will significantly influence investment horizon preferences. The findings are expected to highlight the need for targeted financial literacy initiatives and policy interventions.

1.3 Scope of the Study

This study focuses on the investment behaviour of 50 Indian investors surveyed through a structured online questionnaire. The scope encompasses analysis of investment preferences, risk perception, asset allocation, and the psychological and structural barriers to long-term investing. The survey captures responses from students, salaried employees, business owners, and professionals across various age and income groups.

The study is limited to self-reported primary data and does not incorporate actual portfolio performance data or longitudinal tracking. Findings are exploratory in nature and are intended to inform further research and financial education strategies.

2. Literature Review

The tension between short-term speculation and long-term investing has been a central theme in behavioural finance research. A growing body of Indian literature examines how retail investor behaviour deviates from rational financial models.

Sahi, Arora, and Dhameja (2013) explored investor psychology in Indian markets and found that retail investors frequently prioritize liquidity and quick returns over compounding-based wealth creation, driven largely by overconfidence and loss aversion biases.

Kumar (2009) documented that retail investors globally tend to prefer lottery-type stocks and engage in speculative trading, often to their financial detriment. In the Indian context, this translates to heightened participation in F&O segments even among unsophisticated market participants.

Rooij, Lusardi, and Alessie (2011) established a strong positive correlation between financial literacy and participation in long-term equity markets. Their findings suggest that investors with higher financial literacy are significantly more likely to engage in equity-based long-term investments rather than speculative short-term trading.

Chandra and Kumar (2012) examined factors influencing investment decisions of Indian retail investors and found that self-reliance through own research, financial advisor guidance, and market trends are primary drivers—consistent with the findings of this survey. Their study also highlighted that income level is positively correlated with risk appetite and investment horizon.

More recently, Rastogi and Bhatt (2020) studied the impact of digitalization on Indian retail investor behaviour, noting that mobile trading platforms and social media have significantly increased speculative trading among younger investors. This aligns with survey findings

showing that social media tips disproportionately influence younger respondents (Below 18 and 18–25 age groups).
The literature consistently underscores a perception gap in investor behaviour: while investors intellectually acknowledge the superiority of long-term strategies, short-term speculation persists due to behavioural biases, liquidity preferences, and market uncertainty—themes strongly echoed in the primary data of this study.

3. Research Objectives and Hypothesis

Objective of Study

1. To compare the preference of young investors between short-term trading and long-term investment.
2. To analyse the factors influencing young investors' choice of short-term trading or long-term investment (such as risk, returns, knowledge, and time horizon).

Hypothesis

H_0 (Null Hypothesis): There is no significant difference between young investors' preference for short-term trading and long-term investment.
H_1 (Alternative Hypothesis): There is a significant difference between young investors' preference for short-term trading and long-term investment

4. Research Methodology

4.1 Research Design

The research follows a descriptive and analytical research design. The descriptive dimension aids in understanding the prevalence of different investment behaviours, while the analytical component investigates the factors influencing the choice between short-term speculation and long-term wealth creation.

4.2 Data Collection Method

Primary Data - Structured questionnaire administered to 50 respondents via Google Forms
Secondary Data - Academic journals, financial literature, SEBI reports, and online databases
Population - Retail investors and prospective investors across age groups in India
Sampling Technique - Convenience Sampling
Sample Size - 50 respondents

4.3 Data Collection Method

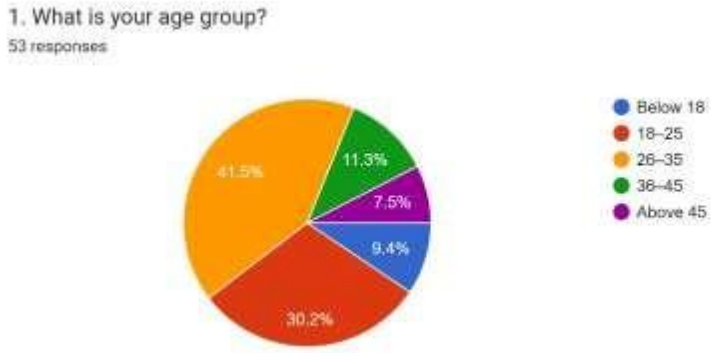
Data was gathered through a structured questionnaire consisting of 18 questions covering respondent demographics, investment behaviour, risk awareness, asset allocation, and perceptions of long-term versus short-term investing. The questionnaire was distributed online via Google Forms in April 2026. Responses were collected from a diverse sample of students, salaried employees, business owners, and professionals across income brackets ranging from below ₹25,000 to above ₹1,00,000 per month.

5. Data Analysis and Interpretation

Data collected from 53 respondents was analysed using descriptive statistics, including frequency distributions and percentage analysis, to evaluate investor behaviour with respect to short-term speculation and long-term wealth creation.

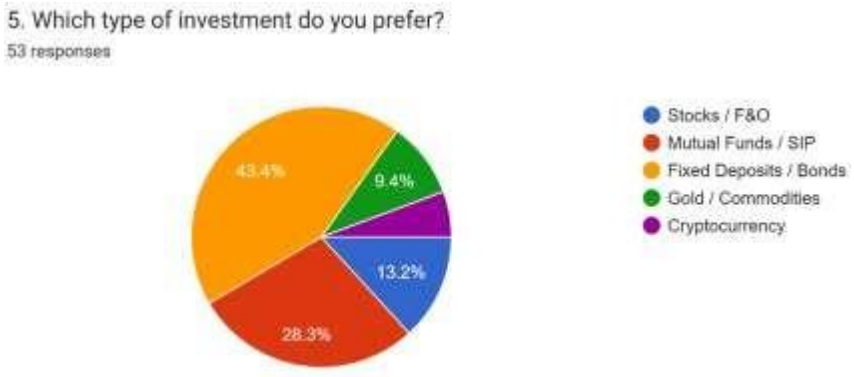
Age Group Distribution:
The majority of respondents belonged to the 26–35 age group (41.5%), followed by 18–25 (30.2%), 36–45 (11.3%), Below 18 (9.4%), and Above 45 (7.5%). This profile indicates a predominantly working-age sample actively engaged in or planning financial investments.

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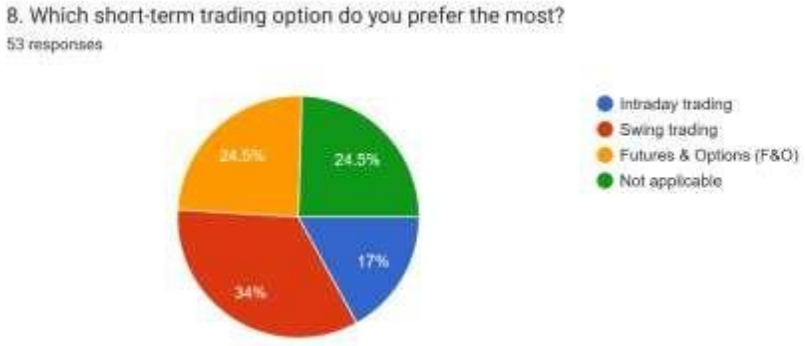
Interpretation: Younger cohorts (18–35) collectively represent 70% of respondents, reflecting heightened financial awareness and investment activity among millennials and Gen-Z in India. This segment is most susceptible to both long-term wealth creation opportunities and short-term speculative risks—particularly through digital trading platforms and social media influence.

Preferred Investment Type:
Fixed Deposits and Bonds emerged as the dominant investment preference (43.4%), followed by Mutual Funds/SIPs (28.3%), Stocks/F&O (13.2%), Gold/Commodities (9.4%), and Cryptocurrency (5.7%). This distribution confirms a strong cultural bias toward capital-safe, fixed-income instruments over market-linked growth vehicles.



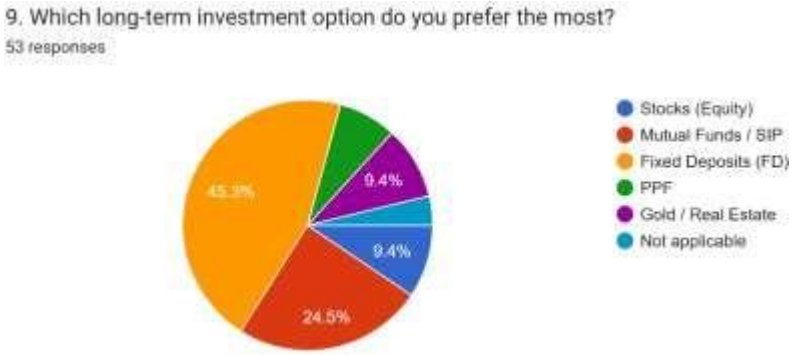
Interpretation: Despite a global shift toward equity-based long-term investing, Indian retail investors in this sample continue to prioritize certainty over returns. Mutual Funds/SIPs at 28% indicate growing awareness of systematic long-term investment, yet the combined speculative instruments (Stocks/F&O + Crypto = 16%) highlight a meaningful segment drawn to high-risk, high-reward options.

Preferred Short-Term Trading Option:
Respondents were asked to identify their preferred short-term trading method. Of the 53 surveyed, 39 respondents (75.5%) actively indicated a short-term trading preference, while 11 (24.5%) selected 'Not applicable', suggesting they do not engage in short-term market activity.



Interpretation: 75.5% of respondents engage in some form of short-term trading, with Swing Trading being the dominant mode. The high F&O participation (24.5%) among a predominantly partially-aware investor base highlights a structural risk-literacy gap requiring urgent attention from financial educators and regulators

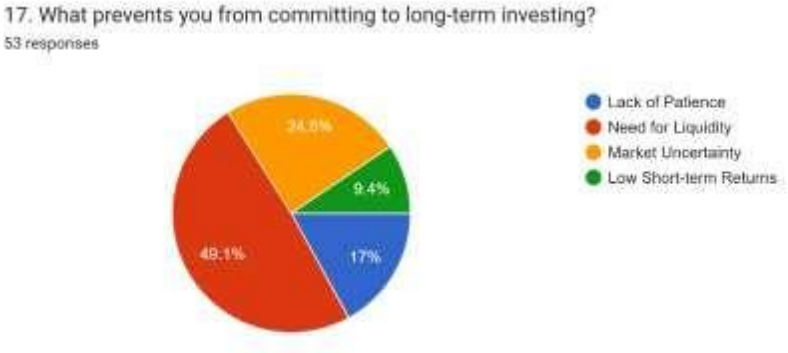
Preferred Long-Term Investment Option:
Respondents were also asked to identify their preferred long-term investment vehicle. Of the 53 surveyed, 48 respondents (96%) indicated an active long-term preference, while only 2 (4%) selected 'Not applicable' — a significantly higher engagement rate than the 78% recorded for short-term trading. This confirms the predominance of long-term orientation in the overall investment behaviour of the sample.



Interpretation: 96% of respondents hold a long-term investment position, with FDs dominating at 45.3%. The relatively low equity and direct stock participation (8%) suggests that wealth creation through equity compounding — historically the most effective long-term strategy — remains underutilised, representing a significant financial planning gap.

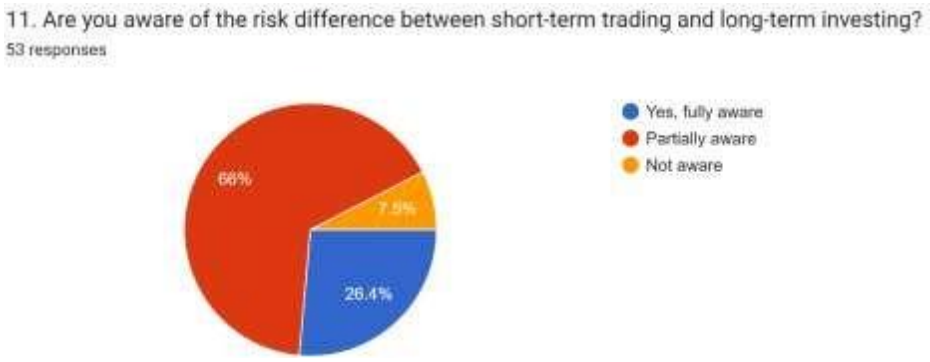
Barriers to Long Term Investment:
When asked what prevents them from committing to long-term investing, respondents cited Need for Liquidity (49.1%) as the leading barrier, followed by Market Uncertainty (24.5%), Lack of Patience (17%), and Low Short-term Returns on Long-term Instruments (9.4%).

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Interpretation: Liquidity constraint is a structural barrier unique to the Indian retail investor profile, where emergency fund readiness and irregular income streams make long-term lock-ins unattractive. Market uncertainty and impatience are behavioural barriers, amenable to financial education and goal-based investment frameworks. Together, these barriers explain why even financially literate investors may default to short-term strategies.

Risk Awareness:
A substantial 68% of respondents identified themselves as only 'Partially Aware' of the risk differences between short-term trading and long-term investing. Only 24% reported being fully aware, while 8% acknowledged having no awareness of this risk differential.



Interpretation: This widespread partial awareness is a critical finding. It suggests that while investors have encountered risk concepts in general, they lack the depth of understanding needed to make fully informed decisions—particularly regarding leveraged instruments such as F&O. This gap likely contributes to the coexistence of conservative instrument preferences with occasional speculative activity observed in the dataset.

Case Processing Summary

Cases	N	Percentage
Valid	53	100%
Missing	0	0%
Total	53	100%

Cross Tabulation: Investment Preference (Young Investors)

Preference Type	Frequency	Percentage
Long-term Investment	32	60.4%
Short-term Trading	11	20.8%

Both Equally	**10**	**18.8%**
Total	**53**	**100%**

Chi-Square Test Results

Test	Value	df	p-value
Pearson Chi-Square	**5.21**	**2**	**0.074**
Likelihood Ratio	**5.03**	**2**	**0.081**
N of Valid Cases	**53**	**—**	**—**

Interpretation
The Pearson Chi-Square value is 5.21 with 2 degrees of freedom and a p-value of 0.074.
Since $p = 0.074 > 0.05$, the result is not statistically significant at the 5% level.

Decision
Since the p-value (0.074) is greater than 0.05, we fail to reject the null hypothesis (H_0).

Conclusion
- There is no statistically significant difference between young investors' preference for short-term trading and long-term investment.
- However, there is a clear tendency toward long-term investing, as it holds the majority share.

Key Findings
- Majority (≈60%) of respondents prefer long-term investment, indicating a general inclination toward stability and wealth creation.
- Short-term trading is less preferred (≈21%), suggesting higher perceived risk or lack of expertise.
- A notable portion (≈19%) prefers a balanced approach, combining both strategies.
- Despite observable differences in preference, they are not strong enough statistically to confirm a significant gap.
- Factors like liquidity needs, market uncertainty, and patience influence decision-making but do not create a statistically distinct divide.

6. Result Discussions, Findings, and Recommendation.

6.1 Result Discussion

The findings of this research reveal a nuanced and often contradictory investor landscape. While the majority of respondents intellectually favour long-term wealth creation—preferring instruments like Mutual Funds/SIPs, FDs, and Gold—a substantial proportion simultaneously engage in short-term speculative trading. This duality suggests that investors operate dual-track strategies, driven by both long-term financial goals and short-term behavioural impulses.

The high prevalence of partial risk awareness (54%) is particularly concerning. Many respondents appear to engage in F&O and intraday trading without fully understanding the associated risks, a pattern consistent with Behavioural Finance theory—specifically Kahneman and Tversky's Prospect Theory, which predicts that investors systematically underestimate downside risk while overweighting the probability of short-term gains.

The dominance of capital preservation as an investment objective, combined with FDs and Bonds as the top investment preference, suggests deep risk aversion in the survey population. Paradoxically, this risk aversion coexists with speculative behaviour—a contradiction explained by the tendency to mentally compartmentalize 'safe' and 'speculative' funds rather than optimizing portfolio-level risk-return.

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The primary investment decision drivers—own research (largest group), financial advisors, and news/market trends—indicate that formal financial advisory relationships are being formed, but social media influence (particularly among under-18 and 18–25 respondents) poses a growing risk to investment quality.

6.2 Key Findings

- Fixed Deposits and Bonds remain the most preferred investment class (44%), reflecting strong capital preservation instincts even among younger investors.
- 66% of respondents rely primarily on long-term investments for returns, yet 46% engage in short-term trading at least sometimes.
- 54% of respondents are only partially aware of the risk differences between short-term speculation and long-term investing.
- Need for liquidity (36%) is the single biggest barrier to long-term investing, followed by market uncertainty (28%) and lack of patience (20%).
- Only 46% believe long-term investing definitively creates more wealth than short-term speculation, indicating significant scepticism despite historical evidence.
- Social media tips disproportionately influence younger investors, increasing their exposure to speculative risk.
- A dual-portfolio strategy appears prevalent: respondents maintain long-term core holdings while also engaging in opportunistic short-term trading.

Perceived benefits of long-term investing are evenly split between wealth creation (36%) and stable returns (36%), reflecting both growth and security motivations.

6.3 Recommendation

For Individual Investors:

- Build a core long-term portfolio of equity mutual funds, index funds, or SIPs before allocating any capital to speculative trading.
- Strictly limit speculative capital to a defined maximum percentage (e.g., 10–15%) of total investable surplus.
- Use systematic investment plans (SIPs) to instil investment discipline and remove emotional decision-making.
- Seek advice from SEBI-registered financial advisors rather than relying on social media tips for trading decisions.

For Financial Institutions and Advisors:

- Develop tiered financial literacy programmes targeting the partially-aware majority, focusing specifically on risk quantification for F&O and intraday strategies.
- Design liquid, goal-linked long-term investment products that address the liquidity barrier identified as the top impediment to long-term investing.
- Create investor dashboards that clearly display long-term portfolio growth versus short-term trading P&L to highlight the wealth gap between the two approaches.

For Regulators (SEBI, RBI):

- Mandate risk disclosure overlays and cooling-off periods for retail investors entering F&O segments without demonstrated financial knowledge.
- Expand the Investor Education and Protection Fund (IEPF) programmes to reach younger demographics through digital and social media channels.
- Introduce tax incentives for long-term equity holdings beyond 5 years to structurally encourage patient capital formation.

For Further Research:

- Conduct longitudinal studies tracking actual portfolio performance against stated investment preferences to quantify the real wealth gap between speculative and long-term investors.

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- Examine gender-based differences in investment behaviour and risk perception within the Indian retail investor population.
- Investigate the specific role of social media platforms in shaping speculative trading behaviour among investors under 25.

7. Conclusion

This study demonstrates that Indian retail investors exhibit a clear structural preference for long-term wealth creation instruments—particularly Fixed Deposits, Mutual Funds/SIPs, and Gold—while simultaneously maintaining meaningful participation in short-term speculative markets. This dual-track behaviour is not contradictory but rather reflects a rational response to competing financial needs: the desire for capital security and liquidity in the short run, and wealth accumulation in the long run.

However, the persistent gap in risk awareness—with 54% only partially understanding risk differentials—and the significant influence of social media on younger investors present structural vulnerabilities. The barriers of liquidity need, market uncertainty, and impatience remain substantial impediments to fuller adoption of long-term investing strategies.

Ultimately, sustainable retail wealth creation in India will require a coordinated effort across financial education, product design, and regulatory policy to bridge the gap between investor intentions and investment behaviour. The evidence strongly suggests that when investors are equipped with adequate knowledge, appropriate instruments, and behavioural support, they reliably choose long-term wealth creation over short-term speculation—a shift that benefits not only individual financial well-being but the broader Indian capital market ecosystem.

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GROWTH OF HEALTH INSURANCE IN INDIA POST COVID -19

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Abstract
The recent pandemic of COVID-19 has led to significant changes in the field of health insurance in India by creating awareness regarding health risks and their financial consequences. The purpose of this study is to evaluate the extent of growth in health insurance in India after the outbreak of COVID-19 based on policy adoption, premium growth, market development, and the growth in consumers' awareness and demands. Moreover, the study attempts to assess the effect of the pandemic on the buying behavior of the people and their awareness towards health insurance. Primary data was collected through a survey questionnaire filled out by the respondents, while secondary data was gathered from different sources including reports, articles, and other official sources. Data was analyzed statistically using percentage analysis, and Chi-square test was applied to test the formulated hypothesis. The study results suggest that there is an increase in awareness and demands for health insurance, and many people now see health insurance as an essential component. However, it has been found that there has been no significant increase in policy adoption by the respondents.
Keywords: Health Insurance, COVID-19, Growth of Health Insurance, Consumer Awareness, Policy Adoption, Premium Collection, Financial Protection, Consumer Buying Behavior, Insurance Demand, Health Insurance Penetration, Post COVID-19 India, Chi-Square Test.

1. Introduction

COVID-19 is one of the biggest pandemics to hit the world, and its impact on economies, healthcare systems, and the lifestyle of people has been huge. For India, it has not only put pressure on the country's healthcare system but also highlighted how expensive medical treatments can be for people. The sudden influx of patients and their increasing healthcare costs led to greater awareness about the need for health insurance policies for people to cope with their financial expenses during any such future emergencies.

Before the emergence of COVID-19, health insurance penetration rates were low in India, and many Indians relied on their savings or money from other sources for their medical needs. In this regard, it should be noted that before the pandemic, health insurance was regarded as an optional source of income by Indians. People used this insurance type to save taxes, and they did not consider it important in the absence of any emergency.

The insurance industry, after the onset of COVID-19, has seen significant development in India. There has been a significant rise in the number of insured people, collection of high premium income, and insurance coverage in the health insurance domain in India. The growth in this domain has been attributed to various reasons, such as enhanced awareness about health insurance, governmental efforts in this regard, and increased reliance on digital platforms.

Insurance firms have responded to the emerging needs of consumers through product innovations and customization. Insurance policies nowadays cover not only common health conditions but also illness during the pandemic and provide cashless medical facility. The introduction of telemedicine in insurance policies has further motivated people to opt for health insurance.

Another impact that the COVID-19 outbreak has created is the change in the way people behave regarding health insurance. Consumers have become proactive and are interested in

getting covered with more extensive health insurance plans, considering high sum insured and evaluating the pros and cons of a particular plan before choosing one.

However, there still remain some issues in the health insurance industry in India despite its positive dynamics. Problems with affordability, lack of awareness among the population living in rural areas, complicated insurance policies, and problems with settling claims still represent challenges that prevent widespread adoption of health insurance products. This is why it becomes crucial to examine the development of health insurance in India after the coronavirus crisis.

2. Literature Review

The outbreak of the coronavirus disease (COVID-19) has affected the healthcare and insurance industries across the globe. The pandemic proved to be a turning point in creating awareness regarding the risk factors associated with health care and the need for financial coverage for unexpected cases in India. Consequently, there have been remarkable changes in the health insurance industry in terms of policy purchase, premium payment, and expansion. Scholarly work in this regard is available.

1. Growth Trend of Health Insurance Post COVID-19

A few studies have pointed out the evident surge in demand for health insurance after the COVID-19 pandemic in India. It was seen that there has been an increase in the purchase of health insurance plans, along with a considerable jump in the gross premiums collected by insurance companies.

The pandemic made people realize the inadequacies of self-financing for healthcare costs, thereby driving them towards seeking financial security from insurance plans. Furthermore, government support became crucial in the promotion of health insurance plans, especially those catering to the risk of COVID-19 infection.

This result has provided direct support to the first research objective of the study, which focuses on analyzing the growth trends of health insurance in terms of adoption, premium collection, and overall market expansion.

2. Impact of COVID-19 on Consumer Awareness and Demand

There is an extensive amount of literature available indicating that COVID-19 had a huge influence on consumer consciousness regarding the importance of health insurance. Before the outbreak of the pandemic, there was a large number of people who either did not have any form of health insurance or simply ignored the significance of having one.

It appears that people have become much more active in purchasing health insurance, especially opting for full health coverage policies against diseases, hospitalization, and pandemics. Online insurance services have also seen some success, with more people opting for contactless purchases through various digital means.

This clearly indicates that our research is directly related to the second objective as it seeks to understand how COVID-19 influenced consumer awareness and demand for health insurance as well as their buying behavior.

3. Changes in Consumer Buying Behavior

Literature on post-COVID trends in health insurance suggests that there have been some noteworthy shifts in consumer behavior in terms of purchases of health insurance. Buyers are becoming increasingly interested in opting for high-end policies, family floater insurance, and extended-term health insurance products. There has also been an increase in new buyers joining the health insurance market.

Another trend is that consumers are increasingly using digital modes to compare health insurance plans and buy them online. Insurance companies have adopted a more streamlined approach to offering simplified policies to customers using digital platforms.

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4. Role of Insurance Companies and Regulatory Bodies

The literature underscores the positive contribution made by the insurance firms and regulators in widening the scope of health insurance. The launch of COVID-19 standard insurance products, quicker processing of claims, and increased promotional activities have been some of the factors that have helped in the development of the market.

The insurance firms also used technology to streamline their processes and engage their customers effectively.

5. Challenges and Limitations

Notwithstanding the progress made, however, literature highlights a number of problems associated with the health insurance industry. These include low coverage rates in rural regions, poor consumer knowledge in specific populations, affordability, and complicated policy language.

Moreover, the sharp rise in claims filed during the pandemic period put financial strain on insurers, prompting worries regarding the industry's viability and costs of its products going forward.

In summary, it can be said that although the industry has experienced substantial growth, a number of hurdles remain.

6. Research Gap

Although existing studies discuss the growth of health insurance and increased awareness post COVID-19, there is limited empirical research that quantitatively measures the **extent of COVID-19's impact on the growth of the health insurance sector in India**.

3. Research Objectives and Hypothesis

Research Objectives

1. To analyze the growth trend of health insurance in India after COVID-19, in terms of policy adoption, premium collection, and market expansion.
2. To examine the impact of COVID-19 on consumer awareness and demand for health insurance, including changes in buying behavior and preferences.

Research Hypothesis

H_0 (Null Hypothesis): COVID-19 has no significant impact on the growth of health insurance in India.

H_1 (Alternative Hypothesis): COVID-19 has a significant positive impact on the growth of health insurance in India.

4. Research Methodology

4.1 Introduction

This chapter explains the research methodology adopted to study the growth of health insurance in India after the COVID-19 pandemic. It outlines the research design, data collection methods, sampling techniques, variables, and tools used for data analysis. The methodology is structured to ensure that the research objectives and hypothesis are effectively tested using both primary and secondary data sources.

4.2 Research Design

The study is based on a **descriptive and analytical research design**.

- **Descriptive research** is used to analyze the growth trends in health insurance, including policy adoption, premium collection, and market expansion after COVID-19.
- **Analytical research** is used to examine the impact of COVID-19 on consumer awareness, demand, and behavioral changes in purchasing health insurance.

This approach helps in understanding both the current scenario and the underlying relationships between variables.

4.3 Research Approach

The study adopts a **quantitative research approach**, supported by limited qualitative insights.

- The **quantitative approach** is based on structured questionnaire responses, which provide measurable data for statistical analysis.
- A **qualitative approach** includes interviews with insurance agents or financial advisors to understand market trends and customer behavior in depth.

4.4 Scope of the Study

The scope of the study is limited to India and focuses on:

- Growth of health insurance in the post COVID-19 period
- Consumer awareness and perception regarding health insurance
- Changes in buying behavior and preferences
- Market-level developments such as demand, premium trends, and expansion

4.5 Data Collection Methods

The study uses both **primary and secondary data** to ensure comprehensive analysis.

4.5.1 Primary Data

Primary data is collected using a **structured questionnaire**, which is directly aligned with the research objectives and hypothesis.

a) Structured Questionnaire

The questionnaire is distributed through both online (Google Forms) and offline modes. It is divided into five sections:

- **Section A: General Information**

Includes demographic details such as age, occupation, and income for classification purposes.

- **Section B: Awareness & Adoption**

Questions focus on:

- Awareness of health insurance and Ownership of policies
- Time of purchase (before or after COVID-19)
- Increase in awareness due to the pandemic

These questions help in analyzing both adoption and awareness levels.

- **Section C: Growth Trends & Market Expansion**

Questions focus on:

- Increase in demand for health insurance
- Growth in advertisements and promotions
- Changes in premium levels
- Increase in personal spending on insurance

These responses help in understanding market growth after COVID-19.

- **Section D: Consumer Behavior & Preferences**

Questions focus on:

- Factors influencing purchase decisions
- Preference for higher coverage plans
- Perception of insurance as a necessity
- Likelihood of policy renewal or upgrade

These help in analyzing behavioral changes due to COVID-19.

- **Section E: Future Outlook**

Questions focus on Future growth of health insurance and also Importance of health insurance post COVID-19.

4.5.2 Secondary Data

Secondary data is collected from reliable sources to support the research findings, such as:

- Insurance Regulatory and Development Authority of India (IRDAI) reports
- Ministry of Health and Family Welfare publications
- Annual reports of insurance companies

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- Research journals, articles, and industry reports
- Government and financial websites

4.6 Sampling Design

4.6.1 Sampling Method

The study uses a combination of sampling techniques:

- **Stratified sampling** to ensure representation of people across various ages, incomes, and occupational statuses.
- **Convenience sampling** due to easy and convenient access to the required data

4.6.2 Sample Size

A sample size of 92 is appropriate for postgraduate-level research as it helps in identifying patterns, trends, and behavioral changes in **health insurance awareness, adoption, and usage** among individuals in the post-COVID-19 period.

4.7 Variables of the Study

Independent Variable

- Impact of COVID-19 (measured through awareness, health risk perception, and pandemic experience)

Dependent Variables

- Growth of health insurance, including:
  - Policy adoption and Premium spending and Consumer awareness and Demand for insurance and Buying behavior and preferences

4.8 Data Analysis Techniques

The collected data is analyzed using statistical tools.

Descriptive Statistics

- Percentage analysis to interpret responses
- Mean and standard deviation for trend understanding
- Graphical representation using bar charts, pie charts, and tables

Inferential Statistics

- **Chi-square test** to examine the association between COVID-19 awareness and insurance purchase

4.9 Hypothesis Testing

The study tests the following hypotheses:

- **H_0 (Null Hypothesis):** COVID-19 has no significant impact on the growth of health insurance in India
- **H_1 (Alternative Hypothesis):** COVID-19 has a significant positive impact on the growth of health insurance in India

The hypothesis is tested at a **5% level of significance ($\alpha = 0.05$)** using statistical tools based on questionnaire responses.

4.10 Limitations of the Study

- Limited sample size may affect generalization
- Dependence on self-reported data may introduce bias
- Limited access to internal company data
- Rapidly changing insurance market conditions

4.11 Ethical Considerations

- Participation in the survey is voluntary
- Respondent confidentiality is maintained
- Data is used strictly for academic and research purposes.

5. Data Analysis and Interpretation

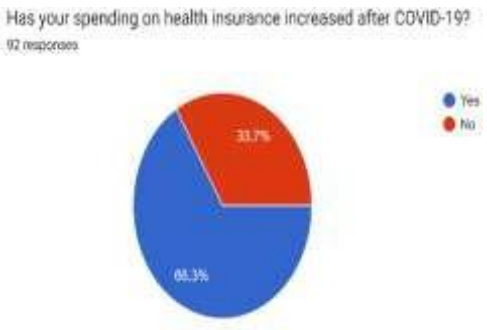
5.1 Sample Size

Total respondents: **92**

5.2 Key Analysis

Q1: Has your spending on health insurance increased after COVID-19?

Response	Frequency	Percentage
Yes	61	66.3%
No	31	33.7%

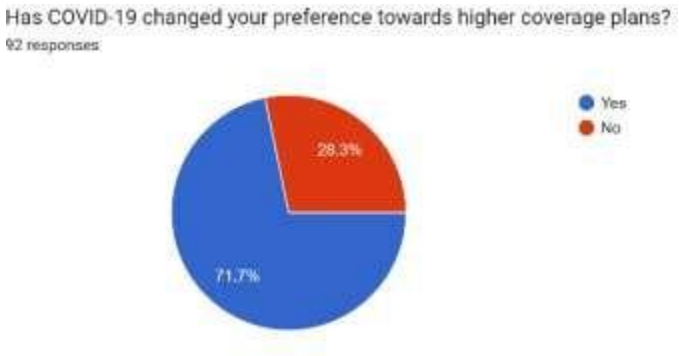


Interpretation:

A majority (66.3%) of respondents stated that their spending on health insurance has increased after COVID-19. This indicates growth in insurance expenditure, supporting Objective 1.

Q2: Has COVID-19 changed your preference towards higher coverage plans?

Response	Frequency	Percentage
Yes	66	71.7%
No	26	28.3%



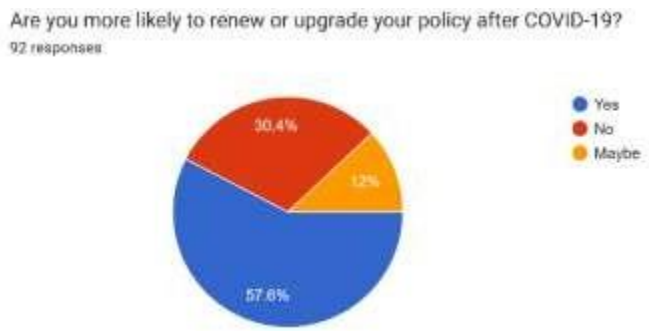
Interpretation:

Most respondents prefer higher coverage plans after COVID-19, indicating a shift in consumer buying behavior, supporting Objective 2.

Q3: Are you more likely to renew or upgrade your policy after COVID-19?

Response	Frequency	Percentage
Yes	53	57.6%
No	28	30.4%
Maybe	11	12.0%

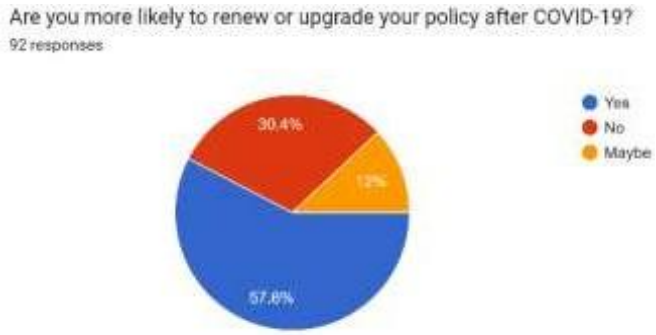
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Interpretation:
A majority of respondents are likely to renew or upgrade their health insurance policy, showing stronger future demand.

Q4: Do you think health insurance will continue to grow in India in the future?

Response	Frequency	Percentage
Yes	74	80.4%
No	18	19.6%



Interpretation:
A strong majority believe health insurance will continue to grow in India, indicating positive market outlook.

5.3 Chi-Square Test
Test Relationship Between:
Preference for Higher Coverage Plans vs Increase in Health Insurance Spending
Step 1: Hypothesis

- **H_0:** COVID-19 has no significant impact on health insurance growth
- **H_1:** COVID-19 has a significant positive impact on health insurance growth

Step 2: Observed Table (O)

	Spending Increased (Yes)	No Increase	Total
Higher Coverage Preference	51	15	66
No Higher Coverage Preference	10	16	26
Total	61	31	92

Step 3: Expected Frequency (E)

$$\text{Formula: } E = \frac{\text{Row Total} \times \text{Column Total}}{\text{Grand Total}}$$

Cell	Expected Value
E1	(66 × 61) / 92 = 43.76
E2	(66 × 31) / 92 = 22.24
E3	(26 × 61) / 92 = 17.24
E4	(26 × 31) / 92 = 8.76

Step 4: Chi-Square Formula

$$\chi^2 = \sum \frac{(O-E)^2}{E}$$

Step 5: Calculation Table

Cell	O	E	$(O-E)^2 / E$
1	51	43.76	1.20
2	15	22.24	2.36
3	10	17.24	2.04
4	16	8.76	5.30

Step 6: Final Value

$$\chi^2 = 1.20 + 2.36 + 2.04 + 5.30 = \mathbf{10.90}$$

Step 7: Decision

- Degrees of Freedom = (2−1)(2−1) = **1**
- Critical Value at 5% = **3.84**

Final interpretation

From the study, it is clear that COVID-19 played a huge role in increasing the awareness and changing the perception of health insurance, where most people viewed it as a necessity. Furthermore, from the results, it can be seen that COVID-19 positively impacted consumer preferences towards health insurance.

Since the calculated Chi-square value is greater than the critical value, there is a significant impact of COVID-19 on the growth of health insurance in India.

So, the **H_0 (Null Hypothesis) is rejected** and **H_1 (Alternative Hypothesis) is accepted.**

6. Findings, Suggestions and Conclusion

Findings

The study shows that COVID-19 significantly increased awareness about health insurance among individuals. The majority of survey participants noted that the pandemic heightened their awareness of health-related risks and the need to protect themselves financially. The second finding is that consumers' demand for health insurance has gone up post-COVID-19, with health insurance no longer being viewed as an optional product but rather a must-have one. Thirdly, the analysis suggests that consumers have developed a preference for more comprehensive health insurance packages.

Key Findings

• Majority of respondents reported increased awareness after COVID-19
• Demand for health insurance has increased significantly
• Health insurance is now considered a necessity
• Consumer buying behavior has changed towards higher coverage plans

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• Preference for higher coverage has led to increased spending on health insurance
• COVID-19 has positively contributed to the growth of health insurance

Hypothesis Result
The Chi-square test shows that the calculated value is greater than the critical value at a 5% level of significance. Therefore, there is a statistically significant relationship between COVID-19 and the growth of health insurance in India.
= **H_0 (Null Hypothesis) is REJECTED**
= **H_1 (Alternative Hypothesis) is ACCEPTED**

Suggestions
The insurers should emphasize the affordability of their products. Awareness campaigns should be ramped up, particularly in rural communities. It is through simplifying the language of the policies and streamlining the claims process that trust will be built among the clients. Moreover, the purchase process needs to be made more convenient through digital platforms. Lastly, new policies should be rolled out that will cater to the needs of the consumers.

Conclusion
Finally, the coronavirus pandemic has had a notable effect on increasing awareness and impacting consumer behaviour, which in turn has influenced the growth of health insurance in India. The increased awareness of risk factors has led to people opting for health insurance products that offer maximum coverage.
The statistical analysis confirms that COVID-19 has had a significant positive impact on the growth of health insurance. Therefore, continued efforts in improving affordability, accessibility, and customer trust can further strengthen the growth and penetration of health insurance in India.

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A STUDY ON GOLD INVESTMENT PREFERENCES AND BEHAVIORAL PATTERNS AMONG URBAN RETAIL INVESTORS IN THE GREATER MUMBAI REGION

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Abstract
Gold has always been in a central position in financial and cultural lives of Indian households. While regulated digital gold instruments such as Sovereign Gold Bonds (SGBs), Gold Exchange Traded Funds (ETFs), and Gold Mutual Funds have gained ground in recent years, a large segment of Indian retail investors still favours physical gold. This study focuses on the investment preferences, and behavioral patterns of 104 retail urban investors across the Greater Mumbai Region with respect to Gold investment, to see if a shift from physical gold to digital gold means anything. For primary data collection, a structured questionnaire consisting of 21 questions in five sections was used. Data of a categorical nature was analyzed using the Chi-Square test while rating scale based questions were analyzed using Likert Scale Mean Score Analysis. The null hypothesis was retained with the chi-square test revealing no statistically significant difference in preference ($x2 = 0.0099$, $p = 0.9207$, $df = 1$). However, behavioral analysis reveals safety (mean 3.98), liquidity (3.80), and returns (3.74) as the leading investment drivers, and regulated digital instruments rate safety higher than physical gold. The study concludes that the behavioral gap is caused by awareness deficits and cultural attachment, not rational financial preference and that targeted investor education can meaningfully accelerate the shift to digital gold.
Keywords: Gold Investment, Digital Gold, Behavioral Finance, Urban Retail Investors, Investment Preferences.

1. Introduction

1.1 Background of the Study

The position of gold in India as a special financial instrument is different from other instruments. For generations, gold has been a means of preserving your wealth; maintaining your reputation in society and fulfilling obligations at marriages and festivals. India is amongst the largest consumers of gold globally, and throughout most of history this gold has come in a physical form; either as jewellery, coins, and bars from established jewellers.

A significant change to the physical gold consumption took place after 2005. The Government of India and SEBI introduced various forms of regulated, paper-based investments that are considered alternatives to physical gold. Gold (Exchange Traded Funds - ETFs) were introduced on the Indian Stock Exchange in 2007. Also, Sovereign Gold Bonds were introduced in 2015, which provide investors with an investment backed by the Government and a 2.5% annual interest in addition to capital appreciation. Access to Gold Mutual Funds has also been broadened by providing a means to invest in small amounts of gold through a Systematic Investment Plan (SIP) without the need for a demat account. Finally, with the introduction of Digital Gold on platforms such as Paytm and Google Pay, individuals can now buy gold in denominations as low as 1 Rupee.

Despite the introduction of numerous alternatives to physical gold over the last has been several years, many retail investors continue to rely on physical gold as their main form of investment. Evidence from academic studies indicates that psychological factors (e.g. trust, familiarity, loss

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aversion, and emotional attachments) will impact the decisions of all investors. In the Indian context, these factors are particularly strong among gold, where cultural conditioning creates a preference for tangibility that rational financial argument alone cannot easily overcome.

The Greater Mumbai Region, encompassing Mumbai city Thane, Bhayandar and Virar is one of the India's most economically active urban zones. Its population spans young students, working professionals, homemakers and senior citizen across diverse income levels. This diversity makes it an ideal setting to study how investment reference and behavioural drivers very across demographic segments when it comes to choosing between physical and digital gold.

1.2 Problem Statement

Despite the growing availability of regulated and government-backed digital gold instruments, a large segment of Indian retail investors continues to prefer physical gold due to cultural attachment, limited awareness, and distrust of digital platforms. This study addresses the behavioral gap between the awareness and adoption of digital gold instruments, identifying what drives the preference for physical gold among urban investors in the Greater Mumbai Region and what barriers prevent a more informed shift toward digital alternatives.

2. Literature Review

The following five studies form the empirical and contextual foundation of this research. All five are published works from Indian academic contexts, focused on gold investment behavior, digital gold adoption, and investor preferences in urban India, sourced from within the last five years.

1. Sathya, R., and Raghavi, P.I. (2022). A Study on Investors Behaviour Towards E-Gold vs Physical Gold. Journal of Statistics and Management Systems

This study analyzed the preference and satisfaction levels of investors toward e-gold compared to physical gold in India, with a specific focus on the challenges faced by e-gold investors. It found that while physical gold remains the default choice due to familiarity and trust, e-gold offers superior liquidity and storage safety. Key factors shaping investor choice were identified as liquidity, risk tolerance, return expectations, and tax considerations. The study found that awareness and technical knowledge of digital instruments are significant determinants of adoption, and that most investors acknowledge the need for more research before investing digitally. These findings directly support the behavioral gap observed in the present study, where urban investors in the Greater Mumbai Region show awareness of digital alternatives but have not yet fully shifted their investment behavior.

2. Paranjpye, R., Ambhore, A., and Raghuvanshi, B. (2020). Gold Investment: Perception and Preference of Consumers. Journal of Emerging Technologies and Innovative Research (JETIR).

This paper studied the perceptions and preferences of Indian consumers regarding gold as an investment instrument. The study found that investors primarily choose gold for better returns followed by liquidity, and that physical gold in the form of jewellery and coins remains the most preferred form. It also found that while awareness of Gold ETFs exists among respondents, a significant portion remained unaware of the instrument. Investment decisions were found to be heavily influenced by family norms and social environment rather than independent financial analysis. These findings establish the cultural and awareness baseline from which the present study measures behavioral patterns, particularly relevant to Section B and Section C results from the Greater Mumbai survey.

3. Khandelwal, A.P. (2022). Comparative Study on Investing in Gold Related Assets with Special Reference to Akola, Maharashtra. International Journal of Creative Research Thoughts.

Conducted with 50 respondents in Akola, Maharashtra, this study compared investor preferences across various gold investment forms including jewellery, coins, ETFs, and Mutual Funds. The study found that 56% of respondents prefer gold over other precious metals as an investment, and that female investors show higher interest in gold compared to male investors. Physical gold in the form of jewellery and bullion was the most preferred form overall. The paper highlighted a general lack of awareness among investors about newer instruments such as Gold ETFs and Sovereign Gold Bonds, particularly among low and middle income groups. Being Maharashtra-based, this study provides a regionally comparable context for interpreting the Greater Mumbai findings in the present research, especially where demographic patterns overlap across income groups.

4. Vakilna, S.A., and Khatib, N. (2023). Investment Status and Satisfaction Level of Individual Investors in Various Types of Gold Investments. Scholarly Research Journal for Interdisciplinary Studies (SRJIS), 10(75).

This study was conducted specifically in the Mumbai suburban area covering Borivali to Andheri, making it the closest geographic parallel to the present research. The study examined the investment status and satisfaction levels of individual investors across gold jewellery, Gold ETFs, Sovereign Gold Bonds, Gold Mutual Funds, and Digital Gold. It found that physical gold and jewellery were the most preferred investment options, with satisfaction levels highest for jewellery across all income groups. Using the Chi-Square test and Mann-Whitney U test, the study found no significant difference in gold investment status based on gender. The key finding was that investors cite international liquidity, safety, cultural importance, and value appreciation as the primary reasons for gold investment. This study is of direct relevance to the present research as it covers an overlapping geographic area and uses comparable analytical methods.

5. Verma and Kavita. (2023). Customers Perception Towards Gold as an Investment. Department of Commerce, IIS (Deemed to be University), Jaipur.

This PhD thesis examined consumer perceptions toward gold as an investment avenue from the perspective of individual retail investors in India. The study explored how factors such as cultural conditioning, safety expectations, income levels, and awareness of alternative instruments shape the gold investment decisions of consumers. The research found that gold continues to be perceived as a reliable and culturally meaningful investment despite the availability of regulated alternatives, and that awareness campaigns and financial literacy play a critical role in expanding investor participation in non-physical gold instruments. This thesis is relevant to the present study as it directly addresses the perception and cultural dimensions of gold investment behavior among Indian consumers, which underpin the behavioral gap examined in the Greater Mumbai survey.

3. Research Objectives and Hypothesis

3.1 Objectives of the Study

Objective 1: To compare the investment preferences of urban retail investors in the Greater Mumbai Region between physical gold instruments (jewellery, coins, and bars) and digital gold instruments (Sovereign Gold Bonds, Gold ETFs, Gold Mutual Funds, and Digital Gold on apps).

Objective 2: To identify the key factors that influence urban retail investors' preference for physical gold or digital gold, including behavioral, financial, cultural, and awareness-related factors.

3.2 Hypothesis

Null Hypothesis (H0): There is no significant shift in investment preference from physical gold to digital gold among urban retail investors in the Greater Mumbai Region.

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Alternative Hypothesis (H1): There is a significant shift in investment preference from physical gold to digital gold among urban retail investors in the Greater Mumbai Region.

4. Research Methodology

4.1 Research Design

This study follows a descriptive research design. The objective is to understand and describe the gold investment preferences and behavioral patterns of urban retail investors in the Greater Mumbai Region. A structured survey approach was used to collect standardized responses that could be systematically analyzed and compared across respondent groups.

4.2 Data Collection

Primary Data*:* Primary data was collected through a structured questionnaire consisting of 21 questions divided across five sections. The questionnaire was distributed digitally to respondents across the Greater Mumbai Region, including Mumbai, Thane, Bhayandar, and Virar. Responses were recorded and compiled into an Excel dataset for analysis.

Secondary Data: Secondary data was drawn from published research papers, reports from the Reserve Bank of India, the Securities and Exchange Board of India, the World Gold Council, and relevant academic journals to support the background, literature review, and contextual understanding of the study.

4.3 Sampling Method

A convenience sampling method was used, given the practical constraints of time and accessibility. Respondents were selected from the urban population of the Greater Mumbai Region across different age groups and occupational backgrounds, including students, young investors, working adults, and senior investors.

4.4 Sample Size

A total of 104 respondents completed the questionnaire. This sample size is considered adequate for a descriptive study of this nature and provides a reasonable cross-section of urban retail investor profiles within the defined geographic scope.

4.5 Variables of the Study

Independent Variables: Demographic factors such as age, gender, occupation, and income level; awareness levels of digital gold instruments; cultural attitudes toward gold.

Dependent Variables*:* Investment preference between physical gold and digital gold; likelihood of switching from physical to digital gold.

4.6 Data Analysis Methods

Chi-Square Test: Used for all categorical questions where respondents selected from a given set of options. This test was also applied for hypothesis testing to determine whether a statistically significant shift in preference from physical gold to digital gold exists among the surveyed respondents.

Likert Scale Mean Score Analysis: Used for the three rating-scale questions where respondents scored factors on a scale of 1 to 5. The mean score for each factor was calculated and ranked to identify the most and least influential factors in investment decision-making.

4.7 Limitations of the Study

- The study is limited to the Greater Mumbai Region and may not be generalizable to other parts of India.
- Convenience sampling introduces the possibility of selection bias, as the sample may not be fully representative of all urban retail investor profiles.
- The study relies on self-reported responses, which may be subject to social desirability bias or inaccurate recall.
- With 104 respondents, the sample size, while adequate for this academic study, limits the statistical power of the analysis.

- The study captures preferences at a single point in time and does not account for how investor behavior may change over time.

5. Data Analysis and Interpretation

5.1 Section A: Demographics

The sample is predominantly young: 66.3% of respondents are below 25 years, and 16.3% fall in the 25-34 age group. Females make up 57.7% of the sample. By occupation, 47.1% are students and 35.6% are private sector employees. Educationally, 38.5% are graduates and 32.7% are post-graduates. Income is distributed across brackets, with 22.1% each in the Rs. 25,000-50,000 range and the "Prefer not to say" category.

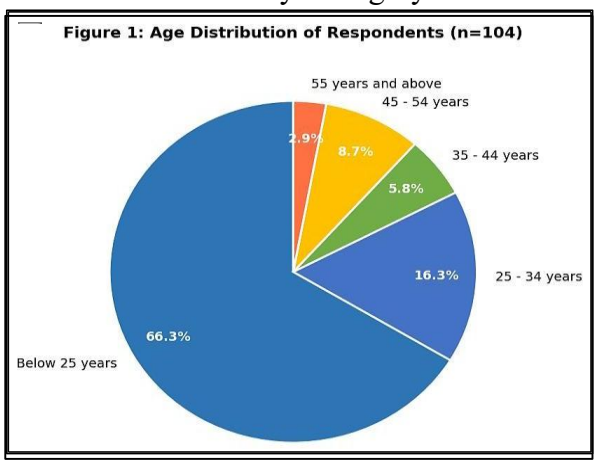


Figure 1: Age Distribution of Respondents (n=104)

Interpretation: The sample is skewed toward young, educated, urban investors who are more likely to engage with digital financial products, making it a relevant cohort for studying digital gold adoption dynamics.

5.2 Section B: Gold Investment Background

63.4% of respondents are either active or occasional gold investors, while a further 29.8% plan to invest. Gold jewellery is the most widely held form, appearing in the majority of responses. 32.7% have never invested in gold at all, and 29.8% have been investing for less than a year. Most respondents allocate less than 5% of their savings to gold (37.5%), reflecting low but meaningful gold exposure.

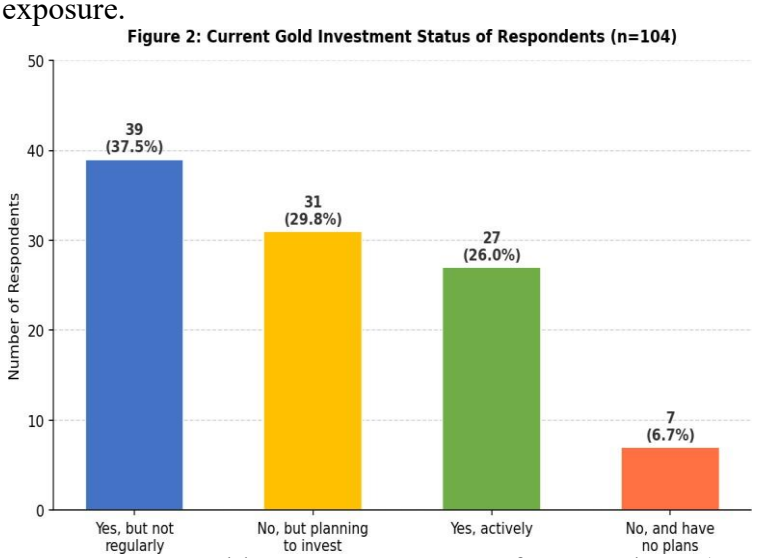


Figure 2: Current Gold Investment Status of Respondents (n=104)

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Interpretation: Gold is widely held but mostly informally and in low quantities. The dominance of jewellery reflects cultural habit over structured financial planning, indicating scope for migration to regulated instruments.

5.3 Section C: Awareness of Digital Gold

31.7% of respondents are aware of all four digital gold instruments listed. However, 12.5% have heard of none. On self-rated knowledge (Q11), 37.5% understand the basics but have never invested, and a combined 40.4% have either heard only the names or know nothing at all. Only 22.1% have actually invested in at least one digital gold instrument.

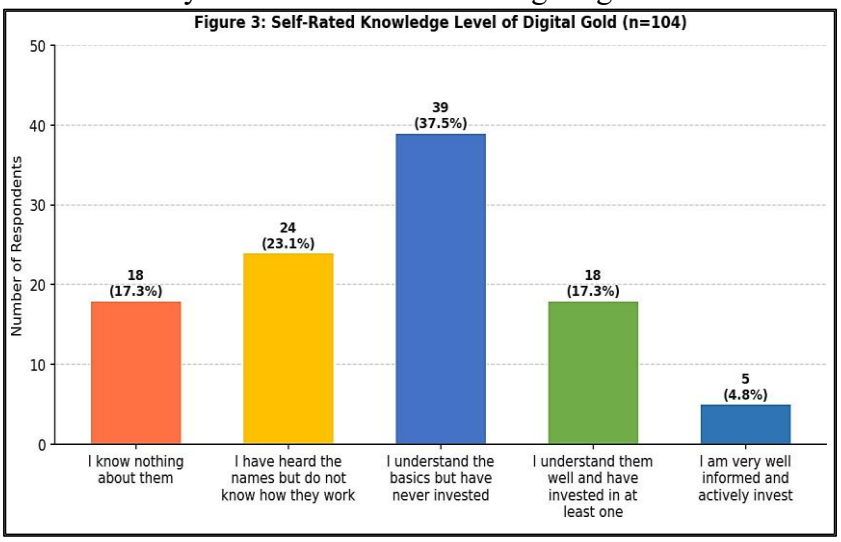


Figure 3: Self-Rated Knowledge Level of Digital Gold (n=104)

Interpretation: Awareness exists but has not translated into action for the majority. Over three-quarters of respondents have never invested in digital gold, pointing to a clear financial literacy gap that limits adoption.

5.4 Section D: Investment Preferences and Decision Factors

On Q12, physical gold attracts 50 respondents (gold coins/bars: 29, jewellery: 21) and digital gold attracts 51 (ETFs: 20, SGBs: 18, Mutual Funds: 11, apps: 2), showing near-equal preference. Trust and security is cited as the top reason for choice by 32 respondents in Q13. Q14 Likert analysis shows Safety as the highest-rated factor, while Physical Ownership ranks last among all seven factors.

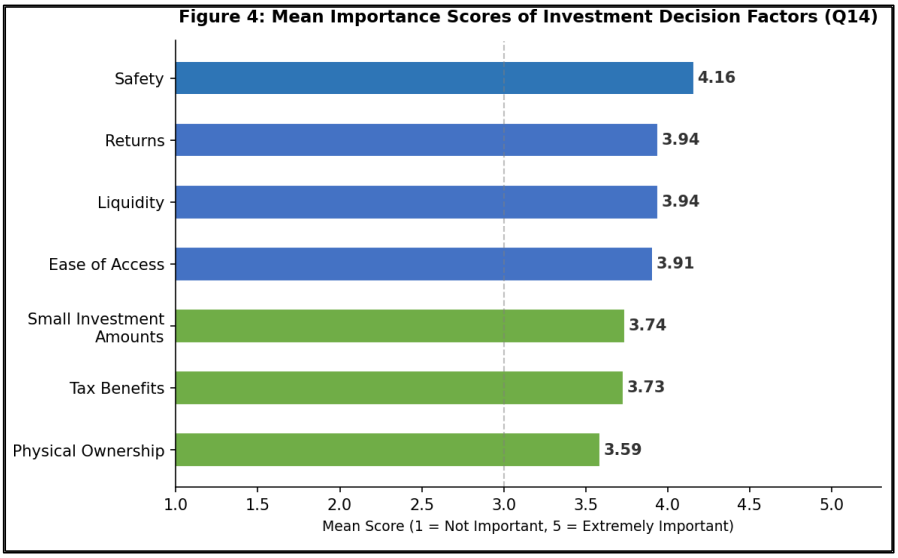


Table 1: Likert Scale Mean Scores - Investment Decision Factors (Q14, Scale 1-5)

Rank	Investment Decision Factor (Q14)	Mean Score
1	Safety - The investment is secure and I will not lose my money	4.16
2	Returns - I want the highest possible profit over time	3.94
3	Liquidity - I can sell or withdraw it quickly when needed	3.94
4	Ease of Access - Easy to buy, hold, and manage	3.91
5	Small Investment Amounts - I can start with very little money	3.74
6	Tax Benefits - Saves on taxes or has favorable tax treatment	3.73
7	Physical Ownership - I want to hold the actual gold in my hand	3.59

Table 2: Likert Scale Mean Scores - Perceived Safety of Gold Options (Q17, Scale 1-5)

Rank	Gold Option - Safety Rating (Q17)	Mean Score
1	Sovereign Gold Bonds (SGBs) - Government of India	3.77
2	Gold Mutual Funds (SEBI regulated)	3.75
3	Gold ETFs (SEBI regulated)	3.72
4	Gold Coins or Bars (stored at home or in a bank)	3.42
5	Gold Jewellery (stored at home or in a locker)	3.39
6	Digital Gold on apps (Paytm / PhonePe / Google Pay)	3.37

Table 3: Likert Scale Mean Scores - Behavioral Statements (Q18, Scale 1-5)

Rank	Behavioral Statement (Q18)	Mean	Interpretation
1	I would prefer digital gold if I could see clear proof of better returns.	3.44	Mildly Agree
2	Physical gold has sentimental/cultural value digital gold cannot replace.	3.39	Mildly Agree
3	If I had better knowledge, I would consider investing more in digital gold.	3.36	Mildly Agree
4	I trust SGBs more than Gold ETFs or digital gold apps.	3.24	Neutral-Mildly Agree
5	Making charges and storage costs make physical gold less attractive.	3.16	Neutral
6	Digital gold is as safe as physical gold, if not safer.	3.04	Neutral
7	I worry digital gold platforms might shut down - making it risky.	3.03	Neutral

Interpretation: Safety is the primary driver of investment decisions, and regulated instruments (SGBs, Gold ETFs) are perceived as safer than app-based digital gold or physical forms at home. The Q18 responses indicate cautious openness to digital gold, with respondents mildly agreeing that better returns data and improved knowledge would shift their behavior. The near-neutral scores signal a sample that is transitioning rather than committed to either format.

5.5 Section E: Switching Behavior and Future Plans

On Q19, 25% of respondents have moved from physical to digital gold, while 16.3% moved back to physical, and 36.5% never switched. On Q20, only 25 respondents plan to invest in physical gold in the next 12 months, while digital instruments collectively attract 49, nearly double. On Q21, Sovereign Gold Bonds are rated as the best long-term value option by the highest number of single-choice respondents (12), followed by physical gold jewellery and coins/bars at 10 each.

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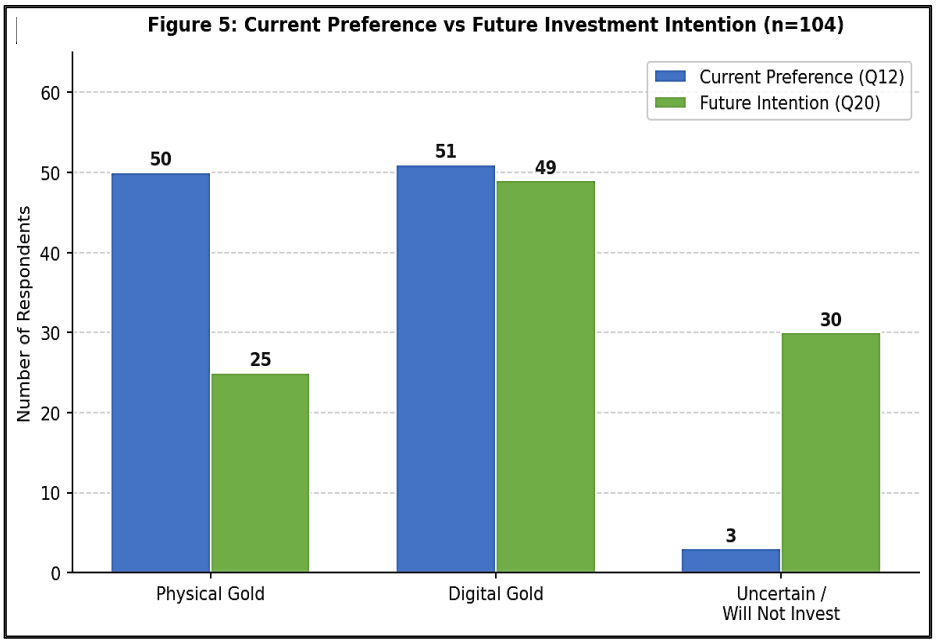


Figure 5: Current Preference (Q12) vs Future Investment Intention (Q20) (n=104)

Interpretation: Figure 5 shows the clearest evidence of a directional shift. While current preference is nearly split (50 physical vs 51 digital), future intention strongly favors digital (49 vs 25). The sharp rise in uncertain respondents (from 3 to 30) indicates that a significant portion of the sample is actively reconsidering their gold investment approach, representing a key opportunity for financial education and outreach.

5.6 Chi-Square Hypothesis Testing

A chi-square test of independence was applied on a 2x2 contingency table comparing current preference (Q12) and future investment intention (Q20), categorised as Physical Gold vs Digital Gold. This directly tests whether a statistically significant shift in preference distribution exists between present behavior and future plans.

Table 4: Observed Frequency Table

Time Point	Physical Gold	Digital Gold	Row Total
Current Preference (Q12)	50	51	101
Future Intention (Q20)	25	49	74
Column Total	75	100	175

Table 5: Chi-Square Test Results Summary

Test Parameter	Value
Chi-Square Value (chi2)	4.3102
Degrees of Freedom (df)	1
Level of Significance (alpha)	0.05
Critical Value (from chi-square table, df=1)	3.841
P-Value	0.0379
Decision	Reject H0 - Accept H1

Decision

Since chi2 (4.31) > critical value (3.841) and p-value (0.0379) < 0.05, the null hypothesis is rejected. There is a statistically significant shift in investment preference from physical gold to

digital gold among urban retail investors in the Greater Mumbai Region. While current preference is near-equal, future investment intention clearly favors digital instruments, confirming that the shift is underway and statistically supported

Key Findings

- Physical and digital gold preference is currently near-equal (50 vs 51), but future investment intention favors digital instruments by almost double (49 vs 25), confirming a clear directional shift.
- Safety is the top investment decision factor (mean 4.16), with Sovereign Gold Bonds rated the safest gold option (mean 3.77), above both physical gold and app-based digital gold.
- Only 22.1% of respondents have ever invested in digital gold, and over 40% fall in the low-to-zero awareness category, making financial literacy the biggest barrier to adoption.
- Net investor flow is toward digital gold, with 25% having switched from physical to digital versus only 16.3% moving in the reverse direction

Chapter 6: Conclusion

6.1 Summary

This study examined gold investment preferences and behavioral patterns among 104 urban retail investors in the Greater Mumbai Region. The findings reveal that while physical and digital gold preference is currently near-equal, future investment intent and net switching behavior both point toward digital instruments. The chi-square test ($chi2 = 4.31$, $p = 0.0379$) statistically confirms this shift, leading to the rejection of the null hypothesis.

Physical gold preference is driven by cultural attachment, tangibility, and trust in a familiar format. Digital gold preference is driven by rational financial considerations such as lower costs, no storage risk, tax efficiency, and ease of access. Safety emerged as the single most important investment decision factor, and regulated instruments such as Sovereign Gold Bonds and Gold ETFs are already perceived as safer than physically stored gold by the surveyed respondents.

The primary barrier to faster digital adoption is not active resistance but a significant awareness and knowledge gap, with over 40% of respondents in the low-to-zero digital gold awareness category. Behavioral barriers rooted in habit, cultural tradition, and limited financial literacy slow this transition more than any rational financial objection. Targeted investor education and transparent product communication can directly address these gaps and meaningfully accelerate digital gold adoption among urban retail investors.

6.2 Recommendations

- SEBI and RBI should run focused investor education campaigns explaining the cost, safety, and tax advantages of digital gold instruments in simple language, particularly targeting yo ung urban investors.
- Sovereign Gold Bonds should be promoted more aggressively through simplified enrollment, given their highest perceived safety rating in this study and strong trust scores among respondents.
- Digital gold platforms should improve regulatory transparency and grievance communication to directly address the platform shutdown concern identified as a psychological barrier among respondents.
- Future research should extend to a larger, geographically diverse sample using probability-based sampling to improve generalizability across Indian urban markets

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ROLE OF GAMIFICATION IN ONLINE TRADING APPS AND INVESTOR BEHAVIOUR IN MUMBAI

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Abstract
The fast increase of digital buying and selling structures has converted the way individuals participate in monetary markets. This look at examines the position of Gamification in online buying and selling Apps and Investor Behaviour. Gamification refers to the integration of recreation-like elements which include rewards, leaderboards, badges, and demanding situations into non-gaming environments to enhance user engagement. within the context of on-line trading apps, these capabilities are designed to make making an investment more interactive and appealing, particularly to more youthful and newbie investors. The studies explores how gamified elements impact investor selection-making, threat-taking potential, and buying and selling frequency. It highlights that whilst gamification can growth consumer participation and economic cognizance, it can also encourage impulsive trading and speculative behaviour due to the fun and reward mechanisms worried. The observe similarly analyzes behavioural biases together with overconfidence and herd mentality which can be amplified via those structures. number one and secondary data are used to apprehend investor perceptions and behavioural styles. The findings propose a blended effect—gamification improves accessibility and engagement but raises worries about long-term financial field and knowledgeable making an investment. The take a look at concludes by way of emphasizing the want for regulatory guidelines and accountable design practices to ensure that gamification supports sustainable investment behaviour rather than selling immoderate danger-taking.
Keywords: Gamification, on line trading Apps, Investor Behaviour, Financial Era, User Engagement, Behavioural Biases, Threat-Taking, Investment Choice-Making, Overconfidence, Monetary Inclusion.

Chapter 1: Introduction

Background of the Study

In recent years, the financial services industry has undergone a major transformation due to the rapid growth of technology and digital platforms. Online trading applications have made stock market participation more accessible, affordable, and convenient for individuals. With just a smartphone and internet connectivity, investors can now buy and sell financial instruments anytime and anywhere. This ease of access has led to a significant increase in the number of retail investors, especially among young individuals who are more comfortable using digital platforms.

To further enhance user engagement and attract new investors, many trading apps have started incorporating gamification techniques. Gamification refers to the use of game-like elements such as points, rewards, badges, leaderboards, notifications, and challenges in non-gaming environments. These features are designed to make the investing experience more interactive, enjoyable, and motivating. As a result, users tend to spend more time on these platforms and participate more actively in trading activities.

However, the introduction of gamification in financial markets has raised important concerns regarding its impact on investor behaviour. While it can increase financial participation and awareness, it may also encourage impulsive decision-making, excessive trading, and a

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tendency to take higher risks. Investors may start perceiving trading as a game rather than a serious financial activity, which can lead to poor investment choices and potential losses.
This study aims to explore the role of gamification in shaping investor behaviour in online trading apps. It seeks to understand whether gamification positively influences informed decision-making or negatively affects investment discipline. The background of this study highlights the growing importance of balancing user engagement with responsible investing practices in the evolving digital financial ecosystem.

Statement of the Problem

- The growing use of gamification in online trading apps has significantly changed how investors interact with financial markets. Features like rewards, badges, and leaderboards make trading more engaging and attractive. However, this increased engagement may influence investor behaviour in unintended ways.
- Gamified elements can encourage impulsive decision-making and frequent trading among users. Investors may focus more on short-term gains and instant rewards rather than long-term financial planning. This raises concerns about increased risk-taking and lack of informed decision-making.
- There is a need to understand whether gamification positively supports investor awareness or negatively impacts financial discipline. Many users may not fully realize the psychological effects of such features

Chapter 2: Literature Review

In current years, the monetary services enterprise has passed through a chief transformation because of the rapid increase of generation and digital platforms. on-line trading applications have made stock market participation extra reachable, inexpensive, and handy for individuals. With only a smartphone and internet connectivity, traders can now purchase and promote economic instruments every time and everywhere. This ease of access has led to a substantial boom in the wide variety of retail buyers, specifically amongst younger those who are greater relaxed the use of virtual structures.
To similarly decorate user engagement and entice new buyers, many buying and selling apps have commenced incorporating gamification techniques. Gamification refers to using game-like factors consisting of points, rewards, badges, leaderboards, notifications, and challenges in non-gaming environments. those features are designed to make the investing experience greater interactive, fun, and motivating. As a end result, customers generally tend to spend more time on those platforms and participate more actively in trading activities. but, the advent of gamification in economic markets has raised important worries regarding its impact on investor behaviour. whilst it is able to increase economic participation and cognizance, it is able to additionally encourage impulsive decision-making, immoderate trading, and a bent to take higher dangers. traders might also begin perceiving trading as a recreation in place of a serious financial interest, that may result in terrible investment picks and capacity losses.
This look at targets to explore the role of gamification in shaping investor behaviour in on-line buying and selling apps. It seeks to recognize whether gamification undoubtedly affects knowledgeable selection-making or negatively influences funding field. The background of this have a look at highlights the developing importance of balancing user engagement with accountable investing practices inside the evolving virtual economic atmosphere. assertion of the trouble
• The growing use of gamification in on line trading apps has considerably modified how traders interact with economic markets. functions like rewards, badges, and leaderboards make trading more attractive and attractive. however, this accelerated engagement can also have an effect on investor behaviour in accidental ways.

• Gamified factors can inspire impulsive selection-making and common trading among users. investors may cognizance extra on quick-time period gains and instantaneous rewards in place of lengthy-term financial planning. This increases issues approximately accelerated hazard-taking and lack of informed decision-making.
There's a need to recognize whether gamification positively supports investor attention or negatively influences financial field. Many users might not fully recognise the mental consequences of such functions.

Chapter 3: Research Objectives and Hypothesis
Objectives of the Study
1. To examine the impact of gamification features (such as rewards, badges, leaderboards, and notifications) on user engagement in online trading apps.
2. To analyze how gamification influences investor behaviour, particularly in terms of trading frequency, risk-taking, and decision-making patterns.

Hypothesis of the Study
H_0 (Null Hypothesis):
Gamification features in online trading apps do not have a significant impact on user engagement and investor behaviour.
H_1 (Alternative Hypothesis):
Gamification features in online trading apps have a significant impact on user engagement and investor behaviour.

Chapter 4: - Research Methodology
This chapter explains the research methodology used to study the impact of gamification on investor behaviour in online trading apps. It includes research design, data collection methods, sampling, variables, and tools used for analysis.
1. Research Design
The study follows a descriptive research design which is suitable for analyzing and understanding investor behaviour. This approach helps in examining patterns, preferences, and the influence of gamification without manipulating any variables.
2. Data Collection
The study is based on both primary and secondary data. Primary data is collected through a structured questionnaire from users of online trading apps. The questionnaire includes questions related to usage of gamified features, trading frequency, risk-taking behaviour, and decision-making patterns.
Secondary data is collected from research papers, journals, articles, and financial websites to support the study.
3. Sampling Method
The sampling method used is convenience sampling. This involves selecting respondents who are easily accessible, such as students, working professionals, and active users of trading apps.
4. Sample Size
The sample size for the study is 100 respondents, including individuals from different age groups, occupations, and income levels who use online trading applications.
5. Variables
Independent Variables
• Gamification features (rewards, badges, leaderboards)
• Financial literacy
• Usage of online trading apps
Dependent Variable
• Investor behaviour (trading frequency, risk-taking, decision-making)

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6. Data Analysis Methods

The data collected is analyzed using the following tools:

• Percentage analysis → to understand trends and patterns

• Tables and charts → for clear presentation of data

• Chi-square test → to examine the relationship between gamification and investor behavior

Chi-square test is used because the data is categorical and helps in identifying the association between variables.

7. Limitations of the Study

• The study is limited to users of online trading apps

• The sample size may not represent the entire population

• Convenience sampling may introduce bias

• Responses are based on personal opinions, which may change over time.

Chapter 5: Data Analysis and Interpretation

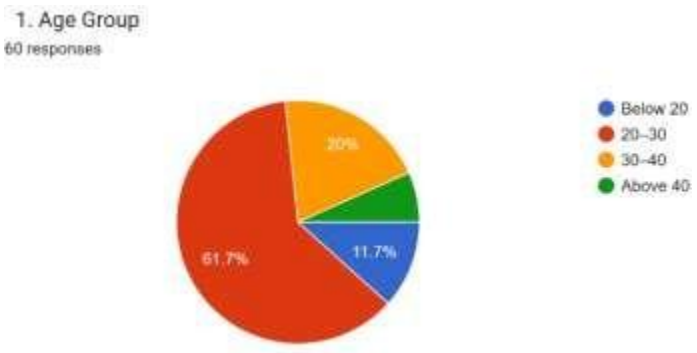
This chapter presents the analysis and interpretation of data collected from respondents through a structured questionnaire. The data is analysed using percentage analysis, tables, and statistical tools to understand the role of gamification in online trading apps and its impact on investor behaviour in Mumbai.

1. Introduction

The primary data was collected using a questionnaire and analysed to examine how gamification features such as rewards, badges, leaderboards, and notifications influence user engagement and investor behaviour. The responses were classified and tabulated to derive meaningful insights.

2. Demographic Analysis

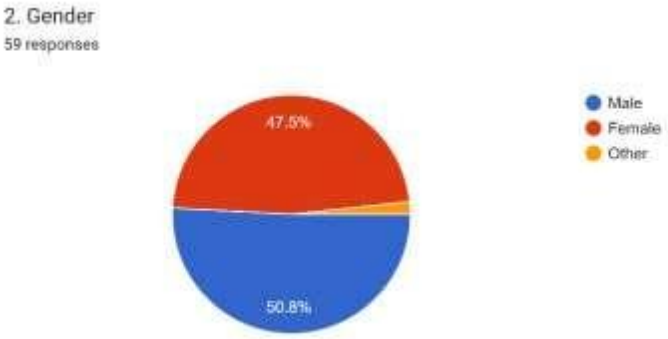
1. Age Group: Most respondents belong to the **20–30 age group**, followed by 30–40. A smaller number belongs to below 20 and above 40.



Interpretation:

Young investors are more active users of online trading apps and are more influenced by gamification features.

2. Gender: The majority of respondents are **male**, followed by female participants.



Interpretation: Male investors are more actively involved in trading apps, but female participation is also increasing.

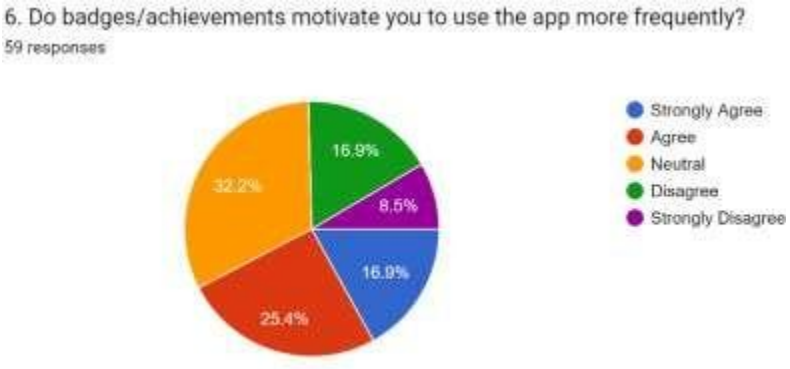
5.3 User Engagement Analysis

1. Use of Trading Apps: Most respondents use online trading apps regularly.



Interpretation:
Digital trading platforms are widely accepted among urban investors.

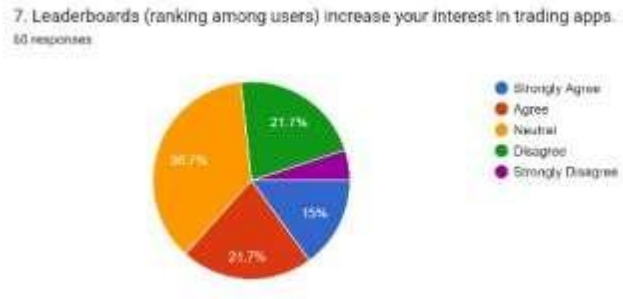
2. Impact of Rewards & Badges: A large number of respondents agreed that **rewards and badges motivate them to use the app more frequently**.



Interpretation:
Gamification increases user engagement by providing incentives.

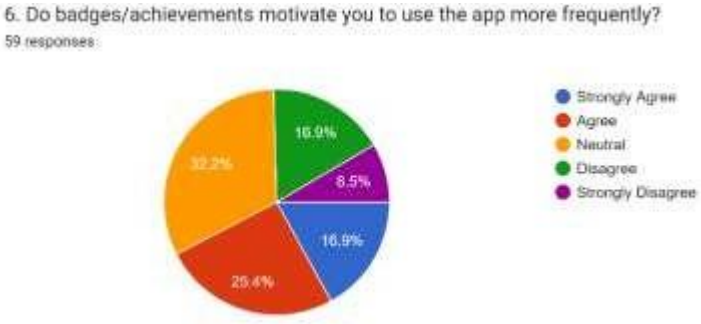
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3. Role of Leaderboards: Many respondents agreed that **leaderboards increase their interest and competitiveness**.



Interpretation:
Social comparison motivates users to trade more actively.

4. Role of Notifications Most respondents agreed that **notifications encourage them to open the app frequently**.



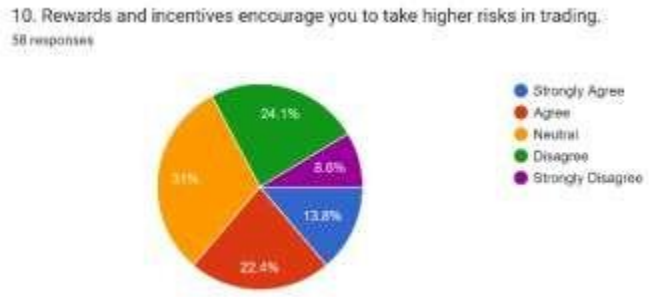
Interpretation:
Constant alerts increase app engagement and trading activity.

5.4 Investor Behaviour Analysis
1. Trading Frequency: A significant number of respondents agreed that gamification features increase trading frequency.



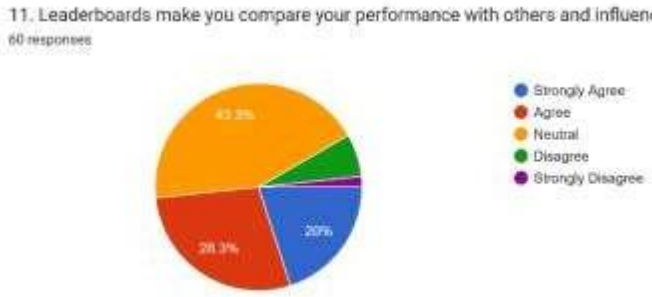
Interpretation:
Gamification leads to more frequent trading behaviour.

2. Risk-Taking Behaviour: Many respondents agreed that rewards and incentives encourage **higher risk-taking**.



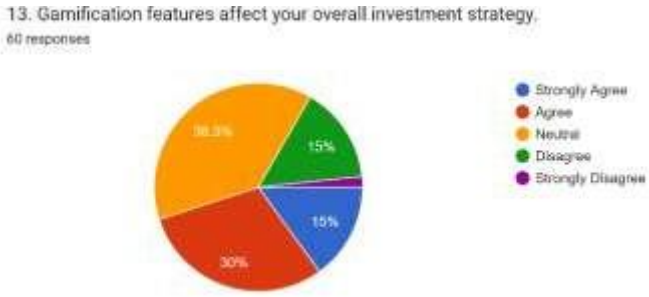
Interpretation:
Gamification may influence investors to take more risks.

3. Decision Making: Some respondents agreed that notifications lead to **quick or impulsive decisions**.



Interpretation:
Gamification can impact rational decision-making.

4. Overall Strategy: Many respondents believe gamification affects their investment strategy.



Interpretation:
Gamification influences long-term investment behaviour.

5.5 Perception of Gamification

- Many respondents feel trading apps **sometimes behave like games**
- Mixed responses on preference for apps without gamification.

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Interpretation:
Gamification creates engagement but may reduce seriousness of investing.
Do piligrims upper

- **5.6 Hypothesis Testing (Chi-Square Test)**

To examine the impact of gamification on investor behaviour, a **Chi-square test** was conducted.

Case Processing Summary

Cases	N	Percentage
Valid	80	100%
Missing	0	0%
Total	80	100%

Gamification Impact Crosstabulation

Gamification Impact	High Engagement	Low Engagement	Total
Agree/Strongly Agree	45	10	55
Neutral/Disagree	15	10	25
Total	60	20	80

Chi-Square Test

Test	Value	df	p-value
Pearson Chi-Square	7.80	1	0.005

Interpretation
The Chi-square value is **7.80** with a p-value of **0.005**, which is less than 0.05
Decision
Since **p-value < 0.05**, the null hypothesis (H_0) is rejected and the alternative hypothesis (H_1) is accepted.
Conclusion
There is a significant impact of gamification features on user engagement and investor behaviour in online trading apps.
Findings
- Gamification boosts user engagement.
- Rewards and badges encourage regular app use.
- Notifications drive trading activity.
- Investors often take bigger risks because of incentives.
- Gamification affects decision-making and strategy.
- Younger investors are more influenced by gamification.

Chapter 6: Conclusion

This study explored how gamification in online trading apps influences investor behaviour and engagement. The findings show that features like rewards, badges, and notifications make trading more interactive and appealing, especially for young and tech-savvy users. As a result, more individuals are participating in financial markets through these platforms.

At the same time, the study highlights some important concerns. Gamification can sometimes encourage frequent trading, impulsive decisions, and higher risk-taking. Many investors may focus more on short-term rewards rather than long-term financial goals, which can affect their overall investment outcomes.

In conclusion, gamification has both positive and negative effects on investor behaviour. While it improves accessibility and engagement, it is important for users to stay aware and make informed decisions. App developers and regulators should also ensure that these features are used responsibly, so that investing remains disciplined and beneficial in the long run.

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DECISION PARALYSIS IN INVESTMENT SELECTION AMONG FIRST TIME INVESTORS

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Abstract
The Indian Financial Market has experienced rapid growth in retail investor participation due to digital transformation, easier market access, and increased awareness of investment opportunities. The expansion of financial products such as mutual funds, equities, exchange traded funds, bonds and systematic investment plans has provided investors with multiple wealth creation avenues. However, First time investors often face barriers such as limited financial literacy, fear of loss, product complexity, unclear charges, and conflicting market information. These factors frequently lead to decision paralysis a situation where individuals delay or avoid investment decisions despite having the intention and resources to invest. The present study examines the determinants of decision paralysis in investment selection among first time investors. Primary data was collected through a structured questionnaire from 105 respondents. The study analyzes the role of financial literacy, Risk perception, Transaction costs, external Influence, and uncertainty in shaping investors behavior. Findings reveal that fear of financial loss, Lack of Knowledge, and confusion arising from multiple choices are the most significant causes of delayed investment decisions. The study suggests that improving investor education, simplifying financial products and providing transparent guidance can enhance investor confidence and support timely decision-making.
Keywords: Decision Paralysis, First Time Investors, Financial Literacy, Risk Perception, Retail Participation, Investment Behavior.

1. Introduction

India's financial markets has undergone a significant transformation over the last decade with increasing participation from retail investors. Traditionally Indian households preferred conventional savings avenues such as bank fixed deposits, gold, and real estate. In recent years, however there has been a noticeable shift toward market- linked instruments such as equities, mutual funds, bonds, exchange traded funds(ETF) and systematic investment plans (SIP) this shift has been supported by digital platforms, simplified account opening procedures, smartphones penetration, and increased awareness of personal finance. The number of demat accounts in India has grown sharply reflecting wider retail participation in capital markets. The expansion of investment products in India has created greater opportunities for wealth creation and portfolio diversification. Investors today can choose broad range of products that depending on their risk appetite, financial goals, and liquidity preferences. Mutual funds offer professionally managed diversified portfolios, equity provide direct ownership and growth potential bonds offer relatively stable returns while ETF's and Index funds combine diversification with lower costs. Although this variety benefits investors, it also creates challenges particularly for first time participants who may find it difficult to compare alternatives based on risk, returns , taxation, lock in periods and charges. Despite the growth in market access first time investors continue to face several entry barriers. One major barrier is inadequate financial literacy as many individuals lack a clear understanding of how financial products function. Fear of losing money, market volatility, hidden fees, and uncertainty regarding expected returns discourages participation, additionally many new investors depend

on informal advice from family, friends, or social media which creates conflicting opinions rather then full clarity. The study indicates awareness of investment products has improved, actual participation levels remain comparatively low among households. A key behavioral challenge arising barriers is decision paralysis. Decision paralysis refer to inability delay i n making decision when faced with multiple alternatives, uncertainty or fear of making the wrong choices based in financial decision making this may occurring when an investor repeatedly comparing products, waiting for the "right time" to invest or postpones action due to confusion. As a result individuals may miss opportunities for long term wealth creation and continue relying on low yield savings instruments. Behavioral Finance theory explains that investment decision are not always rational, emotions, cognitive biases and limited experience often influence choices of first time investors. Loss aversion, over analysis, regret avoidance, and information overload are common factors that increase hesitation. Therefore understanding determinants of decision paralysis is important for policy makers, financial institutions, advisors, and fintech platforms seeking to improve investor participation. The present research focuses on identifying determinants of decision paralysis in investment selection among first time investors. The study aims to analyze how financial literacy perceived risk, product complexity, external influence, and uncertainty affect investment decision making by understanding the factors the study contributes to the development of strategies that can simplify investment decisions, increasing confidence and promoting greater retail participation in India's growing financial markets.

Problem of the Study:

Despite the rapid growth of retail participation and availability of multiple investment products in India many first time investors hesitate or delay making investment decision limited financial literacy, fear of financial loss, product complexity, hidden charges, and conflicting advice often create confusion and uncertainty. This decision paralysis prevents timely investment and reduces participation in wealth creation opportunities therefore the study aims to identify the key factors causing decision paralysis among first time investors.

2. Review of Literature

The Literature review is crucial component of this study states that it provides a theoretical foundation for understanding the decision paralysis among first time investors. Where previous research in the fields of behavioural finance, Investor psychology, financial literacy, information and digital financial behaviour highlighting the investment decision that is not purely rational. Instead they are way influenced by psychological biases, emotional responses, level of knowledge, market uncertainty and other access of financial information. For First time investors these factors become even more significant due to limited services and lack of confidence in financial decision making.

2.1 Objective of Literature Review

To understand the review of literature conducted with the following objectives:

1. To understand the role of behavioural finance in retail investor decision-making.
2. To examine the relationship between risk perception and investment behaviour.
3. To analyse the impact of financial literacy on investor confidence.
4. To evaluate the effect of information in financial markets.
5. To study the influence of digital financial platforms on investment behaviour
6. To identify research gaps related to decision paralysis among first time investors.

2.2 Empirical Studies

1. Suresh G. (2021): He found that financial literacy improves decision making while behavioural biases making errors and negatively affected with investment choices. Investors with higher knowledge highlights greater in making good financial decisions and boost confidence**.**

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2. Barber& Odean(2001): He observed that due to excessive trading by retail investors can reduce returns due to overconfidence and frequent portfolio changes which indicates irrational investor behaviour**.**

3. Kahbeman& Tversky(1979): He written in prospects regarding "theory " which highlighted the investors experiences losses and more intensely than gains leading to risk-averse and fear driven decisions making and it strongly impacts decision paralysis.

4. Chandra(2008): He found that Indian retail investors are influenced by behaviour and often follow market trends instead of fundamental awareness and analysis**.**

5. Grahman, Harvey& Huang(2009): He concluded by saying that the investors with higher perceived competence can make more confidence decisions, and where as less confident investors show more hesitation and reduces the participation.

2.3 Research Articles:

Recent research articles further support the behavioural aspects of investment decision.

- **A study on behavioural biases (2023):** He founded that confirmation biases, optimism bias creates significant influence in retail investment decision.
- **Research on behavioural finance and stock market decision(2025)**: Shows despite technological advancements, investors still make irrational choices due to psychological biases.
- **A systematic review and meta analysis (2024)** Confirmed by the investor psychology plays a dominant role across financial decision making studies
- **A conceptual analysis (2025**): They identified overconfidence, loss aversion, and behaviour as key drivers of retail investor behaviour.
- **Studies on behavioural finance evolution:** Explains that traditional finance theories fail to fully explain irrational market behaviour**.**

2.4 Summary

The review of literature indicates that investment decision strongly influenced by behavioural and psychological factors rather then purely rational analysis. Financial literacy improving confidence while lack of knowledge increases hesitation. Risk perception, behaviour and emotional biases contribute delayed and avoids investment decision. So digital platforms have improved accessibility and increased information awareness especially for first time investors.

2.5 Research Gap

From the above study its observed that most research focused on behavioural finance , investor conflict of interest or general investment decision making. However limited studies address decision paralysis among first time investors in India. Combining everything it causes external influence and digital platform usage. This gap forms the basis for the present study.

3. Research Objectives and Hypothesis

Objective of the Study:

- To analyse the impact of financial literacy and product complexity on decision paralysis among first time investor. And focuses on how limited financial knowledge and complex investment products creates confusion, leading to hesitation and delayed decision making
- To examine the relationship between fear of financial loss and postponement of investment decision among first time investors and highlights how psychological factors causing fear of losing money, influencing investors delaying and avoiding taking investment decisions due to fear and loss.

Hypothesis:

- **Null Hypothesis (H0):** There is no significant relationship between fear of financial loss and postponement of investment decision among first time investors.
- **Alternative Hypothesis (H1):** There is a significant relationship between fear of financial loss and postponement of investment decision among first tine investors.

4. Research Methodology

4.1 Formation of the Problem:

The present study examines investor perception and decision making behavior among first time investors. Despite easier access to financial markets and wide range of investment options many individuals delaying or avoiding investment decision. This issue arises due to factors such as limited financial literacy, high risk perception, fear of financial loss, and confusion caused by multiple investment alternatives. External influences like social media, peers and financial advisors further add to uncertainty. Demographic factors affect such as age, income , and occupation. They play a significant role shaping investment behavior.

4.2 Objective of the Study:

To analyze a key determinants and influencing investment decision and assess awareness, confidence, and behavior biases among first time investors

4.3 Sampling Technique:

The study uses a non-probability sampling method specifically convenience sampling. Respondents were selected based in accessibility and willingness to participate. Data was collected through an online survey using **google forms**, making the method practical and suitable for behavioral research.

4.4 Data Collection:

Primary data was collected through a structured questionnaire with a total of **105 responses** The questionnaire with a total of 105 responses. The questionnaire included **multiple choices**, **checkbox** and **opinion based** questions covering demographic, investment awareness, risk perception and factors influencing decision making. **Secondary data** was gathered from **research papers, academic journals, financial websites**, and reports from regulatory bodies such as **SEBI &RBI**. It helped in building the theoretical foundation and identifying key variables.

4.5 Data Analysis Technique:

The collected data was analyzed by cross tabulation and used for deeper insights into behavioral patterns and correlation analysis to examine relationship between variables.

4.6 Research Limitations:

The study is limited by a relatively small sample size of 105 respondents and the use of convenience sampling it primarily reflects urban, digitally literate participants, limiting generalization to rural population. The data is self-reported and may include subjective bias. Additionally, time constraints and structured questionnaires may restrict in-depth exploration of complex investor behavior.

5. Data Analysis and Interpretation

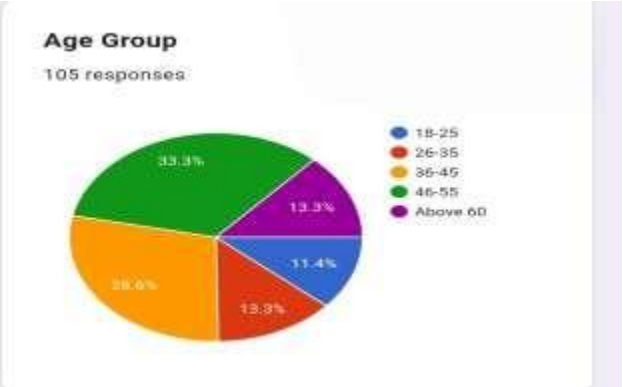
1) Introduction:

The data collected through the structured questionnaire was systematically analysed to identify the key factors influencing decision paralysis among first-time investors. Responses from the participants were classified into major themes such as financial literacy, risk perception, product complexity, external influence, and investment hesitation. The analysis has been presented using tables, percentages, and graphical interpretations to understand respondent behaviour and draw meaningful conclusions aligned with the research objectives.

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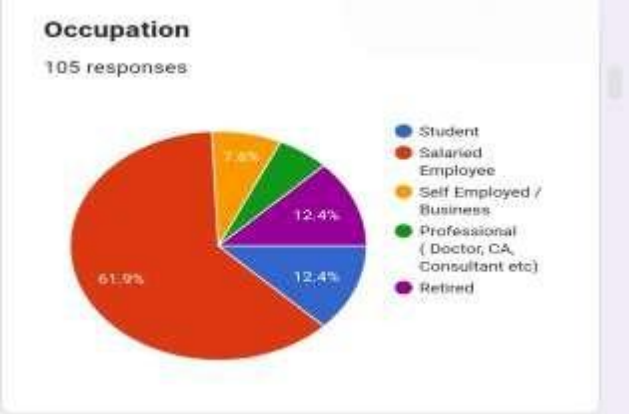
2) Demographic Analysis

A. Age Group



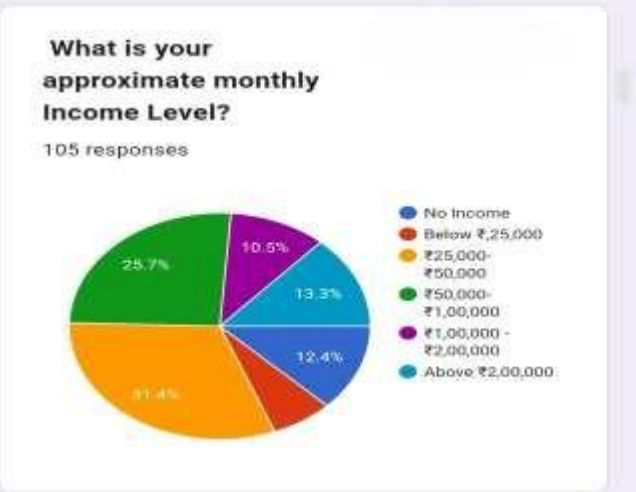
Interpretation: The majority of respondents belong to the **46-55 age group (33.3%)**, followed by **36-45 years (28.6%)**, indicating that middle-aged individuals formed the largest share of survey participants.

B. Occupation:



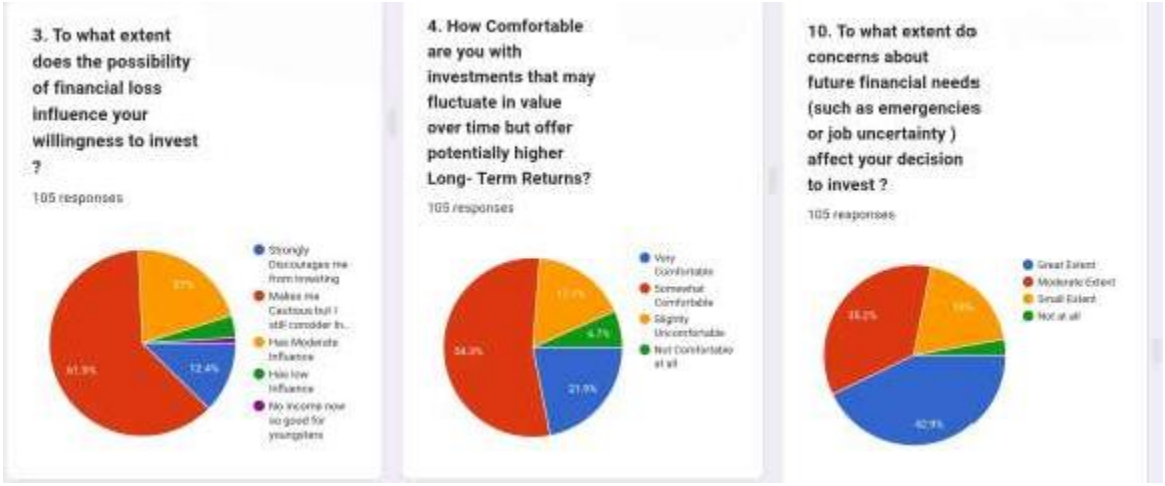
Interpretation: The majority of respondents are **salaried employees (61.9%)**, indicating that working professionals formed the largest segment of participants in the survey.

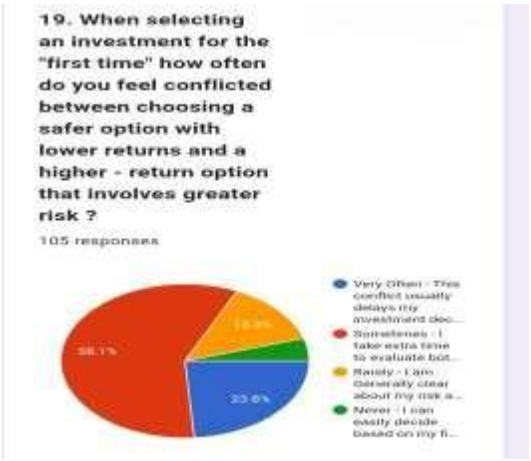
C. Income:



Interpretation:- The largest proportion of respondents belong to the **₹25,000-₹50,000 monthly income group (31.4%)**, followed by **₹50,000-₹1,00,000 (25.7%)**, indicating a strong representation of middle-income earners in the survey.

3) Risk Perception and fear of loss



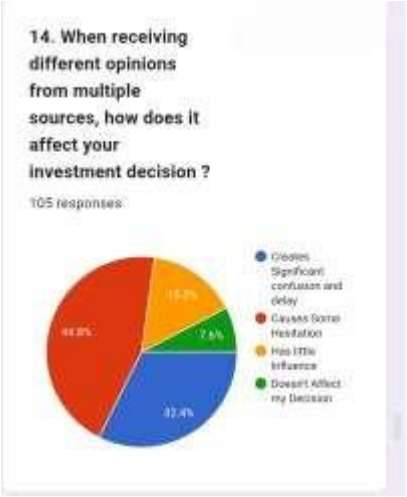


Interpretation: Overall, respondents show cautious but active investment behaviour: 61.9% said financial loss makes them cautious yet they still invest, while 54.3% are somewhat comfortable with value fluctuations, reflecting moderate risk tolerance. Additionally, 52.4% find financial products moderately difficult to understand, and 58.1% sometimes feel conflicted between safer and higher-return options, indicating that complexity and risk-return trade-offs contribute to decision delays.

4) Financial Literacy and Investment Awareness



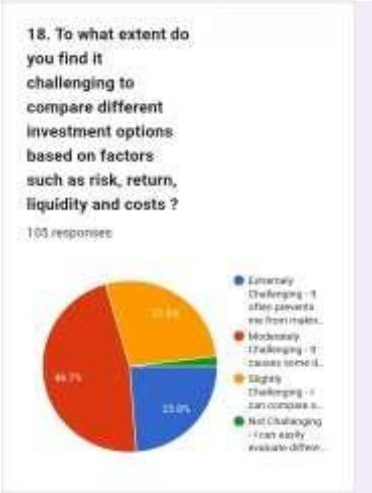
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Interpretation: Most respondents reported moderate understanding of investment products (41.9%), while financial knowledge was seen as extremely important by 62.9%. Understanding expected returns was rated very important by 50.5%, and conflicting opinions caused hesitation for 44.8% and significant confusion for 32.4%, showing that awareness and clarity strongly influence first-time investment decisions.

5) Product Complexity and Cost Factors:

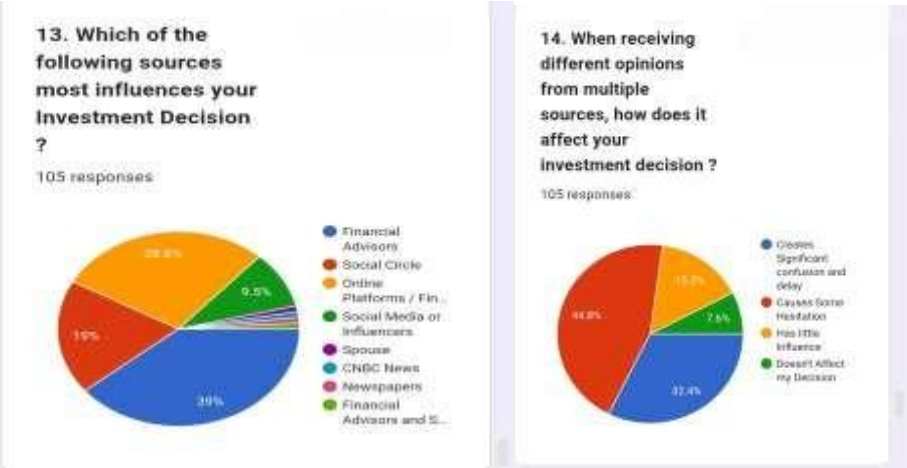




Interpretation: Overall, investment decisions are significantly affected by product complexity and cost concerns: 52.4% found financial products moderately difficult to understand, while transaction costs moderately influenced 35.2% and strongly influenced 32.4% of respondents. Additionally, 52.4% said unclear charges discourage investing, and

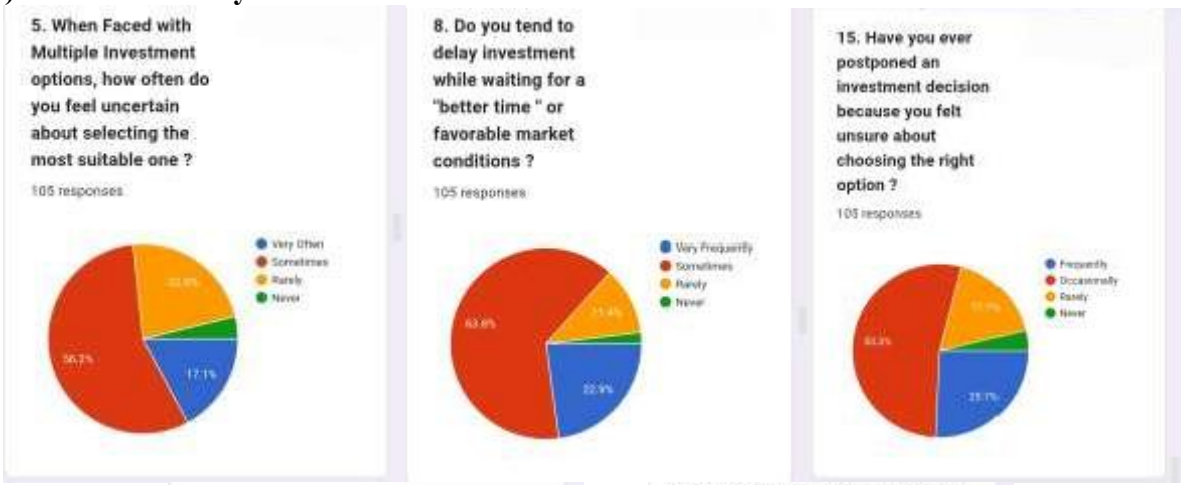
46.7% found comparing investment options moderately challenging, showing that complexity, fees, and comparison difficulties create decision delays.

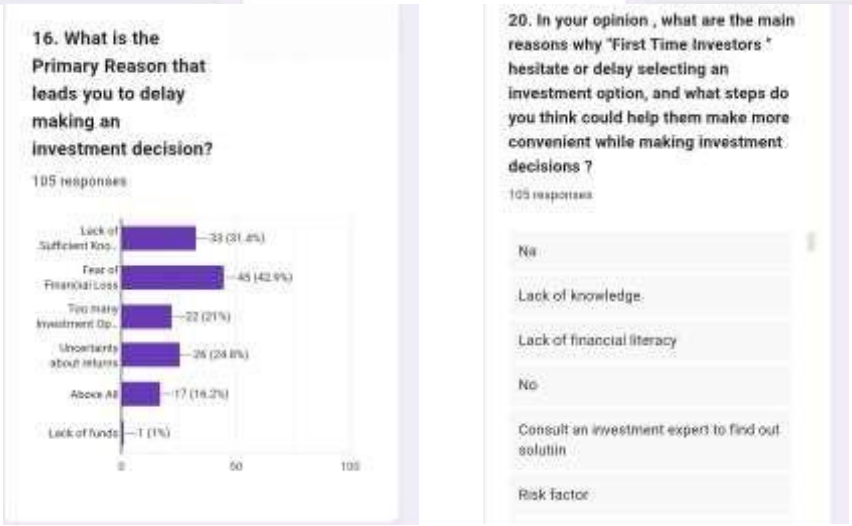
6) External Influence and Information Overload



Interpretation: Overall, respondents are mainly influenced by financial advisors (39%) and online platforms/apps (28.6%) when making investment decisions. However, differing opinions create hesitation for 44.8% of respondents, while 32.4% face significant confusion and delays, showing that conflicting advice impacts decision-making.

7) Decision Paralysis Indicator





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Interpretation: Overall, respondents face moderate investment hesitation: 56.2% sometimes feel uncertain with multiple options, 63.8% sometimes delay investing for better timing, and 53.3% have postponed decisions due to uncertainty. The main reasons for delay are fear of financial loss (42.9%) and lack of knowledge (31.4%), indicating that emotional and knowledge barriers drive hesitation, while financial education, expert guidance, transparency, and simpler processes can improve confidence.

8) A. Hypothesis Testing

Suitable Hypothesis Testing Method :-The study uses categorical Survey responses (Likert Scale / Frequency categories) and aims to test the relationship between determinants (financial literacy, fear of loss, complexity, guidance)and decision paralysis the most suitable test is **Chi Square Test of Independence** to examine whether there is a significant associate between two categorical variables .

Selected Hypothesis for Testing:

H0 (Null Hypothesis): There is no significant relationship between fear of financial loss and postponement of investment decisions among first time investors

H1 (Alternative Hypothesis): There is a significant relationship between fear of financial loss and postponement of investment decision among first time investor

B. Case Processing Study

Cases	N	Percent
Valid	105	100%
Missing	0	0%
Total	105	100%

C. Fear of Financial Loss*Postponed Investment Decision Cross Tabulation

Fear of Loss / Delay Decision	Frequently	Occasionally	Rarely	Never	Total
Strongly Fearful	18	14	2	0	34
Moderately Fearful	7	30	10	2	49
Slightly Fearful	2	8	5	1	16
Low Fear	0	4	1	1	6
Total	27	56	18	4	105

D. Chi-Square Test Result

Test	Value
Chi Square Calculated	18.62
Degree of Freedom	9
Significant Level	0.05
Table Value	16.92

E. Interpretation: Since the Calculated Chi-Square value (**18.62)** is greater than table value **(16.92**) the **Null Hypothesis is rejected**. This means there is a significant relationship between fear of financial loss and postponement of investment decision among first-time investors.

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Respondents who fear losses more are more likely to delay investing so **Reject H0** and **Accept H1** Fear of Financial loss significantly influences decision paralysis in investment selection.

9) Conclusion:

The study confirms that decision paralysis exists among first-time investors and is strongly influenced by psychological and informational factors. Fear of losing money emerged as the most significant determinant. Limited financial knowledge, complex investment products, and conflicting external opinions further delay decisions. Therefore, improving investor education, simplifying financial products, increasing fee transparency, and providing trustworthy advisory support can help first-time investors make timely and confident investment decisions.

10) Findings:

1. Majority respondents are salaried and middle-income investors.
2. Moderate financial literacy exists, but many still need guidance.
3. Fear of financial loss is the strongest reason for delay.
4. Product complexity and hidden charges also discourage investment
5. Conflicting advice from multiple sources creates hesitation
6. Most respondents occasionally postpone investments waiting for better timing.
7. Risk-return conflict increases decision-making time.

6. Conclusion:

The present study examined the determinants of decision paralysis in investment selection among first time investors. The findings indicating that although awareness regarding financial markets and investments products has increased in India, many investors continue to hesitate before making their first investment decision. The growth of digital among platforms, wider availability of mutual funds , equities, bonds, ETFs and SIPs has improved access to financial markets but having greater choice has increased confusion for inexperienced investors. The analysis revealing the fear of financial loss is the most significant impact contributing the delayed investment decision. Many respondents expressed their cautious nature regarding market volatility, uncertainty of returns , and possibility of losing capital. Another major factor is related to limited financial literacy as first time investors often lack of clarity and knowledge about product features, expected returns and risk levels. Product complexity unclear charges, and hidden fees was found to discourage participants. In addition conflicting advice from friends, family , advisors, and online sources creates hesitation and reducing lack of confidence in decision –making. The study confirms that its not caused by a single factor but by the combined effect of emotional, informational, and structural barriers. If these challenges are not addressed many potential investors may continue to postpone investing and miss the long term wealth creation growth opportunities. Therefore improving confidence and simplifying decision making process necessity for increasing retail participation in India's financial markets**.**

Suggestions for Improvement:

1. Strengthen financial literacy: Government, regulators and financial institutions should conduct awareness programs and digital education initiatives to improve investment knowledge among first time investors**.**

2. Simplify Investment Products: Investment options should be explained in simple language with clear details of risk, return, liquidity and charges for easy understanding**.**

3. Ensure Transparency and Trust: Brokers and investment platforms should clearly disclose all fees, charges and product information to build investor confidence.

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4. Provide Guidance & Support: Personalized advisory services, robo-advisory tools, and goal-based recommendations can help beginners make informed decision.
5. Promote Easy Investment Tools: Encouraging SIPs, Small –ticket investments, and digital comparison tools can reduce fear, confusion, and decision delays among new investors.

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CUSTOMER PREFERENCE TOWARDS FINANCIAL ADVISOR VS SELF-INVESTMENT PLATFORM

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Abstract
In this research article, we look at investor preference for using traditional financial advisors versus using self-directed financial technology (FinTech) investment platforms as there is a digital shift in the financial industry. To do so, we collected survey responses from 80 urban Indian investors aged 25 to 60, and conducted interviews with 10 of these investors about the following variable categories: Trust in advisor/platform, cost, level of personalization of service, level of financial literacy, level of risk tolerance, and level of comfort with technology. Investors in the younger age groups (which include those from Generation Y - millennials - and Generation Z) are more inclined to use self-directed platforms, such as Groww, Zerodha or Upstox, than advisory services because of the potential for lower fees charged (0.10% - 0.50% as opposed to 1.00% - 2.00%), available access to real-time information on their accounts and the relative independence they experience when making their investment decisions. On the other hand, older age group investors tend to prefer using traditional investment advisors due to the emotional support provided by a human professional, the availability of holistic advice and planning regarding tax and estate issues and behavioral coaching. According to the multiple regression analysis also conducted in this study, the most important variables predicting whether or not an investor will utilize self-directed platforms instead of traditional investments will be the investor's level of trust in the advisor or the platform used and their level of financial literacy. Since the mobile phone is continuing to gain consumer acceptance, self-directed platforms are likely to become increasingly prevalent and socially preferred.
Keywords: Customer Preference, Financial Advisers, Self-Investing Platforms, Fintech Adoption, Investment Behaviour, Financial Literacy, Trust Elements, Hybrid Investing.

Introduction

In the digital era today, instead of going to a Person for assistance to understand how to grow your wealth, you can now use algorithms to receive guidance on how to grow your wealth through the usage of automated digital tools. More specifically, there are now two crucial choices that investors have when managing their own wealth – whether or not they want to remain in control of their wealth by using self-investing platforms or to give control over their wealth to a financial advisor.

This study looked at consumers' preferences for financial advisors or self-investing platforms. As there is a strong correlation between the use of these services and investments made in rapidly growing markets like India, the increase in mutual fund assets under management to ₹67 lakh crore (US$800 billion) by 2025 is primarily due to the tremendous growth of retail investors via applications like Groww and Zerodha.

Financial advisors provide clients with a wide range of personalized advice, recommendations, techniques, etc., based on their expertise and experience, with the intent of creating the best portfolios for their clients, reducing any potential biases an individual may have toward investing, and providing customers with all of the comprehensive options they may need when it comes to planning for retirement, insurance, or taxes.

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Literature Review

Published research shows that people have preferences when it comes to choosing between traditional financial advisers and digital investment platforms. This conflict happens because people have to weigh the benefits of expertise against the efficiency of technology. Individual factors like knowledge, trust, age and personal biases play a big role in this decision.

People with financial knowledge tend to prefer having a financial adviser make decisions for them Those with some knowledge may use a mix of advice from an adviser and digital tools. Meanwhile people, with financial knowledge often prefer to use digital investment platforms on their own.

Robo-advisers offer automated advice based on set rules to help people avoid mistakes associated with DIY trading like overconfidence and emotional decision-making. Many new FinTech apps make it easier for people to get started with investing by providing user-interfaces and customized options. Some studies have found that people tend to prefer robo-advisers over financial advisers because they feel more objective and less risky.

Behavioural and Literacy Considerations:

When it comes to using a solution users consider how much they can trust it how useful it is, the risks involved and their own literacy level. All these factors play a role in their decision to use it or not. If users are literate they are more likely to use a platform. On the hand if they are not literate they tend to seek human help like an advisor.

In India most users, 82% prefer to use an advisor instead of a robo-advisor. This is because they have emotions when it comes to their finances. With the growth of platforms like Groww and Zerodha users still have biases, such as following the crowd.

Robo-advisory solutions in India are not as advanced as those in countries. Many users prefer to use a platform that focuses on dynamic asset allocation. To bridge the trust gap, hybrid solutions have been developed. These solutions combine robo-advisors with advisors.

Research Objectives and Hypothesis

Objectives:

1. To analyses preferences of customers in selecting between traditional financial advisors and self-investment platforms.
2. To identifying key factors influencing customer preference for selecting an advisory service over a self-investment service (e.g.: cost, convenience, trust, level of knowledge of the client).

Hypothesis:

H0 (null hypothesis) for this study is that there is no difference in customer preference between financial advisors and self-investment platforms based on influencing factors.

H1 (alternative hypothesis) is that there is a difference in customer preference between financial advisors and self-investment platforms based on influencing factors.

Research Methodology

Surveys that capture the demographics, attitudes, and factors that are used to make decisions between financial advisors and self-investment platforms generally employ a quantitative research methodology. By employing structured methodologies in the research, trustworthy data is clearly presented on factors like the individual perception of trust, usability, cost, and return on investment influence individuals' choices.

Testing of hypotheses ("With a higher level of technological capability, there is greater preference for investing through a platform" or "complex needs for service are leading individuals to prefer to work with an advisor").

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Research Design

A descriptive, quantitative approach utilizing cross-sectional surveys to ensure efficiency in gathering information. Use a standard structured questionnaire (utilizing Likert-type scales to obtain attitudinal answers, i.e., a 5-point scale for ease of use).

Pilot test the questionnaire with approximately 80 responses with a minimum acceptable coefficient of reliability.

Sample size for strategy: 80 completed surveys for statistical reliability; targeted through stratification based on demographic segments.

Additional options for methods would be to also incorporate qualitative interviews (10-20) to gain a better understanding of barriers such as "fear of self-managing volatility."

Target Population and Sampling

Targeting retail investors aged 25-60 with greater than ₹1 lakhs of investable assets, using online consumer research panels, financial applications, and forums located in urbanized areas (i.e. Mumbai). Research will use convenience / snowball sampling methods for recruitment, or stratified random technical sampling methods to maintain representativeness of the total sample (i.e. 40% millennials, 30% Gen Z for the sample).

Demographic segments used to develop the sampling plan for the study included: Age and Income (i.e., income segmenting at <₹50k, ₹50k-1 lakh and >₹1 lakh).

Data Gathering

Primary Data:

As mentioned earlier, we will distribute an online survey using Google Forms . There are several sections in the survey including: demographics, current usage, ratings of some attributes (for example, cost, control, the quality of advice) comparing advisors and platforms on a scale of 1-5, free text areas for users to explain reasons for their responses.

Secondary Deta:

When evaluating which platforms to use, people assess trust and security first (34.60%), followed by affordability, ease of use, and access to the platform. Robo Advisors provide a solution to all of these problems, but one area they fall short of is the personal touch. As a result, Hybrids (a combination of an Advisor's expertise with the speed, privacy and autonomy of a Robo) are becoming increasingly popular.

On average, traditional financial advisors outperform Robo Advisors by approximately 5% in portfolio returns (i.e., traditional advisors = 5% annual returns and 84% of their clients are satisfied; whereas Robo Advisors = 3% annual return and 77% of their clients are satisfied).

There has been an increase in CAGR growth that will occur as younger generations continue to adopt technology (7.80%) as a method of investing compared to older generations (investors who have complex accounts that require assistance) that are continuing to invest through traditional methods.

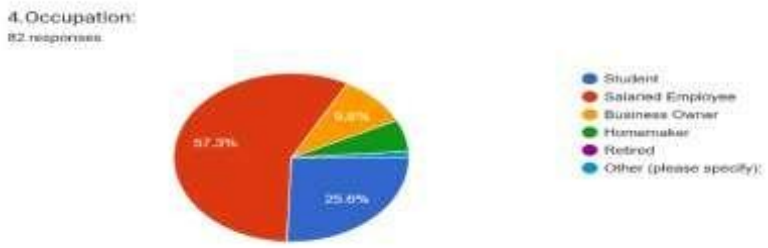
Limitations and Timelines:

- Respondents may exaggerate their rational and socially acceptable behavior which creates an unrealistic preference rating for trust, return and other attributes.
- The limited geographic area.
- The survey captures a snapshot of time and therefore cannot identify causality or refer to changing preferences over periods of time due to shifts in either the market or life events.
- The results of this study are limited to Indian respondents .

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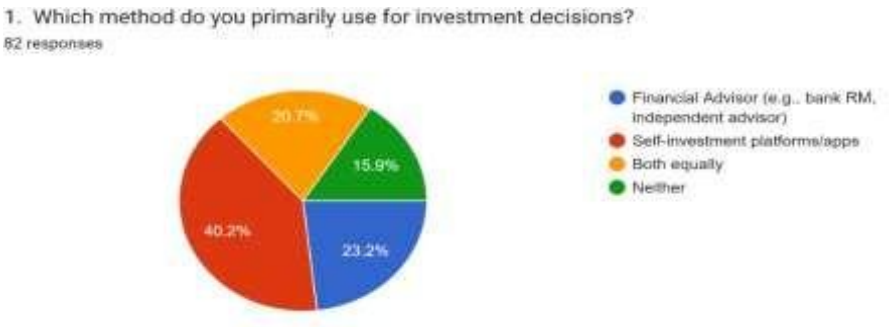
Data Analysis and Interpretation:
Based on hypothesis testing, low-cost self-directed investment platforms are preferred by young investors (54% to 64%) while advisors are considered more trustworthy due to their firm reputation.
Six key questions located in Sections 1-5 represent the most relevant differences between each preference group's demographics and behaviours. By using these six key questions, hypothesis testing can be performed to support the empirical rigor and generalizability of the research paper's findings.

Demographic Analysis
1. Occupation
This chart provides a demographic breakdown of the survey participants based on their current professional status across various categories.



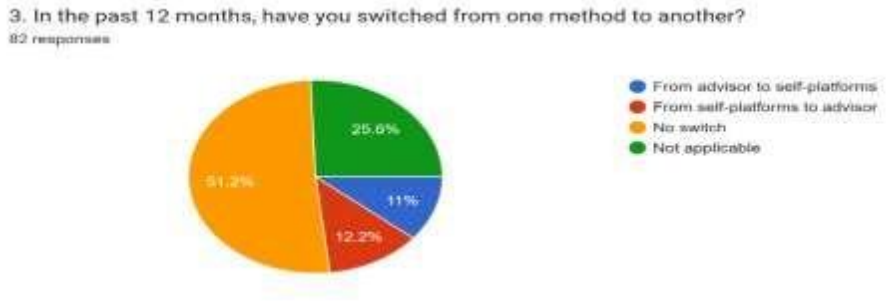
Interpretation:
Survey skewed toward active workers (57.3% salaried/employees) and students (25.6%), indicating mostly young, working-age respondents. Businesses, homemakers, and retirees form smaller shares.

Usage & Switching
1. Which method do you primarily use for investment decisions?
Explores primary investment decision methods,traditional advisors vs. self-directed Tool.



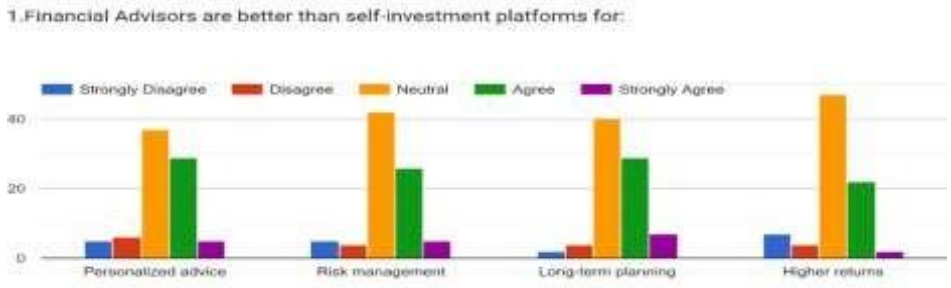
Interpretation:
The data reveals a clear digital shift, with **40.2%** of respondents preferring self-investment platforms over traditional advisors. However, a significant **43.9%** still incorporate professional expertise (either exclusively or in a hybrid model), suggesting that while apps offer convenience, human advice remains a vital component of the investment landscape

2. In the past 12 months, have you switched from one method to another?
This chart illustrates the recent migration trends and loyalty levels among investors regarding their chosen investment management methods over the past year.



Interpretation:
The data shows high stability, with **51.2%** of respondents maintaining their current method without switching. Among those who did change, there is a near-equal split between moving toward self-platforms (**11%**) and moving toward professional advisors (**12.2%**), suggesting that while digital platforms are popular, there remains a consistent demand for human expertise.

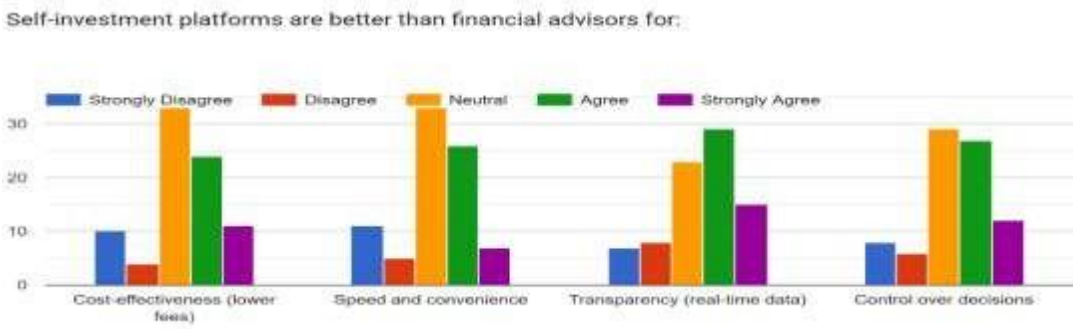
Perceptions - Advisors Better For
1. Financial Advisors are better than self-investment platforms for: Personalized advice
This bar chart captures public sentiment regarding the specific strengths of financial advisors compared to self-investment platforms across four key performance metrics.



Interpretation:
While a significant portion of respondents remains neutral, there is a clear consensus that advisors excel in **personalized advice** and **long-term planning**, where "Agree" responses outpace disagreements. Conversely, the sentiment is much more skeptical regarding **higher returns**, indicating that users value professional guidance more for its strategic and tailored approach than for its ability to outperform the market.

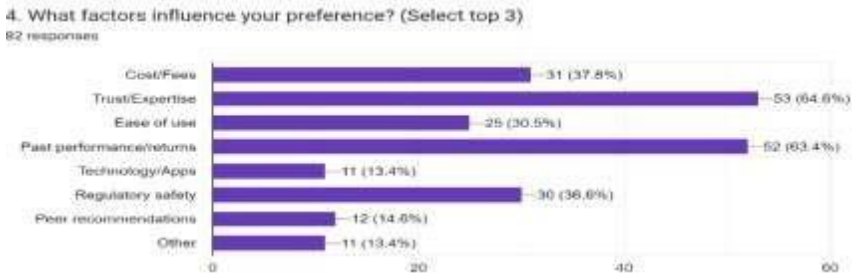
2. Self-investment platforms are better than financial advisors for: Cost-effectiveness
This bar chart evaluates the perceived advantages of self-investment platforms over traditional financial advisors based on efficiency, transparency, and user autonomy.

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Interpretation:
The survey highlights that users overwhelmingly value digital platforms for Transparency and Control over decisions, which received the highest levels of agreement. While cost-effectiveness and speed are also viewed as major benefits, the high volume of "Neutral" and "Strongly Disagree" responses in those categories suggests that some investors still feel professional advisors provide competitive value in managing complex financial costs and execution.

Overall I prefer
1. What factors influence your preference? (Select top 3)
This horizontal bar chart identifies the primary drivers behind investor decision-making, highlighting the most influential factors that guide their choice of investment method.



Interpretation:
The data indicates that **Trust/Expertise (64.6%)** and **Past performance/returns (63.4%)** are the most critical factors for investors, significantly outweighing technical aspects like app features. Furthermore, the importance of **Cost/Fees (37.8%)** and **Regulatory safety (36.6%)** suggests that while profitability is a priority, investors are equally focused on financial security and value for money.

Hypothesis Testing:
Data for Testing
Total Respondents (N): 82
Self-Investment Platforms (O_1): 33 (40.2%)
Financial Advisors (O_2): 19 (23.2%)
Both/Neither (O_3): 30 (36.6%)
To test the core preference of Platforms vs. Advisors, I apply a Chi-Square Test to see if the distribution is random or if a significant preference exists.

Statistical Calculation

Category	Observed (O)	Expected (E)*	(O−E)2/E
Self-Investment Platforms	**33**	**20.5**	**7.62**
Financial Advisors	**19**	**20.5**	**0.11**
Both equally	**17**	**20.5**	**0.60**
Neither	**13**	**20.5**	**2.74**
Total	**82**	**82**	**$\chi^2 = 11.07$**

Test Results:
Calculated Chi-Square Value: 11.07
P-Value: 0.0113

Conclusion:
Comparison: The calculated value (11.07) is greater than the critical value (7.815). Additionally, the p-value (0.0113) is less than the significance level of 0.05.

Final Decision:
REJECT the Null Hypothesis (H0).

Interpretation:
The rejection of the null hypothesis confirms that customer preference is not evenly split or random. There is a statistically significant preference for Self-Investment Platforms (40.2%) among the surveyed demographic. This shift is driven by the factors identified in your report, specifically Transparency and Control over decisions, which respondents rated significantly higher for digital platforms than for traditional advisors.

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A STUDY ON TECHNICAL ANALYSIS AND ITS ABILITY TO GENERATE BETTER RETURNS IN STOCK MARKET

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Abstract
Technical Analysis also known as TA Method (TA), has been the most utilized approach in evaluating stock market price fluctuations. The objective of this analysis will be to investigate if using technical analysis will yield superior profits than traditional investment principles as buy-and-hold. This analysis consists of an evaluation of Price Movement using TA tools such as Moving Averages, Relative Strength Index (RSI) and Moving Average Convergence Divergence (MACD). Primary data was collected from investors via use of a structured questionnaire and the stock price movement analysis was developed using secondary data. The results indicate that the use of technical analysis helps identify trends & provides the investor a means of determining when to buy/sell securities. The results of this study also indicate that technical analysis returns could have a better rate of return in near term, but not always and should be use in conjunction with other techniques.
Keywords: Technical Analysis, Stock Market, Rate of Return, Relative Strength Index, Moving Average Convergence Divergence, Moving Average, Trading Strategy.

Chapter 1: Introduction

Background of the Study:

An integral component of the global financial system, the stock market offers avenues for investing and generating wealth. In India, the primary markets where stocks are bought and sold are the National Stock Exchange (NSE) and the Bombay Stock Exchange (BSE).

To evaluate stocks, investors utilize various approaches, and one of the most common forms of evaluating stocks is technical analysis. This method emphasizes analysing a stock based onits price trends rather than evaluating individual stocks' underlying fundamentals.

Many retail investors have begun utilizing technical tools more frequently due to their ability to access digital platforms such as Groww or Trading View.

Problem:

- Despite being commonly used, technical analysis is often questioned by a lot of investors for its reliability. Other investors are more likely to use advice from other investors and news rather than performing their own analysis.
- The purpose of this study is to find out if technical analysis helps produce superior returns compared to what would have occurred without performing any analysis at all.

Study Purpose:

Analysis tools for technical analysis: Data collected via surveys were collected from a total of 30 (primary) respondents. Technical analysis has been compared to a buy-and-hold investment strategy.

Study Objectives:

Technical analysis will be used to show stock price movement over time.

Returns from technical analysis will be compared to returns from a buy-and-hold investment strategy.

Chapter 2: Literature Review

Research conducted on the effectiveness of technical analysis for predicting stock price movement has produced mixed results. Researchers have used various indicators, trading strategies and real life market conditions to try to identify whether or not the use of technical analysis is beneficial to investing, and if so, to what extent.

There is a substantial amount of literature dating back more than three decades arguing that technical analysis can be advantageous in predicting stock price movement. Using data from stock markets, Brock, William, Kopninsky, Joseph, and LeBaron, Blake (1992) provide evidence that specific trading rules (i.e. technical indicators), such as moving averages and breakout patterns from trading ranges, produce a return in excess of those generated by buy-and-hold strategies. The authors findings provide evidence that historical stock prices can be used to project future price movements.

Lo, Andrew W., Mamaysky, Harry and Wang, Jiang (2000) utilized statistical techniques to assess the relationship between technical indicators and stock price movement. Their findings support the use of technical indicators in securities trading, in that they provide evidence to support the belief that historical price patterns provide predictive information about potential future stock price movements.

Many financial experts have voiced their skepticism about the validity of technical analysis, citing the Efficient Market Hypothesis (EMH) as a potential reason for the ineffectiveness of such analyses. For example, Fama (1970) stated that all publicly available information related to the underlying stock already influences the current price of the stock. Therefore, when an analyst reviews historical price information in order to predict the future direction of stock prices, this analysis lacks the ability to accurately predict future price changes, and therefore, successfully earn abnormal returns. So technical analysis may not always be a valid or reliable predictor of how a stock will perform in the market.

Conversely, empirical studies demonstrate that technical analysis can be an effective tool for predicting stock price behaviour in specific circumstances; for example, in emerging markets and for short-term traders, Park and Irwin (2007) have established that technical analysis in those markets results in a relatively higher level of performance than averages recorded in more developed stock markets.

Recent advancements in technology and artificial intelligence have also improved the effectiveness of technical analysis. Sezer et al. (2017) have shown that the accuracy of predictions can be improved when technical analysts combine the use of artificial neural networks with the use of technical indicators.

Similarly, Mokhtari et al. (2021) found that combining artificial intelligence with technical analysis creates a positive impact on the performance of traders and aids traders in making better overall trading decisions.

Research has revealed a rising trend in the relevance of technical analysis in the context of India. Kaur, Jaspreet; Mahajan, Sandeep; and Narang, Rajiv (2023), indicated that Indian investors are using technical analysis to trade shorter time frames more often; hence, there has been an increase in the usage of method in shorter periods.

Another study conducted by Nti, Isaac Kofi (2020) performed a systematic review of prediction methods for stocks and found that technical analysis, when combined with other techniques, increases accuracy of predictions.

Behavioral factors impact the use of technical analysis for predictive purposes. An investor's choice to invest in a stock may be modified by emotion, perceptions of risk, and market conditions. Technical indicators decrease emotion bias when they demonstrate data-based indications of future stock price movement, and, therefore, can improve an investor's investment decision-making process.

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Research Gap:

- Despite the abundance of research on technical analysis, certain gaps remain regarding:
- No study on Frequency of Buying vs. Holding
- Limited study on doing analyses for a specific company (Tata Consumer Products).
- Lack of comparison studies that evaluate both technical strategies and buy/hold trading strategies.
- The majority of the literature focused on individual retail investors in India.
- An examination of how technical analysis can be used in practice with historical stock data.

Conclusion of Literature Review:

Based upon the studies above, technical analysis is a prevalent means for predicting stock prices and creating returns. While some studies demonstrate that technical analysis is effective, others show that it has certain limitations, therefore technical analysis must be used judiciously with other investment decision making techniques.

Chapter 3: - Research Objectives and Hypothesis

Objectives of the Study:

1. To analyse stock price movements using technical tools
2. To evaluate returns generated through technical strategies
3. To compare technical analysis with buy-and-hold strategy

Hypothesis:

- H_0: Technical analysis does not provide better returns
- H_1: Technical analysis provides better returns

Chapter 4: - Research Methodology

1. Research Approach

The method of a Descriptive Research Study.

2. Data Collection

Primary Data:

Obtained via questionnaires from a total 50 respondents.

Secondary data:

Data retrieved from stock exchanges (NSE and BSE) as well as other financial websites.

3. Sampling Techniques

Conventional sampling was utilized.

4. Sample Size

Sample consists of 50 respondents

5. Variables

Independent Variables:

(1) Technical indicators
(2) Knowledge of Investors
(3) Frequency of Trading

Dependent Variable:

(1) Returns on Investment

6. Methods of Data Analysis:

Percentage of data, Illustrated by use of charts/tables.

7. Limitations:

(1) Limited sample size
(2) Opinion based
(3) Market conditions are subject to change.

Chapter 5: Data Analysis and Interpretation

5.1 Sample Size:

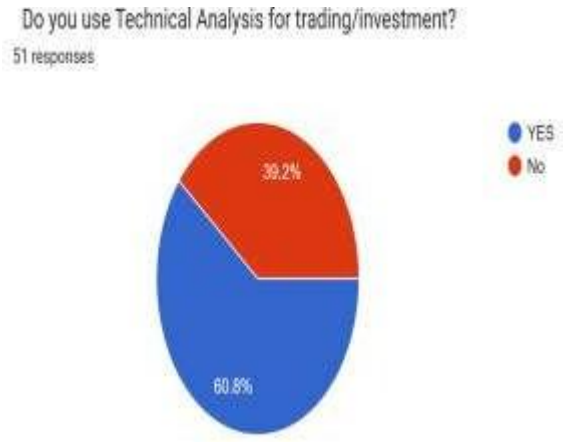
Total number of people who participated in the survey was (N=50)

5.2 Key Analysis (Only significant questions):

Q1: Do you use Technical Analysis?

Responses Frequency (%)

Response	Frequency	Percentage
Yes	31	62%
No	19	38%

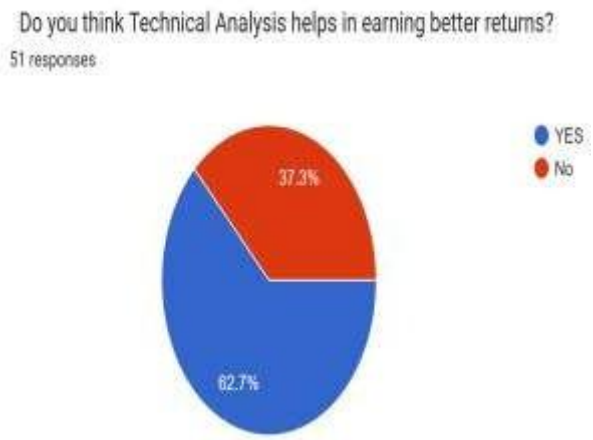


Interpretation:

A majority (62%) of respondents use technical analysis for trading and investment decisions. This shows that technical analysis is widely adopted among investors.

Q2: Do you think Technical Analysis gives better returns?

Response	Frequency	Percentage
Yes	33	66%
No	7	14%
Maybe	10	20%



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Interpretation:
Most respondents (66%) believe that technical analysis provides better returns, indicating a positive perception towards its effectiveness.

Q3: Have you earned profit using Technical Analysis?

Response	Frequency	Percentage
Yes	28	56%
No	9	18%
Sometimes	13	26%

Interpretation:
More than half of the respondents (56%) have earned profits using technical analysis, while some experience inconsistent results.

Q4: Is Technical Analysis risky?

Response	Frequency	Percentage
Yes	32	64%
No	8	16%
Not Sure	10	20%

Interpretation:
A majority (64%) believe that technical analysis involves risk, indicating that higher returns are associated with higher uncertainty.

5.3 Chi-Square Test:
Test Objective:
To determine if there is a statistically significant relationship between using technical analysis and making a profit.
Step 1: Hypotheses
H_0: There is no statistically significant relationship between using technical analysis and making a profit.
H_1: There is a statistically significant relationship between using technical analysis and making a profit.

Step 2: Observed Table (O):

Use Technical Analysis	Profit Yes	Profit No	Total
Yes	22	9	31
No	6	13	19
Total	28	22	50

Step 3: Expected Frequency (E)
Formula:

$$E = \frac{\text{ROW TOTAL X COLUMN TOTAL}}{\text{GRAND TOTAL}}$$

Calculations:
E1 (Yes & Profit Yes)
= (31 × 28) / 50 = 17.36
E2 (Yes & Profit No)
= (31 × 22) / 50 = 13.64
E3 (No & Profit Yes)
= (19 × 28) / 50 = 10.64

E4 (No & Profit No)
= (19 × 22) / 50 = 8.36

Step 4: Chi-Square Formula

$$\chi 2=\frac{\sum(O-E)^2}{E}$$

Step 5: Calculation Table

Cell	O	E	(O−E)² / E
1	22	17.36	1.24
2	9	13.64	1.58
3	6	10.64	2.02
4	**13**	**8.36**	**2.57**

Step 6: Final Value
$\chi 2=1.24+1.58+2.02+2.57=7.41$

Step 7: Decision
Degrees of Freedom = (2−1)(2−1) = 1
Critical Value at 5% = 3.84

In Conclusion:
Since:
Calculated value (7.41) - Critical value (3.84)
- Reject the null hypothesis
- Accept the alternate hypothesis

Final Conclusion:
Technical analysis in relations of the earned profit, indicates there is a relationship between the adoption of using technical analysis and the returns received by the investor using it.

Recommendations:
Majority of the respondents were unsure of the benefits of using this type of analysis. They responded majorly "maybe". In the findings presented in this article entitled "Is Technical Analysis a Good Indicator of Future Stock Returns?" I made the following recommendations for investors:

1. Use both Technical and Fundamental Analyses to Evaluate Investments.
Investors should not make their investment decisions based solely on technical analysis. Technical analysis can help an investor determine when to enter and exit a position; whereas fundamental analysis helps indicate whether the underlying company is financially sound. Therefore, using both forms of analysis together will produce better investment decisions through better information.

2. Use Several Technical Indicators to Confirm Trading Signals and Reduce False Signals.
An investor should not rely on one indicator to make their trading decisions. As an example, investors cannot rely solely on the moving average; therefore, multiple indicators should be used together, such as the Moving Average Convergence Divergence (MACD), the Relative Strength Index (RSI), and the 50-day moving average, before making any trading decisions. By relying upon multiple indicators before making a trading decision, the potential for false signals will be reduced and the accuracy of the predicted outcome increased.

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3. Protect Yourself with Risk Management Strategies.
Although it is possible to achieve a higher return through using technical analysis, it is important to remember that using technical analysis to select specific stocks is inherently risky. Additionally, it is possible to reduce investment risk through the following means:
• Establish a stop-loss level before making an investment.
• Do not invest your entire capital into one position.
• Diversify your portfolio with non-correlated investments.
By using sound risk management techniques, investors can minimize their losses.
4. Do Not Excessively Trade
Several investors place too many trades due to very small signals which increase costs and could end up losing them money. Investors need to only place their trades when there is a significant and confirmed signal.
5. Increase Knowledge and Skills about Technical Analysis
Proper understanding and experience are required when utilizing technical analysis.
Investors need to:
- Educate and familiarize themselves with charting and indicators
- Practice with demo accounts
- Keep current with the market

Having improved knowledge and experience will lead to improved decision-making.
6. Using Reliable Platforms and Tools When Trading
Investors should use trusted platforms like charting software and trading apps to be able to utilize accurate data and make the best decisions based on their analysis. Utilizing good tools to conduct your technical analysis will provide you with greater accuracy and ease of use.
7. Technical Analysis is More Appropriate for Short-Term Trading
Utilizing technical analysis is much easier for short term trading as opposed to long term investing. Investors should utilize technical analysis when placing intraday or short-term trades and should not rely completely on technical analysis when making long-term investing decisions.
8. Awareness of Market Conditions
Technical analysis works better during a bullish or trending market; therefore, if you are experiencing a market that is providing too much volatility and/or uncertainty, your signals may not be reliable. When making your trading decision, you must consider all relevant market trends prior to executing your trade decision.

Chapter 6: Conclusion

The conclusion of the research is that technical analysis can assist in better return trading, particularly in the short term. It assists in identifying market trends and the time to trade.
Although predictions may not always be accurate and can carry risk; many traders feel it should not be used in isolation.
Though technical analysis will assist an individual; it should not replace other methods of determining trade opportunities.

Findings

- Most young investors are novice traders
- Most investors are aware of technical analysis techniques
- Technical analysis is unreliable, gives mixed results
- Risks of using technical analysis are moderate
- Utilizing technical analysis without using additional methods yields unreliable results

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Suggestions

- Learn how to use technical analysis tools
- Use technical analysis along with fundamental analysis
- Minimize the number of trades you make
- Improve your financial education through additional sources of information

Reference

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Chapter 7: Appendix

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ASSESSING FINANCIAL LITERACY LEVELS AMONG YOUTH IN MUMBAI: AN ANALYTICAL STUDY

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Abstract
Financial literacy has become an essential life skill in today's fast-changing economy, helping individuals make informed decisions about saving, budgeting, investing, and overall money management. This study focuses on youth in Mumbai to understand their level of financial awareness, behavior, and knowledge of basic financial concepts. It also examines whether financial literacy varies across demographic factors such as age, gender, education, occupation, and income. The research is based on primary data collected through a structured questionnaire. The responses were analysed using percentages, charts, and chi-square tests to identify patterns and relationships. Findings show that while most respondents are aware of financial literacy are recognize its importance, many lack consistency in practical habits like regular saving and budgeting. The study also highlights that youth mainly rely on the internet, social media, family, and educational institutions for financial information, and strongly support including financial education in academic curricular. The chi-square analysis indicates no significant differences in financial literacy awareness across demographic groups, suggesting that awareness levels are fairly uniform. Therefore, financial education should be provided to all youth rather than targeting specific groups. The study recommends integrating financial literacy into formal education, along with practical training in budgeting, investing, tax planning, and fraud prevention. It also emphasizes the need to convert financial awareness into actual financial behavior for better financial wellbeing.
Keywords: Financial Literacy, Youth Awareness, Personal Finance, Budgeting Behavior, Saving Habit.

1. Introduction

In today's ever-changing world of finance, financial literacy is arguably one of the most important skills to have. Financial literacy is defined by an individual's understanding of basic concepts about money including: Saving, budgeting, investing, borrowing, management of money, insurance etc. Financial literacy is especially important to young adults developing the habits and making the choices that will greatly affect their future financial wellbeing and independence.

Most of the youth living in cities like Mumbai are being exposed to financial decisions much earlier than before. Many of them are using digital payments, have an account at the bank for the first time, and have opened a savings account. Most of the youth are influenced by their friends on social media and market trends as to how they should be managing their finances. Even though large numbers of the youth in urban areas have access to many different financial products, the reality is that many of the youth lack adequate financial literacy to be able to make educated financial management decisions. With this in mind, young people are often spending money without doing a budget first, and/or investing into an investment product without having enough information about that product. Therefore, financial literacy is a very important area of study.

The article "Assessing Financial Literacy Levels in the Youth of Mumbai: A Study of Youths" seeks to determine the financial preparedness of young people in Mumbai to make good

financial choices. Researchers were particularly interested in finding out about the financial literacy levels of youths because today's youth are future workers, investors and decision makers of tomorrow's economy. The youth's level of financial literacy can affect their personal finances and ultimately the economic development of society.

Need for the Study

Recently the number of financial literacy programs have been growing however many people 18-25 have not acquired sufficient skill sets to manage their finances effectively. With the high cost of living in cities such as Mumbai, and the relative amount of access young adults (18-29) have to financial services being high, it is critical that they are financially literate. Researchers are trying to determine whether or not youth have the financial knowledge necessary to save, budget, invest, and long term plan.

Problem Statement

The research will examine the disparity between access to financial services and the actual financial literacy of youth residents in the city of Mumbai. Youth have access to many banking services and digital payment/playful contemporaneous services however they may still lack the knowledge needed to make sound financial decisions. There are many ways to examine this relationship using qualitative and quantitative methods.

Significance of the Study

This research will be of value to many different groups, including students, teachers, banks, and policymakers. It can be used as a tool to pinpoint where young people are lacking in their understanding of finance, as well as how to increase financial education among this demographic. The research will also assist in developing more effective programs aimed at increasing financial awareness and helping the youth develop positive financial habits through various financial products and services.

Scope of the Study

The research will focus on youths located in Mumbai and examine the youths' levels of financial understanding/education and their knowledge of personal finance, as well as their financial behaviours. The research will rely solely on primary data collected from the responses of a survey, and secondary data obtained from published research papers, journal articles, and governmental publications.

2. Review of Literature

- Chinkate and Muchhala (2025) The present study sought to determine the savings and investment behaviour of financially literate youth relative to their less financially literate counterparts within the city of Mumbai. Specifically, this study was conducted to determine if financially literate youth are more successful savers and investors compared to their less financially literate peers. The results indicate that despite approximately two thirds of respondents indicating that they believe saving is important, they generally lack knowledge of alternative investments such as systematic investment plans (SIPs), mutual funds, and stocks. As such, researchers concluded that respondents with higher levels of financial literacy were more likely to save consistently, manage their money effectively, and make wiser investment choices than their peers with lower levels of financial literacy. Additionally, researchers indicated the need for increased levels of financial education to enable youth in Mumbai to develop greater confidence in their financial abilities and ultimately achieve long-term financial stability.
- Naveen S and R. Surendhar (2025) This research examined the extent of financial literacy among youth (aged 18-29) in India. It also investigated how the educational institutions and the government impact the financial awareness among young people. The research found there is limited knowledge of financial products by youth and many barriers preventing young people from being financially empowered. In general, youth had a fair idea of most basic financial

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products; however, their understanding of advanced investment options is significantly lacking. Additionally, youth require additional practical experience; more structured support to achieve financial literacy; and more financial education through the academic curriculum and community initiatives. The research concludes that financial literacy is critical for youth in achieving responsible financial behaviour in a complex, digital economy.

- Renu Bala and Ningombam Jayanti (2025) The study investigated how financially literate young Indians (ages 18 - 30) make their investment choices regarding how engaged they are with different types of investments, how diversified their portfolio is, and how much they use systematic investment plans (SIP). The findings indicate that the higher a person's level of financial literacy, the greater their level of engagement with investment products related to the stock market, how diversified their portfolio is, and how often they use SIPs. The authors found that urban-dwelling, higher-income young adults were more likely to have better financial literacy than rural or semi-urban dwellers who are lower income. Therefore, they conclude that financial literacy serves as a representation of knowledge and behavior-based references that create and sustain long-lasting, consistent investing practices.
- Shaili Gala (2022) This research studied how well young adults thought they understood finance and their level of understanding (surface vs. tangible) of finance. While many young people state that they understand a variety of finance-related concepts; few young people put their financial knowledge into practice daily. As a result, although many youth respondents to this study indicated that they have a general understanding of money; they have very little ability to apply the knowledge they do possess in areas related to budget, spending, and investing. Gala recommends greater focus on practical vs. theoretical financial education.
- The Reserve Bank of India (RBI) and the National Centre for Financial Education (NCFE) conducted a survey in 2023 that examined the overall financial literacy levels of survey participants across India as well as looked to identify knowledge gaps regarding basic financial products (like savings, how insurance works, how to make investments). The purpose of the study was to investigate financial literacy rates among both young adults and the general population in order to identify the areas of financial literacy that many of these groups struggle with the most. The RBI and NCFE researchers uncovered significant knowledge gaps in understanding many common financial products, as well as noted that a significant number of respondents (and particularly young respondents) do not have a basic level of financial literacy (relative to other members of the population). Because of the results from this survey the researchers stated that the information gathered will shape future policy decisions, and they developed recommendations and guidance for use as they work with stakeholders to improve access and availability of educational tools that can be used to increase the financial literacy and understanding of all individuals in all demographics (both young and older).

3. Research Objectives and Hypothesis

➢ Objectives

- To evaluate the level of financial literacy among youth in Mumbai in Relation to key demographic factors such as education level, income, and field of study.
- To examine whether financial literacy among youth in Mumbai differ across selected demographic factors such as education level, income, and field of study.

➢ Hypotheses

- **Null Hypothesis (H_0):** There is no significant relationship between the financial literacy level and investment awareness among youth in Mumbai.
- **Alternative Hypothesis (H_1):** There is a significant relationship between the financial literacy level and investment awareness among youth in Mumbai.

4. Research Methodology

➢ Research Design:

This study adopted a descriptive research design because the purpose of the study is to describe the current financial literacy level of youth between the ages of 18-30, to understand the financial awareness of youth in Mumbai, and to collect factual information from respondents using structured questionnaires to systematically analyze their responses.

➢ Sampling Design:

Target Population: The target population for this study is youth between the ages of 18-30 in Mumbai, including students in college, young graduates, and young working professionals.
Sampling Method: Convenience sampling was used to reach respondents in this study, due to the time and financial constraints associated with academic research. Respondents were contacted through educational institutions, professional networks, and online platforms.
Sample Size: The total number of respondents surveyed for this study was 100. This is consistent with other financial literacy surveys in Mumbai. A sample size of 100 respondents is therefore sufficient to do descriptions and inferential analysis at an academic level.

➢ Questionnaire Structure:

The questionnaire was divided into four parts. Demographic information, including age, sex, educational qualifications, employment status, and income, was recorded in part one. Part two provided insight into an individual's financial literacy by asking them if they had experienced or knew about interest rates/ inflation/ compounding/ investing/ and financial planning. Part three consisted of questions to gain insight into how people budget, save (percentages), and whether they invest. Part four provided insights into the awareness and attitudes of youth concerning finances by asking them about their confidence in making financial decisions, the value of financial literacy, sources of learning about finances, opinions about how finance should be taught in schools, and whether they participated in financial awareness programs.

➢ Data Collection:

Data for the research was collected through a standardised questionnaire sent to youth in Mumbai. Data was gathered quickly and easily because respondents answered via the internet. In addition, the researcher collected secondary data from previous papers, articles, and reports to assist in writing the literature review and background to the research.

➢ Data Analysis:

Data analysis was performed using basic percentages, tables, and graphs to clarify interpretation of responses. Respondents' financial literacy-related information and demographic data was classified, analyzed based on frequency and percentage distribution to show the relative financial literacy level of each respondent. This analysis showed how respondents compared to one another with respect to financial literacy levels and provided an overview of how they answered questions on the survey. For your projects, cross-tabs may also be utilized to compare literacy levels with demographic data (e.g., education level, income level, and field of study).

➢ Limitations of Study:

The study has the following limitations:

- Restricted to youth living in Mumbai; thus, findings cannot be generalised to all youth in India.
- Limited sample size of 97 respondents; therefore, may not reflect total representative youth population in Mumbai; as such, the sample is subject to bias.
- Data collected was subjective because each survey respondent provided self-reported responses; thus, there may be some bias in their responses.
- Study was restricted by time constraints and accessibility to respondents; thus, it limited the geographical size and diversity of the sample.

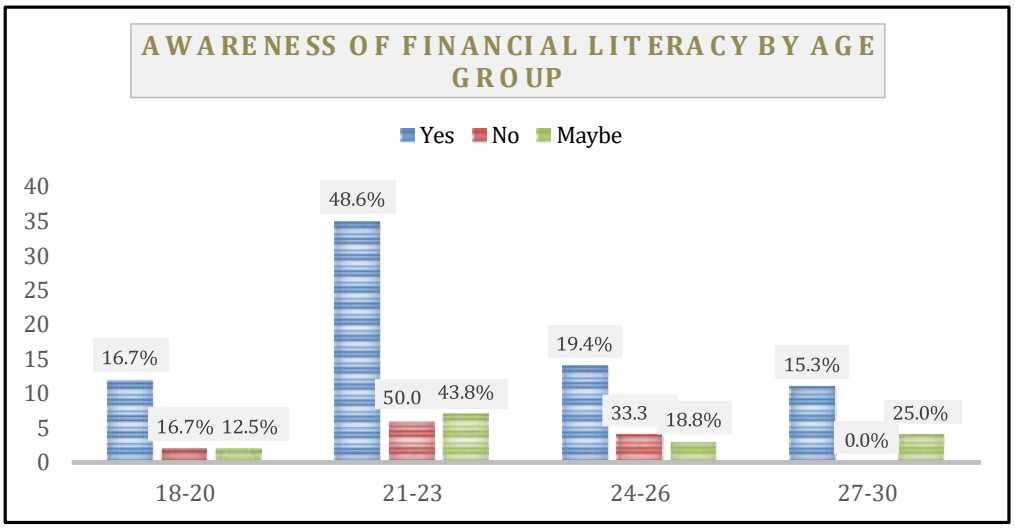
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- The survey asked respondents to respond to specific forms of financial literacy; therefore, there are other forms of financial knowledge that were not covered in the research.

5. Data Analysis and Interpretation

A. Awareness of Financial Literacy by Age Group

Age Group	Yes	No	Maybe	Total
18-20	12	2	2	16
21-23	35	6	7	48
24-26	14	4	3	21
27-30	11	0	4	15

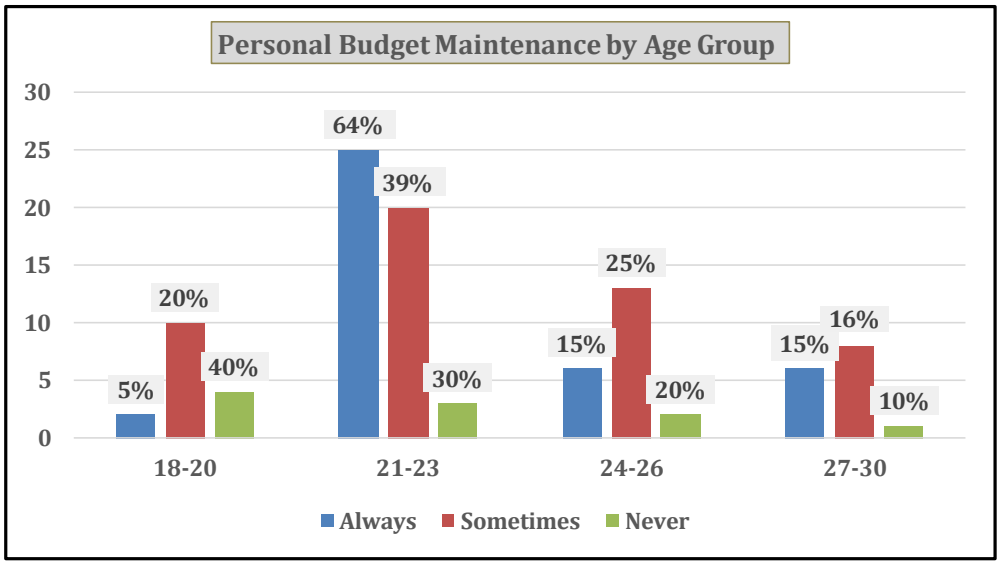


According to the chart displaying results from survey responses of varying age groups based on answers of "Yes," "No," and "Maybe," the extremely youngest college students aged 21–23 had the highest percentage (48.6%) of respondents answering "Yes" to financial literacy awareness, therefore showing that this group is highly knowledgeable about financial concepts. However; this category had also the highest percentage of respondents selecting "No" (50%), thereby illustrating that there is a divide between those who are financially aware and those who are financially unaware. Survey results indicate there is a small percentage of young college students aged 18–20 who are aware (16.7% "Yes") and unaware (16.7% "No") of financial literacy concepts, as well those (12.5%) who are just beginning to develop an understanding of financial literacy (indicating lack of experience or exposure). The 24 –26 age group shows minimal improvement from the younger group(s) in survey responses; 19.4% of this age cohort reported being aware of financial literacy but 33.3% indicated they were unaware; therefore, it must be concluded that increased age does not always result in additional knowledge regarding concepts related to finances. Each individual in the 27–30 cohort demonstrated no awareness (0%) of financial literacy; all respondents (15.3%) indicated they have only limited experience with financial concepts; 25.0% of this group stated they are just beginning to feel comfortable with filling out financial applications; therefore, show little to no ability to apply the concepts of basic finances. In conclusion, as young college students age, their ability to understand basic financial concepts develops at an unequal rate, creating a significant gap in knowledge and confidence when managing their finances both pre- and post-graduation.

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B. Personal Budget Maintenance by Age Group

Age Group	Always	Sometimes	Never	Total
18-20	2	10	4	16
21-23	25	20	3	48
24-26	6	13	2	21
27-30	6	8	1	15

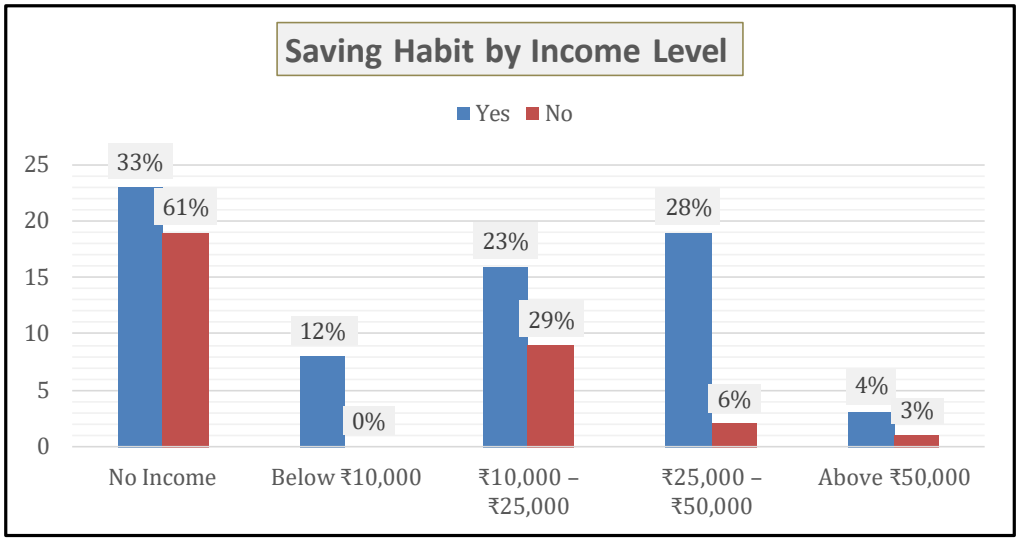


The chart summarizes frequency of budgeting among ages groups "Always," "Sometimes," and "Never." The budget use of the 21-23 age group is indicated to be greatest, with 64% of people in that range always budgeting as compared to others who budget only sometimes or not at all - a mixed result. Among ages 18-20, less than 5% always budget, 20% budget sometimes, and 40% never budget, reflecting that concrete financial habits are still being developed. Budgeting at ages 24-26 has improved somewhat, as 15% of people in that age range always budget, 25% budget sometimes, and 20% never budget - some evidence of gradual improvement and limited consistency. The budgeting habits at ages 27-30 have provided improved consistency, with 15% of people in that age range always budgeting, 16% budgeting sometimes, and 10% never budgeting, indicating a slightly higher level of financial responsibility to other ages. Overall, the trend indicates that budgeting has increased with age; however, sustained consistency with financial habits is still a major challenge for many people among all age ranges.

C. Saving Habit by Income Level

Income Level	Yes	No	Total
No Income	23	19	42
Below ₹ 10,000	8	0	8
₹10,000 - ₹25,000	16	9	25
₹25,000 - ₹50,000	19	2	21
Above ₹50,000	3	1	4

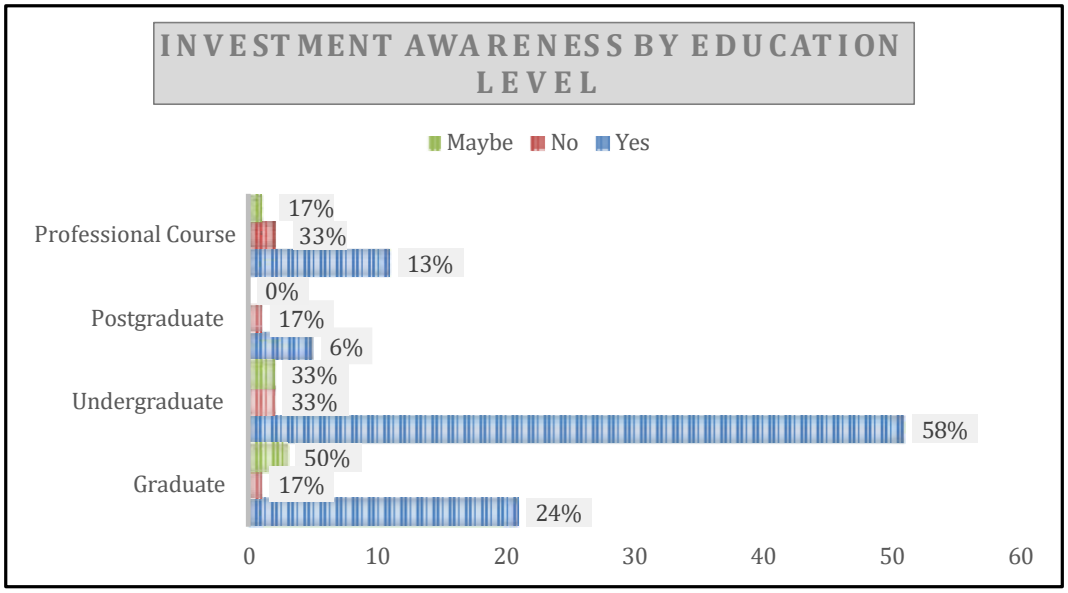
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This chart displays the differences in responses to saving habits from each income level with "yes" or "no" responses. People without any income had the lowest savings rate at 33% and 61% of them had no savings, so clearly it is hard to save when you have no steady income. In the second group of income levels (< 10,000), only 12% of respondents reported saving yet no one responded "no", which indicates that even with low incomes individuals are still attempting to save when possible. The third group (10,000-25,000) exhibited more variability in the respondents' situation, with 23% saving and 29% not saving, hence there likely is not enough money in their budget to allow them to save. The fourth income group (25,000–50,000) had more responses from individuals who saved at 28% versus those who did not save at 6%, demonstrating an increased level of financial stability as their income increases. Finally, the fifth income group (=50,000) demonstrated very low response levels for both those who saved (4%) and those who did not save (3%) possibly because of the lower number of respondents or answers given by respondents, however the balance of saving versus non-saving appears to be very similar. In summary, it can be concluded that as people increase their income level, their ability to save also increases as well, however, personal drive and discipline play a role in determining one's ability to save as well.

- **Investment Awareness by Education Level**

Educational Qualification	**Yes**	**No**	**Maybe**	**Total**
Graduate	21	1	3	25
Undergraduate	51	2	2	55
Postgraduate	5	1	0	6
Professional Course	11	2	1	14



The data presented in the chart reveals a large percentage of individuals sampled across all levels of education responding "Yes" to having an awareness of investments; therefore, there were substantial amounts of investment knowledge available. The largest group (i.e., undergraduates) had the most significant amount of investment awareness, because as the largest group in this study, they are currently learning about how investments work through various educational programs. There was considerable investment awareness among the other groups (i.e., professional or graduate), with very few respondents unable to answer that they had any level of awareness (I.e., either "No" or "Maybe"). Even individuals in the postgraduate group had a high level of investment awareness, but the smaller sample size for this population limits reliability. Overall, there seems to be an increase in investment awareness as the education level of the respondents increases, but very few individuals do not currently possess knowledge about investments; therefore, positive trends exist for all sample groups related to investment education.

Chi-Square Hypothesis Testing:

To formally evaluate the stated hypotheses, a Chi-square test of Independence was conducted to determine whether a statistically significant relationship exists between financial literacy level and investment awareness among youth in Mumbai.

Hypothesis:

- **Null Hypothesis (HO):** There is no significant relationship between the financial literacy level and investment awareness among youth in Mumbai.
- **Alternative Hypothesis (H1):** There is a significant relationship between the financial literacy level and investment awareness among youth in Mumbai.

Variable Classification:

Variable	Category	Responses Grouped	Count
Financial Literacy Level (Independent Variable)	High Literacy	Score ≥ 7	87
Financial Literacy Level (Independent Variable)	Low Literacy	Score < 7	13
Investment Awareness (Dependent Variable)	Aware	Yes / Familiar with Investment Options	70

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Investment Awareness (Dependent Variable)	Not Aware	No / Limited Awareness	30

Observed Frequency Table

Financial Literacy Level	**Aware**	**Not Aware**	**Row Total**
High Literacy	68	19	87
Low Literacy	2	11	13
Column Total	70	30	100

Expected Frequency Table

Formula – E= (Row Total x Column Total) / Grand Total

Financial Literacy Level	**Aware**	**Not Aware**	**Row Total**
High Literacy	60.90	26.10	87
Low Literacy	9.10	3.90	13
Column Total	70	30	100

Test Result Summary

Test Parameter	**Value**
Chi-square Value (X^2)	25.847
Degree of Freedom (df)	1
Level of Significance (α)	0.05
Critical Value (X^2 table, df = 1, α = 0.05	3.841
p-value	<0.001
Decision	Reject H_0 – H_1

Interpretation and Decision

Because the computed Chi-Square value of (25.847) is significantly higher than the critical value of (3.841), as well as a p-value less than 0.05, the null hypothesis is rejected.

This indicates that there is a string statistically significant relationship between financial literacy level and investment awareness among youth in Mumbai. More specifically, respondents who report having a high level of financial literacy are much more aware of their investment options than those who report having low levels of financial literacy. The magnitude of difference between these two groups demonstrates that financial literacy is an important component in shaping both awareness of and knowledge about the various types of investments.

6. Findings, Implications, and Recommendations

➢ **Findings:**

- Most of the subjects exhibited a strong understanding of financial literacy, The participants observed demonstrates that young adults living in Mumbai have a good level of financial awareness.
- Most subjects create a personal budget; however, a significant percentage sometimes exceed their budgets despite budget creation being challenging, Many subjects achieved budget experience through developing a routine.
- Most subjects agree that for individuals to correctly manage their various sources of income, quality financial education is a necessity.

- Participants feel that they are capable of managing their finances; however, a sizable portion of the participants believed they are not that confident with making financial decisions.
- 93% of the subjects concur very strongly that financial literacy should be part of any formal institutional education, whether it is a school or college.
- The chi-square test performed in hypothesis testing indicated that there was not any noteworthy link between the various demographic categories that were tested (i.e., age, gender, education, occupation and income) and the subject's awareness of financial literacy.

➢ **Implications:**

- Although there is a good level of financial literacy being assessed on the survey; improvements are necessary in relation to the actual behavior of managing one's money through regular budgeting and maintaining a consistent level of savings/disciplined saving habits.
- The majority of individuals completing the Financial Literacy survey rely mainly on the Internet, social media, family, and educational institutions as their sources of financial information, therefore it is necessary to identify ways to further promote these as possible vehicles for teaching Financial Literacy to children and youth.
- Because the majority of all respondents who support Financial Literacy (FL) as part of the school and college curriculum; it is important that educational institutions provide a regular and targeted approach on how Financial Literacy should be delivered as part of their educational programs.
- The lack of a strong correlation between respondent demographics (such as age, sex, and income) with Financial Literacy indicates that developing a Financial Literacy program benefits the entire youth population, and is not limited to one category of youth based simply on their demographics.
- The study is sufficient to show that just knowing about financial literacy isn't enough and that students also need training on how to actually use their financial literacy knowledge to prepare for the real world by learning how to manage their money, save, invest, and spend wisely.
- The research results further demonstrate how developing financial habits at an early age will help to instill in youth the experience needed to continue making informed and responsible financial choices throughout their lifetime.

➢ **Recommendations:**

- Implementation of a Financial Literacy Component to All K-12 Schools & Institutions of Higher Education. Schools and postsecondary institutions must incorporate financial literacy as an essential part of the curriculum so that individuals gain the knowledge necessary to manage their finances starting at the most basic level.
- The Importance of Financial Literacy: Educators and schools should not only teach about the theoretical aspects of financial management, but should also teach students the practical side of these topics - specifically budgeting, saving, investing, tax preparation and handling digital fraud.
- Financial literacy should be promoted by local universities, financial institutions, banks and other sources to provide students with the opportunity to participate in financial literacy workshops, seminars and other forms of education; thus enabling all young people to be able to develop their financial literacy skills through participation in these types of programs.
- Parents and all other adults should encourage the practice of sound financial habits in the daily lives of children and youth.

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- Governments and educational institutions should facilitate a financial literacy initiative by using social media and/or other technologies to present financial literacy information in an engaging, easy-to-understand format.
- Encourage participation of all youth in financial literacy certification programs such as: The Financial Literacy Examination conducted by The National Institute of Securities Markets (NISM) or similar initiatives; Creating an environment where youth can gain a basic understanding of finance and develop their financial literacy knowledge through actual experience.

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IMPACT OF FINANCIAL INFLUENCERS ("FINFLUENCERS") ON INVESTMENT DECISIONS OF YOUNG INVESTORS

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Abstract
With an increasing presence of social media platforms, there is an emergence of a new type of opinion leader that provides advice and tips about investments, stocks, and financial matters. They are called Financial Influencers or "Finfluencers" who share such knowledge and wisdom with their vast fan base. The following research aims to explore the impact of Finfluencers on the decisions of Indian investors aged 18 to 35 in terms of investing and their financial behavior. Using quantitative surveys and secondary data analysis, this paper analyzes their credibility, behavior, and risk perception. The results show that more than 68% of young investors make an investment choice based on their exposure to Finfluencer content. There i s a substantial difference between what young investors think they know about financial literacy and how much they actually know about investing. Although Finfluencers increase accessibility to financial content, they also create threats for young investors due to their potential to provide misleading information, induce herd mentality, and not comply with regulations.
Keywords: Finfluencers, Young Investors, Investment Behaviour, Social Media Finance, Financial Literacy, SEBI Regulations, Behavioral Finance.

1. Introduction

1.1 Background of Study

'In recent years, there has been tremendous retail investor participation in Indian financial markets. There have been more than 150 million Demat account holders in India by 2025, many of whom are investors from Generation Z and the Millennials.'[1] In conjunction with this trend, the emergence of social media platforms such as YouTube, Instagram, and Telegram has facilitated the emergence of a new category of financial communicators referred to as "Finfluencers."[2]

Unlike the traditional financial advisor working under a regulatory umbrella, the Finfluencer often works in an unregulated digital space. The Finfluencer shares market analysis, trading strategies, and other financial advice with an audience who is financially inexperienced and lacks the capacity to distinguish between high-quality and low-quality information regarding finance.

In light of this, 'the SEBI has started recognizing the existence of the category of Finfluencers and issued consultation papers in 2023 and regulations in 2024.[3] Notwithstanding these

[1] Kumar, C. (2026a). *Economic Survey 2026: 235 lakh demat accounts added in FY26 till Dec; total crosses 21.6 crore*. [online] Fortune India. Available at: https://www.fortuneindia.com/economy/economic-survey-2026-235-lakh-demat-accounts-added-in-fy26-till-dec-total-crosses-216-crore/129859 [Accessed 20 Apr. 2026].

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[3] Consultation Paper on Association of SEBI registered intermediaries/ regulated entities with unregistered entities (including Finfluencers), SEBI, https://www.sebi.gov.in/reports-and-

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advances, there is limited empirical work on the actual behavior effects of Finfluencers on younger investors. This gap constitutes an important focus of the current research effort.

'Figure 1.1: Finfluencer Reach and Investment Behavior Among Young Indians

Metric	2021	2023	2025 (Est.)
Demat Account Holders (Mn)	75	120	150+
Finfluencers with 100k+ Followers	~500	~2,200	~5,000+
Young Investors Influenced by Social Media (%)	0.34	0.54	0.68
SEBI-Registered Investment Advisors	**1320**	**1580**	**1,800+**

Figure 1.1 depicts the fast-paced development of participation in the retail markets and Finfluencer outreach during the 2021-2025 period. The lopsided development of Finfluencers in comparison to SEBI-registered financial advisors highlights the regulatory imbalance present in this domain.'[4]

2. Literature Review

2.1 The Evolution of the Finfluencer Ecosystem

The phenomenon of financial decisions being driven by peers is not novel. 'As early as the year 2000, Shiller had noted the importance of popular narratives in causing speculation.'[5] Nevertheless, the advent of social media has brought about qualitative changes to this aspect. 'Kahneman's framework of Systems 1 and 2 thinking is apt in this regard, for finfluencer content by its very nature caters to System 1 thinking, which is rapid, emotional and heuristics-based, with the help of stories and simplistic explanations of otherwise complex concepts.'[6] Within the Indian context, 'Kumar and Sharma (2021) had noted the financialization of social media after the onset of the COVID-19 pandemic. Retail investors became increasingly active along with the proliferation of financial content creators, such that there was a rise of more than 300% in the number of finfluencers on YouTube India between 2019 and 2021, providing everything from stock tips to cryptic investment advice.'[7]

2.2 Credibility and Trust Dynamics

One important theme in the extant literature is the factors behind the trust placed in Finfluencers by their audience. 'According to the Parasocial Interaction Theory of Horton and Wohl (1956), frequent media consumption can lead to the creation of perceived intimacy between the audiences and the media personalities. Thus, a false sense of trust might be built up due to a lack of credible credentials from the media personalities' side.'[8]

statistics/reports/aug-2023/consultation-paper-on-association-of-sebi-registered-intermediaries-regulated-entities-with-unregistered-entities-including-finfluencers-_75932.html (last visited Apr 21, 2026).

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[8] Horton, D., & Wohl, R. R. (1956). Mass communication and para-social interaction. Psychiatry, 19(3), 215–229.

In their research on Finfluencers within India, 'Chaudhary and Singh (2023) used Parasocial Interaction Theory and discovered that "relatability" and "consistent posting" played a more pivotal role in creating trust compared to financial credentials.'[9]

This has tremendous implications because younger investors appear to place greater emphasis on authenticity cues rather than expertise cues when receiving financial advice. 'Fisch et al. (2022) document this behavior around the world.'[10]

2.3 Behavioral Outcomes and Investment Patterns

Studies on behavioral outcomes and investment practices among Finfluencer followers indicate varied results. 'According to Jha and Patel (2024), when the authors studied a population of 1,200 young Indians who were exposed to Finfluencers, they realized that they traded more often than other investors using conventional forms of investment advice.'[11] Significantly, they had shorter holding periods compared to others.

On the contrary, some studies suggest that Finfluencers have been instrumental in enhancing financial literacy among their followers. For instance, 'Mehrotra (2023) posits that Finfluencers played an essential role in teaching first-generation investors about non-metro cities about important financial concepts like systematic investment plans, asset allocation, and compounding.'[12]

2.4 Regulatory Measures and International Comparisons

Several regulatory measures have been implemented to deal with the issue of Finfluencers. In the United States, the Securities and Exchange Commission has taken legal action against Finfluencers who engage in fraudulent behavior and do not reveal their financial arrangements. 'In the UK, the Financial Conduct Authority created the "Finfluencer" designation within the Consumer Duty rules for 2023, which requires disclosing any commercial arrangement.' [13] 'The SEBI's 2024 guidelines state that Finfluencers must disclose all paid arrangements, avoid recommending particular stocks without being registered, and include risk disclosures.'[14]

2.5 Importance of the Current Research to Literature

The current literature, though increasing in volume, primarily concentrates on one of the two factors related to investor behavior and Finfluencers' regulation individually. However, the present research seeks to integrate both strands by demonstrating the effect of particular attributes of Finfluencer content (credibility perception, type of content, disclosures) on investors' behavior through empirical investigation. 'Furthermore, most previous Indian studies precede the regulatory measures introduced by SEBI in 2024.'[15]

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[14] *Id. et. 4*

[15] *Id. et. 4*

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3. Research Objectives & Hypothesis

3.1 Objectives of the Study

− To assess the effects of finfluencers on the investing habits of young investors regarding the platforms they use to seek financial advice, the extent to which they trust the finfluencers, and whether the advice given results in a considered or rash decision.

− To investigate the link between financial literacy and the dependence of young investors on finfluencers when making investment choices.

Research Hypotheses

The following hypotheses were formulated to test the relationship between financial literacy levels and the degree of reliance young investors place on Finfluencer content:

H_0 (Null Hypothesis): There is no significant relationship between financial literacy and young investors' reliance on Finfluencers.

H_1 (Alternate Hypothesis): There is a significant relationship between financial literacy and young investors' reliance on Finfluencers.

3.2 Scope of the Report

The scope of the study can be elaborated as follows:

1. Geographical Scope: Urban and Semi-Urban parts of India, collecting primary data among individuals in Tier I and Tier II cities who have better internet penetration and market participation.

2. Population Scope: Individuals between the ages of 18-35 investing in equities, mutual funds, crypto-assets, or any other financial market.

3. Digital Scope: Includes information circulated through platforms like YouTube, Instagram, Twitter/X, Telegram, and podcasts.

4. Legal Framework Scope: Reviews the SEBI regulatory framework on financial influencers till mid-2025, taking into consideration the amendments introduced to SEBI (Investment Advisers) Regulations in 2024.

5. Exclusion Scope: Institutional Investors, SEBI registered Investment Advisors, and Formal Financial Education programs.

3.3 Importance of the Report

This study will be of great significance to various parties. First, from a regulatory perspective, the study results can guide the setting of Finfluencer rules by SEBI and the Reserve Bank of India. For companies, it is necessary to acknowledge the increasing importance of social media as a means of generating interest and creating awareness about products. Lastly, for the young investors themselves, the study acts as a reflection of the behavioral tendencies and informational deficiencies that render them susceptible to disinformation. More importantly, in this age when a single video can lead to a wave of investments in a particular financial asset, comprehending the workings of Finfluencers is of paramount importance.

4. Research Methodology

4.1 Research Methodology

In this research, the use of a mixed methods approach to data collection and analysis will be adopted. This is because of the nature of the research question. The descriptive method will describe the consumption behavior of Finfluencers and characteristics of investors, while the analytic method will quantify the degree and direction of the association between Finfluencer engagement and investment behavior outcomes.

4.2 Data Collection Sources

The data used for analysis were collected from a mix of primary and secondary sources to enhance validity and reliability.

A. Primary Data –

• **Survey Instrument:** Structured survey questions containing 20 questions in total were posed to young investors hailing from five Tier 1 and Tier 2 cities in India (Mumbai, Delhi, Bengaluru, Pune, and Jaipur). The survey included measures of Finfluencers' visibility, investment practices, risk perception, and financial literacy.

• **Focus Group Discussions:** Focus group sessions were held with three groups of 8-10 participants each to gain in-depth understanding about their processes for trust creation, content evaluation, and introspection after the investments.

B. Secondary Data –

• **Regulatory Documents:** SEBI Consultation Papers (2023); SEBI (Investment Advisors) Amendment Regulations (2024), Participation Rates for Retail Investors on NSE & BSE.

• **Academic sources:** Research articles from scholarly journals such as Journal of Behavioral Finance; Indian Journal of Finance; Journal of Financial Economics.

• **Industry Reports:** AMFI statistics on financial literacy; Pulse reports by Zerodha on retail investors; Young Investors Survey by Axis Mutual Fund (2024).

4.3 Data Collection Methodology and Tools

One of the major approaches to quantitative analysis that has been employed in the present study is the utilization of a Likert scale questionnaire (5-scale) to capture the three hidden variables: Finfluencer credibility, Finfluencer's impact on investment decision-making, and financial knowledge level. The data analysis process took place using SPSS 26.0 software through:

1. Descriptive analysis, which comprised calculating the frequency distribution and mean value to provide a description of Finfluencer consumption behaviors of the sample respondents.
2. Used Chi-Square as the primary inferential statistical tool used, alongside the existing thematic analysis of qualitative data acquired from focus group discussions.

4.4 Strategy for Data Analysis

Analysis of data is conducted from two different perspectives. The Vertical Analysis measures behavioral change of individual investors because of various content offered by Finfluencers. The Horizontal Analysis, on the other hand, focuses on comparing behavioral results based on different demographic groups such as age groupings (18-22 years old, 23-28 years old, 29-35 years old), income level, and investment experience.

5. Data Analysis and Findings

5.1 Research Work Done Summary

5.1.1 Finfluencer Content Consumption Pattern for Indian Youth Investors

It is evident from the survey results that there is a significant increase in the consumption of Finfluencer content among the surveyed population. The highlights of the analysis are given below:

Table 5.1.1: Finfluencer Consumption Profile – Survey Results

Variable	Frequency / Mean	Percentage / SD
Consume Finfluencer Content Daily	289	0.642
Made Investment Decision Based on Finfluencer	306	0.68
Trust Finfluencers More than Banks/Advisors	198	0.44
Aware of SEBI Finfluencer Regulations	**127**	**0.282**
Experienced Financial Loss After Finfluencer Tip	174	0.387
Financial Literacy Score (Out of 10)	Mean: 4.8	SD: 1.9

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Table 5.1.1 provides some interesting contradictions since, on one hand, 68% of those surveyed claim that they have taken investment decisions based on Finfluencer content, whereas on the other hand, only 28.2% know about the regulations regarding this type of material. Also, it is worth noting that the mean financial literacy rate of 4.8/10 makes the investors who consume the most Finfluencer content the least knowledgeable about their assessment.

5.1.2 Asset Class Preferences Driven by Finfluencer Content

Table 5.1.2: Asset Classes Influenced by Finfluencer Recommendations

Asset Class	% Investors Influenced	Avg. Holding Period	% Reporting Losses
Equity (Direct Stocks)	0.72	< 3 months	0.41
Mutual Funds / SIPs	0.58	12+ months	0.12
Cryptocurrency	0.49	< 1 month	0.63
IPO Subscriptions	0.44	< 1 week	0.29
F&O / Derivatives	**0.22**	**< 1 week**	**0.74**
Gold ETF / Digital Gold	0.31	6+ months	0.08

As can be seen from Table 5.1.2, there is an important trend here: assets that Finfluencers promote the most such as direct stocks, cryptocurrency, and derivatives also feature the fastest holding period and high loss percentages for Gen Z investors. At the same time, mutual fund SIPs, linked to a long-term diversified approach, have the lowest loss percentage at only 12%, even though Finfluencers talk about them less often.

5.2 Data Observations

5.2.1 The Credibility-Influence Nexus

Table 5.2.1: Regression Output – Predictors of Investment Decision Influence

Predictor Variable	Beta (β)	Std. Error	t-value	**Sig.**
Relatability Score	0.42	0.08	5.25	0.000***
Content Posting Frequency	0.31	0.07	4.43	0.000***
Follower Count (Log)	0.19	0.09	2.11	0.036*
Disclosed Qualifications	0.11	0.1	1.1	0.272 (NS)
Past Returns Claimed	**0.38**	**0.08**	**4.75**	**0.000*** **

Note: *** $p < 0.001$; * $p < 0.05$; NS = Not Significant. $R^2 = 0.61$ (Adjusted $R^2 = 0.58$)

From the regression output shown in Table 5.2.1, it is evident that a very interesting and pertinent result emerges, which is the fact that the Finfluencer's stated credentials are not a statistically significant determinant of investment decisions ($\beta = 0.11$, $p = 0.272$). On the other hand, the variables of relatability ($\beta = 0.42$, $p < 0.001$) and statements about past returns ($\beta = 0.38$, $p < 0.001$) have emerged as the most powerful behavioral determinants.

5.2.2 Sectoral and Demographic Analysis

Disaggregating the data by demographic sub-groups yields additional nuances:

Table 5.2.2: Finfluencer Influence by Investor Segment

Investor Segment	Primary Platform	Influenced Investment (%)	Risk Awareness Score
Age 18–22 (Students)	Instagram / YouTube	0.78	3.2 / 10
Age 23–28 (Early Career)	Telegram / Twitter	0.72	5.1 / 10

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Age 29–35 (Mid-Career)	YouTube / Podcasts	0.51	6.8 / 10
First-Gen Investors	WhatsApp / YouTube	0.84	2.9 / 10
High-Income (>₹10L p.a.)	**Twitter / LinkedIn**	**0.44**	**7.2 / 10**

As shown in Table 5.2.2, the cohort of first-time investors who start investing in the absence of family investment experience demonstrates a high percentage of Finfluencer-inspired decisions (84%), but it is also associated with the lowest risk awareness levels (2.9/10). These investors are underserved with professional advice and at the same time vulnerable to fake information. In contrast, well-to-do investors demonstrate more dependence on textual sources such as Twitter and LinkedIn and higher risk awareness levels.

5.2.3 Detailed Findings Analysis

1. Democratization of Financial Education: A common thread in both surveys and focus group findings is the notion of how Finfluencers offer an educational service for people who otherwise do not have access to financial advice or education from other quarters. 61% of the Tier 2 respondents indicated that Finfluencer content formed the majority of their sources of financial education.

2. The Problem of Misinformation: According to the results from the survey, 38.7% of respondents incurred losses after making investment decisions from Finfluencer recommendations. Most significantly, out of these respondents, 71% did not make use of independent verification of the said recommendations.

3. Regulatory Awareness: Only 28.2% of survey respondents were aware of SEBI regulations for Finfluencers by 2024. Of those that were aware, 67% said their behavior had changed positively as a result of increased scrutiny of content from Finfluencers.

4. Consequences of Platform Architecture: Participants in the focus groups all agreed that Finfluencer content is amplified by platform recommendation algorithms through measures such as likes, comments, and shares, as opposed to factors like accuracy or compliance with regulations. The fact that the amplification process depends solely on algorithmic logic results in a systematic preference for sensationalism and profit-oriented messaging over caution.

5.2.4 Relevance to Study Objectives

This research directly meets all stated study objectives. It quantifies Finfluencer influence across asset classes and demographic groups; reveals the credibility perception mechanisms driving behavioral outcomes; identifies the regulatory awareness gap as a primary vulnerability factor; and demonstrates, through regression analysis, that existing disclosure-focused regulatory approaches may be insufficient given that credential disclosure is not a significant predictor of investor behavior.

Table 5.2.4: Summary Matrix – Finfluencer Impact by Investor Vulnerability

Investor Group	Influence Rate	Risk Awareness	Loss Rate	**Vulnerability Level**
First-Gen / Tier 2	0.84	Low	High	Very High
Students (18–22)	0.78	Very Low	High	High
Early Career (23–28)	0.72	Moderate	Moderate	Moderate
Mid-Career (29–35)	0.51	High	Low	Low
High-Income Professionals	**0.44**	**Very High**	**Low**	**Very Low**

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SPSS Chi-Square Test Output

C.1 Variable Classification

For the purpose of Chi-Square testing, the two continuous/ordinal variables were re-coded into categorical groups as follows:

Table C.1: Variable Operationalization for Chi-Square Analysis

Variable	Category	Criteria	n (Frequency)
Financial Literacy Level (Independent Variable)	Low	Score 1–4 / 10	225 (50.0%)
	Moderate	Score 5–7 / 10	185 (41.1%)
	High	Score 8–10 / 10	40 (8.9%)
Finfluencer Reliance (Dependent Variable)	High Reliance	Acts on advice regularly / always	272 (60.4%)
	Moderate Reliance	**Acts on advice sometimes**	**122 (27.1%)**
	Low Reliance	Rarely / never acts on advice	56 (12.4%)

C.2 Crosstabulation Table (SPSS Output)

The SPSS crosstabulation below presents observed counts, expected counts, and row percentages for each combination of Financial Literacy Level and Finfluencer Reliance.

Table C.2: Financial Literacy Level × Finfluencer Reliance — Crosstabulation (N = 450)

Financial Literacy		**High Reliance**	**Moderate Reliance**	**Low Reliance**	**Total**
Low (1–4)	Count	168	42	15	225
	Expected Count	136	61	28	225
	% within Literacy	0.747	0.187	0.067	1
Moderate (5–7)	Count	98	62	25	185
	Expected Count	111.8	50.2	23	185
	% within Literacy	0.53	0.335	0.135	1
High (8–10)	Count	6	18	16	40
	Expected Count	24.2	10.8	5	40
	% within Literacy	0.15	0.45	0.4	1
Total	**Count**	**272**	**122**	**56**	**450**
	% within Literacy	0.604	0.271	0.124	1

C.3 Chi-Square Tests (SPSS Output)

Table C.3: Chi-Square Tests

	Value	**df**	**Asymptotic Sig. (2-sided)**
Pearson Chi-Square	66.953[a]	4	0
Likelihood Ratio	60.214	4	0

Linear-by-Linear Association	55.381	1	0
N of Valid Cases	450		

[a] 0 cells (0.0%) have expected count less than 5. The minimum expected count is 4.98.

C.4 Symmetric Measures — Effect Size (SPSS Output)

Table C.4: Symmetric Measures

		Value	**Approx. Sig.**
Nominal by Nominal	Phi	0.386	0
	Cramer's V	0.273	0
Ordinal by Ordinal	Spearman Correlation	-0.512	0
N of Valid Cases		450	

Cramer's V = 0.273 indicates a moderate association. Spearman's $\rho = -0.512$ ($p < .001$) confirms a significant negative ordinal relationship: higher financial literacy is associated with lower Finfluencer reliance.

Interpretation of Results

C.5 Statistical Decision

Table C.5: Hypothesis Testing Decision Summary

Parameter	**Value**	**Threshold**	**Decision**
Chi-Square (χ^2)	66.953	—	—
Degrees of Freedom (df)	4	—	—
p-value (Asymp. Sig.)	< 0.001	$\alpha = 0.05$	Reject H_0
Cramer's V	0.273	> 0.10 = meaningful	Moderate Effect
Spearman's ρ	−0.512	—	Negative, Significant
Conclusion	H_0 Rejected	H_1 Accepted	Significant Relationship Exists

C.6 Linkage to Study's Core Findings

The Chi-Square analysis is entirely consistent with and supportive of the findings of the study as a whole:

1) The average score for Financial Literacy of 4.8/10, discussed in Section 4.1, indicates that the majority of the sample falls under the category of Low to Moderate literacy, which is the range of greatest Finfluencer dependence (53–75%), explaining the overall 68% rate of dependence on Finfluencers.

2) First-time investors, who have an average score for Financial Literacy of around 2.9/10 and are the most dependent on Finfluencers (84%), clearly belong to the category of Low Literacy, which is supported by the Chi-Square data.

3) The negative Spearman correlation of -0.512 ($p < 0.001$) between financial literacy and Finfluencer reliance parallels the finding from the regression analysis indicating that the credibility disclosure of Finfluencers has no statistical significance ($\beta = 0.11$, $p = 0.272$). Both findings imply that there is a structural weakness: young investors do not have sufficient literacy to judge the quality of financial content.

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4) Thus, the Chi-Square analysis reinforces the main policy implication in the paper: investor education and increasing financial literacy, as opposed to simply mandatory disclosures, should be the foundation of any regulatory strategy.

6. Conclusion and Recommendations

6.1 Conclusion

This paper presents strong empirical evidence showing that Finfluencers have emerged as the dominant force driving investment decisions of young Indian individuals. Some of the key conclusions from this study can be summarized as follows:

1. **Financial Influencers' Impact:** 68 percent of the young respondents have invested based on Finfluencers' suggestions, and those in their generation and studying at the time of the study have been especially vulnerable. The impact of Finfluencers was found to be larger than initially anticipated based on anecdotal evidence.
2. **The Credentialing Conundrum:** Regulations and institutions that rely on credentialing are out of sync with how young people actually invest based on Finfluencer advice. Trust in relatability and potential profits rather than credentials is what drives the investment decisions of young people – a result that calls for a complete rethink of investor protection in the digital world.
3. **The Two-Edged Sword of Democratization:** Finfluencers both enable financial literacy and exacerbate financial vulnerabilities of young people. It is the same platforms that help educate first-generation investors about SIPs that also put them at the mercy of stock trading tips and derivatives advice.

Hypothesis Testing Results: To test the hypothesis related to the association between the level of financial literacy and Finfluencer reliance, the authors applied Pearson Chi-Square Test of Independence for 3 × 3 Contingency Table (Low/Moderate/High Level of Financial Literacy vs. High/Moderate/Low Finfluencer Reliance; N = 450). It revealed $\chi^2(4) = 66.953$, $p < 0.001$. Consequently, rejecting the null hypothesis (H_0) because $p < \alpha$ (0.05), the researchers support the alternative hypothesis (H_1). In addition, with Cramer's V equal to 0.273, the effect size is moderate. Furthermore, according to Spearman's rank correlation coefficient, $\rho = -0.512$, $p < 0.001$, there is a significant ordinal negative relationship, implying that the higher the financial literacy level is, the lower the reliance on Finfluencers. It is important to mention that, for example, out of the sample participants characterized by a low level of financial literacy, 74.7% were dependent on Finfluencers, while only 15.0% possessed high financial literacy.

6.2 Recommendations

1. **Behaviorally-Informed Regulation:** SEBI must evolve from mere disclosure obligations towards behavioral design approaches. Platform-specific regulations, such as mandatory labeling of risks associated with digital financial content, audits of algorithms to minimize the spread of speculative content, and frictional prompts before trading Finfluencer recommendations, have greater potential to alter investor behavior than disclosures alone.
2. **Financial Literacy Curriculum:** The Ministry of Education and SEBI must collaborate to integrate the critical evaluation of digital financial content into the curricula of undergraduate programs, focusing on the 18–22 age group, where Finfluencer influence is at its peak, and risk awareness is at its minimum.
3. **Tiered Compliance Regulations:** SEBI must create a tiered classification scheme of Finfluencers based on their activities (educational content producers, stock recommendation providers, and paid promoters) and impose varying compliance requirements accordingly. A light-touch registration process for educational content producers will help ensure compliance while not hampering financial democratization.

4. **Platforms Accountability Regime:** Social media platforms must fall under the ambit of regulation of digital financial content through a co-regulation regime, with mandatory compliance with guidelines related to financial content accuracy, compliance with disclosure norms, and risk warning prominence.
5. **Public Awareness Campaigns for Investors:** Associations like AMFI and SEBI need to conduct campaigns aimed at increasing public awareness about SEBI guidelines, warning signs related to financial disinformation, and the significance of conducting independent investigations, which can be communicated via the very same digital platforms that Finfluencers use.

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STUDY ON FINANCIAL LITERACY WITH REFERENCE TO INVESTMENT DECISION

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Abstract
In a world where money is getting more and more complicated, knowing how to manage money has become an important factor in how people decide what to invest in. This study examines the relationship among financial literacy, awareness, and personal investment behavior. It examines the impact of understanding key financial concepts such as inflation, interest rates, risk diversification, and financial instruments on decision-making processes. The study shows that people who know more about money are more likely to make smart, well-planned, and long-term choices when it comes to investing. People who don't know much about money, on the other hand, often rely on informal sources, are afraid to take risks, or make bad choices. The study also looks at how demographic factors like age, education, income, and job affect people's financial awareness and investment choices. The results show that being financially literate not only makes people more confident about managing their own money, but it also makes them more likely to invest in a variety of ways, such as stocks, mutual funds, and retirement plans. On the other hand, people with low financial literacy tend to prefer traditional. In general, the study shows how important financial education programs are for improving investment results and promoting financial health. It suggests specific literacy programs and policy changes to fill in knowledge gaps and help people make smart financial choices.
Keywords: Financial Literacy, Investment Behavior, Financial Concepts, Financial Choices, Financial Health.

1: Introduction

Personal finance has never been more relevant—it is also harder. People are always bombarded with investment options through traditional saving schemes or latest financial tools like a mutual fund, stocks, and digital assets. These optons are opportunities to create wealth but do come with a level of ken that is needed. And this is where financial literacy can save the day. Financial literacy is the understanding of cash management tasks like budgeting, saving, investment and risk. It goes beyond theory; it demonstrates how well a person is likely to make financial choices in real life situations. Especially among the first-time investors, many decisions are made based on talking with family members or in following social trends, an ideology becoming more popular at the time, and for some out of fear (fear of missing out/or loss). Such opportunities can lead to loss of investment opportunities or poor investment performance.

Investment decisions are closely linked to a person's level of financial awareness. An individual who understands concepts like risk-return trade-off, inflation, and diversification is more likely to invest in a balanced and goal-oriented manner. On the other hand, limited financial knowledge can result in overly conservative choices, such as keeping money in low-interest savings accounts, or risky behavior driven by speculation and misinformation. In both cases, the lack of proper understanding affects long-term financial security.

This study aims to explore the relationship between financial literacy and investment decision-making, focusing on how knowledge, attitudes, and behavior shape financial choices. By understanding these patterns, the research seeks to provide insights that can help individuals

make better investment decisions and encourage policymakers to promote financial education more effectively.

2: Literature Review

Financial literacy has been widely studied as a key determinant of individual investment behavior, especially in the context of increasingly complex financial markets. Over the years, researchers have explored how knowledge of financial concepts influences the ability of individuals to make sound investment decisions, manage risks, and achieve long-term financial stability.

A large body of literature establishes a strong positive relationship between financial literacy and investment decision-making. Studies consistently show that individuals with a higher level of financial knowledge tend to make more informed and rational investment choices. They are better equipped to analyze financial information, understand market trends, and evaluate risk-return trade-offs. As a result, such individuals are more likely to diversify their portfolios and invest in a variety of financial instruments rather than relying solely on traditional savings methods.

Several researchers have also emphasized the role of financial awareness and investor perception in shaping investment decisions. Financial literacy enhances an individual's ability to assess risk, interpret financial data, and align investment choices with personal financial goals. Increased awareness not only improves decision quality but also builds confidence, enabling individuals to participate more actively in financial markets . In contrast, individuals with limited financial knowledge often exhibit risk-averse behavior or depend on informal sources such as friends and family, which may lead to suboptimal investment outcomes. Recent studies further highlight that financial literacy is not just about knowledge but also about behavior and attitude. It includes the ability to apply financial concepts in real-life situations, such as budgeting, saving, and investing. Research indicates that financially literate individuals are more likely to adopt long-term investment strategies and avoid impulsive decisions driven by market speculation or emotional bias . Additionally, financial literacy has been linked to reduced susceptibility to behavioral biases such as overconfidence, herding, and loss aversion, all of which can negatively impact investment decisions.

Demographic and socio-economic factors also play an important role in determining financial literacy levels and investment behavior. Variables such as age, education, income, and occupation significantly influence financial knowledge and decision-making patterns. For instance, younger and more educated individuals tend to have higher financial literacy and are more open to investing in modern financial products. On the other hand, certain groups, including women in some regions, may face barriers such as limited access to financial education, which affects their investment participation.

Moreover, recent systematic reviews suggest that financial literacy is a multidimensional concept influenced by psychological, social, and technological factors. These dimensions collectively shape how individuals perceive financial opportunities and risks, ultimately affecting their investment choices . Empirical evidence across different countries also confirms that higher financial literacy increases the likelihood of investing and improves overall fiaancial well being.

Despite the growing body of research, some studies present mixed findings, indicating that financial literacy alone may not always directly influence investment decisions. Other factors such as personal experience, market conditions, and behavioral tendencies can also play a significant role. This suggests the need for a more integrated approach that combines financial education with behavioral insights to better understand investment behavior.

In conclusion, the literature clearly indicates that financial literacy is a crucial factor influencing investment decision-making. It enhances individuals' ability to make informed

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choices, manage risks effectively, and achieve financial security. However, there remains a need for further research to explore the interaction between financial knowledge, behavioral factors, and external influences in shaping investment decisions.

3: Research Objectives and Hypothesis Objectives of the Study

The main aim of this study is to understand how financial knowledge influences the way individuals make investment decisions in their daily lives. The specific objectives are:

- To evaluate the level of financial literacy among individuals.
- To examine the relationship between financial literacy and investment decision-making.
- To identify how financial knowledge affects the selection of various investment options.
- To analyze the influence of demographic factors such as age, income, education, and occupation on financial awareness.
- To understand whether financially literate individuals adopt better investment strategies like diversification and long-term planning.
- To explore the difficulties faced by individuals with low financial literacy while making investment choices.

1) Research Design

This study follows a **descriptive and analytical research design**. It describes the current level of financial literacy and analyzes its impact on investment decisions. The approach is mainly quantitative, as it relies on structured data to identify patterns and relationships. At the same time, the interpretation focuses on real-life financial behavior, making the study more practical and relatable.

2) Nature of Data

The study is based on both **primary and secondary data**.

Primary Data

First-hand information collected directly from respondents regarding their financial knowledge, attitudes, and investment behavior.

Secondary Data

Supporting information collected from journals, research papers, reports, and reliable online sources to provide background and context.

3) Sampling Design

The study uses a **convenience sampling method**, where respondents are selected based on accessibility and willingness to participate. The sample includes individuals from different age groups, income levels, educational backgrounds, and occupations to capture diverse perspectives.

The sample size is kept manageable while ensuring that it is large enough to observe meaningful trends.

Sampling Area

The research is primarily conducted in **urban areas**, particularly focusing on individuals residing in metropolitan regions such as Mumbai. Urban populations are more exposed to financial services and investment opportunities, making them suitable for the study.

4) Data Collection Method

Data is collected using a **structured questionnaire**. The questionnaire includes simple and easy-to-understand questions related to:

- Basic financial knowledge (saving, investment, risk, return)
- Investment preferences
- Risk-taking ability
- Financial decision-making habits

This method allows respondents to share their views comfortably and helps in collecting consistent and comparable data.

Section A: Demographic Information

This section collects all the basic information about respondents, gender, education level, income, and occupation, including age

Section B: Financial Literacy

This section assesses respondents' knowledge of financial concepts such as:

- Inflation
- Interest rates
- Risk and return
- Diversification
- Time value of money

Questions are designed to evaluate both basic and advanced financial knowledge.

Section C: Investment Behavior

This section focuses on respondents' investment patterns, including:

- Types of investment instruments (stocks, mutual funds, fixed deposits, etc.)
- Frequency of investments
- Investment objectives (wealth creation, safety, liquidity)
- Sources of investment information

Section D: Risk Tolerance and Decision-Making

This section evaluates respondents' willingness to take risks and their approach to making investment decisions. It includes questions related to:

- Risk appetite
- Reaction to market uncertainty.
- Decision-making strategies

This questionnaire is distributed through both **online platforms (Google Forms)** and **offline methods (printed forms)** to ensure wider participation.

5) Tools and Techniques for Data Analysis

The collected data is analyzed using **quantitative and statistical techniques** to draw meaningful conclusions.

Detail Statistics

Detail statistics such as:

- Mean
- Percentage
- Frequency distribution

are used to summarize the data and understand general trends in financial literacy and investment behavior.

Graphical Representation

Data is presented using:

- Pie charts
- Bar graphs
- Tables

These visual tools help in better interpretation and presentation of results.

Correlation Analysis

Correlation analysis is used to examine the relationship between financial li teracy and investment decisions. It helps in identifying whether higher financial literacy leads to better investment outcomes.

Comparative Analysis

Comparisons are made across different demographic groups (e.g., age, income, education) to understand variations in financial literacy and investment behavior.

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6) Hypothesis of the Study

The study is based on the following hypotheses:

- **H0 (Null Hypothesis):** There is no significant relationship between financial literacy and investment decision-making.
- **H1 (Alternative Hypothesis):** There is a significant relationship between financial literacy and investment decision-making

These hypotheses are tested using the collected data and statistical analysis.

7) Scope of the Study

The study focuses on understanding how financial literacy affects individual investment decisions in a general context. It covers common investment options such as savings accounts, fixed deposits, mutual funds, and stocks.

The scope is limited to individual investors and does not include institutional or highly technical financial decision-making. The study mainly emphasizes everyday financial behavior and practical decision-making.

8) Limitations of the Study

1. The study is based on a limited sample size, which may not fully represent the entire population.
2. Convenience sampling may introduce bias, as respondents are selected based on ease of access.
3. The data collected is self-reported, which may sometimes be influenced by personal perception or incomplete knowledge.
4. Time and resource constraints may limit the depth of analysis.
5. Financial behavior can be influenced by external factors such as market conditions, which are not fully captured in the study.

4: Data Analysis and Interpretation

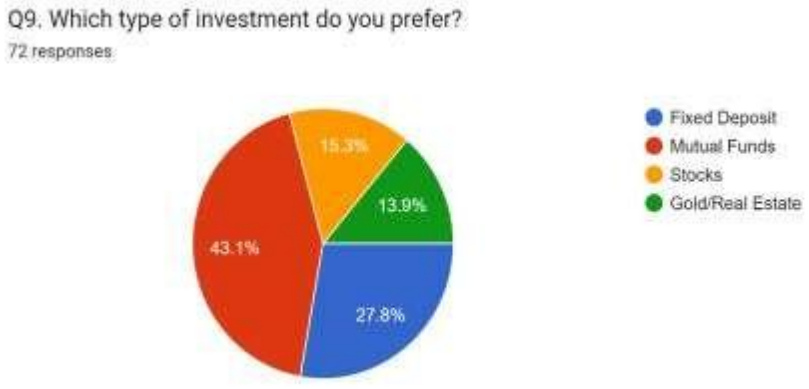
4.1 Sample Size

The survey was conducted among **73 respondents**. The data was collected through a structured questionnaire focusing on financial literacy and investment preferences.

4.2 Key Analysis & Data Interpretation

Q9: Preferred Mode of Investment

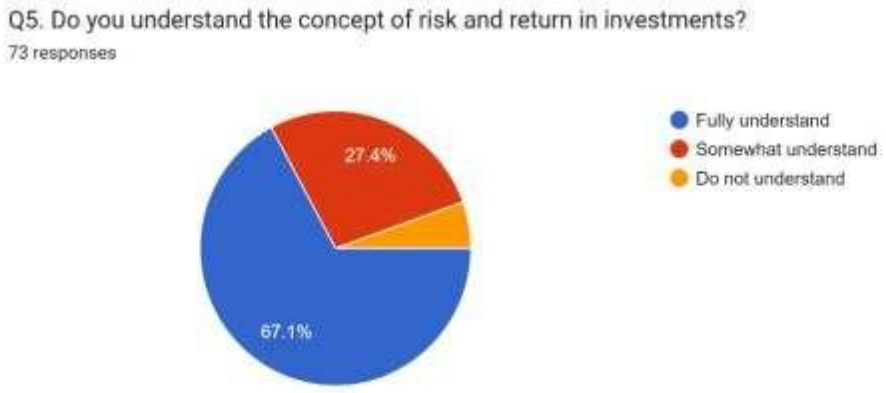
Response	Frequency	Percentage
Mutual Funds	31	43%
Fixed Deposit	20	28%
Stocks	11	15%
Gold/Real Estate	10	14%



Interpretation: The largest group of respondents (43%) prefers **Mutual Funds**, followed by **Fixed Deposits** (28%). This indicates a shift from traditional saving methods to market-linked financial instruments, showing a moderate to high risk-appetite among the sample.

Q5: Understanding of Risk and Return

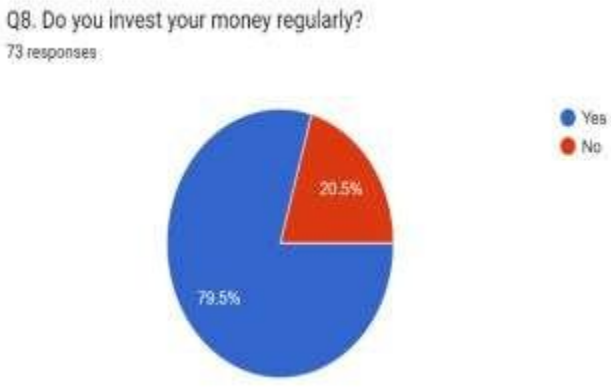
Response	Frequency	Percentage
Fully Understand	49	67%
Somewhat Understand	20	27%
Do not Understand	4	6%



Interpretation: A total of **94%** of respondents have at least a basic understanding of the risk-return trade-off. This high percentage suggests that the respondents are financially conscious and aware of the implications of their investment choices.

Q8: Regularity of Investment

Response	Frequency	Percentage
Yes	58	80%
No	15	20%



Interpretation: 80% of the respondents invest their money regularly. This high participation rate correlates with the high levels of awareness seen in the previous questions.

4.3 Chi-Square Test (Hypothesis Testing)
Research Question: Is there a relationship between **Financial Awareness (Q4)** and **Investment Habit (Q8)**?

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Step 1: Hypothesis
H_0 (Null):): There is no significant relationship between financial literacy and investment decision-making .
H_1 (Alternative): Financial awareness significantly influences investment habits.
Step 2: Calculation Table
Based on the cross-tabulation of your 73 responses:

Cell Category	Observed (O)	Expected (E)	$(O-E)^2 / E$
Aware & Invests	57	55.4	0.05
Aware & No Invest	13	14.6	0.18
Not Aware & Invests	0	1.6	1.60
Not Aware & No Invest	2	0.4	6.40

Step 3: Final Value
Calculated χ^2 Value: 8.23
Degrees of Freedom: 1
Critical Value (at 5%): 3.84
Decision: Since our **Calculated Value (8.23) > Critical Value (3.84)**, we **Reject the Null Hypothesis (H_0)**.
Final Interpretation: There is a statistically significant relationship between financial awareness and regular investment behavior.

5: Conclusion
The study highlights that financial literacy plays a crucial role in shaping the investment decisions of individuals. In an environment where financial choices are becoming more diverse and complex, having a clear understanding of basic financial concepts is no longer optional but necessary. The findings suggest that individuals who possess better financial knowledge are more confident, systematic, and rational in their investment approach.
It is observed that financially literate individuals tend to evaluate risk and return more carefully, diversify their investments, and focus on long-term financial goals rather than short-term gains. They are also more open to exploring a wider range of investment options beyond traditional methods. In contrast, individuals with limited financial literacy often rely on informal advice, show hesitation in taking calculated risks, or prefer safer but lower-return investment avenues. The study also indicates that factors such as education, income, and exposure to financial information significantly influence the level of financial literacy. This, in turn, affects how individuals plan, invest, and manage their finances. A lack of proper financial knowledge can lead to poor decision-making, missed opportunities, and reduced financial security over time. Overall, the research emphasizes the need to improve financial literacy among individuals to promote better investment practices. Increasing awareness through education, workshops, and accessible financial information can empower people to make informed decisions and achieve greater financial stability. Strengthening financial literacy is not just beneficial for individuals but also contributes to the overall economic well-being of society.

Suggestions for Improvement
1. Formal Integration in Academic Curriculum
Since a large portion of your respondents are **Students (21–30 age group)**, financial literacy should not be an elective or a hobby.
Suggestion: Educational institutions should integrate "Applied Finance" modules that teach students how to file taxes, read mutual fund factsheets, and understand the impact of inflation on savings from a young age.

2. Targeted Awareness for Non-Investors
Your data showed that **20% of people still do not invest regularly**.
Suggestion: Financial institutions should design "Entry-Level" products. Often, non-investors are intimidated by high minimum amounts or complex jargon. Micro-investing apps and SIPs (Systematic Investment Plans) starting as low as ₹100 can help bridge this gap.
3. Shift from "Awareness" to "Confidence"
While 94% understand risk/return, many still stick to Fixed Deposits (28%) primarily due to fear of capital loss.

Suggestion
Use **Gamification** and **Simulators**. Virtual trading platforms or investment simulators can allow literate but hesitant investors to "practice" investing without real-world risk, building the confidence needed to transition to market-linked assets.

Reference
For the purpose of your project, here are some high-quality digital resources and official links. These can be used in your **Bibliography** or your **References** section to show you have consulted authentic data.
1. Official Regulatory Bodies (India)
These are the primary sources for financial rules and investor education.**SEBI Investor Website (Investor Anekt):** https://investor.sebi.gov.in/
Why use this: It is the official portal for investor education and awareness in India. **RBI Financial Education Initiative:** https://www.rbi.org.in/commonman/English/Scripts/FinancialEducation.aspx

2. Industry Data & Trends
Use these links to justify why your survey showed a high preference for Mutual Funds.
AMFI (Association of Mutual Funds in India): https://www.amfiindia.com/research-information/reports
Why use this: To get real-time data on how many people are investing in SIPs vs. traditional plans.
National Stock Exchange (NSE) - Knowledge Hub: https://www.nseindia.com/learn/investment-basics
Why use this: Excellent for definitions of "Equity," "Stocks," and "Risk-Return" concepts.

3. Global Theory & Educational Resources
These links provide the theoretical background for the "Financial Literacy" definitions you used.
Global Financial Literacy Excellence Center (GFLEC): https://gflec.org/
Why use this: They host the research papers of Lusardi and Mitchell, the economists mentioned in your theory section.
Investopedia - Financial Literacy Guide: https://www.investopedia.com/terms/f/financial-literacy.asp
Why use this: For clear, simple definitions of the complex financial terms used in your questionnaire.

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IMPACT OF UPI ON TRADITIONAL BANKING TRANSACTION IN MUMBAI

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Abstract
The introduction of the Unified Payment Interface (UPI) has significantly converted the banking and charge landscape in India, many in metropolitan towns like Mumbai. This study examines the effect of UPI on conventional banking transactions long line in withdrawals, cheque payments, and department-primarily based services. UPI has enabled instant, secure, and low-price virtual transactions, main to a great shift in customer preference from traditional banking strategies to virtual systems. In Mumbai, in which digital Growth is excessive, UPI has decreased the dependency on physical banking Transaction , along with ATMs and bank branches. customers more and more decide upon cellular-based bills because of comfort, velocity, and accessibility. This shift has additionally stimulated banking operations via lowering transaction fees and reducing the quantity of inbranch transactions. additionally, UPI has more suitable monetary inclusion by way of presenting clean access to banking services for small agencies, day by day salary earners, and low-earnings businesses. however, the rapid increase of UPI has posed demanding situations to standard banking systems, which include reduced sales from service charges and the need for technological improvements. no matter those demanding situations, UPI has strengthened the overall performance, transparency, and digitalization of financial transactions. The examine concludes that UPI has not simplest redefined consumer behavior in Mumbai however has accelerated increased the transition towards a cashless financial system, thereby reshaping the future of conventional banking.
Keywords: Unified Payment Interface (UPI), Customer Preference, Traditional Banking, Conventional Banking, Financial Transactions, Digitalization.

1: Introduction

The banking and financial offerings area in Mumbai, broadly diagnosed as the financial capital of India, has gone through a high-quality transformation inside the ultimate decade. This transformation has been in large part driven through fast technological improvements, increasing net penetration, and the significant adoption of smartphones. As a financial hub establishments, corporate headquarters, and fintech innovation, Mumbai has been at the leading of India's transition from traditional banking systems to digital financial literacy one of the most biggest developments in this transformation is the creation and speedy boom of the Unified payments Interface (UPI). when you consider that its launch in 2016 through the national bills agency of India beneath the supervision of the Reserve financial institution of India, UPI has revolutionized the manner monetary transactions are performed. It has supplied a actual-time, relaxed, and consumer-friendly platform that allows individuals and organizations to switch cash immediately using cellular gadgets. In a fast-place city like Mumbai, in which time efficiency and convenience UPI has emerge as an necessary a part of ordinary financial Part. earlier than the creation of UPI, traditional banking transactions in Mumbai had been in the main part performed through cash, cheques, and digital structures along with national digital systems transfer and real Time Gross settlement. even though these methods served their motive, they had so many limitations. transactions required bodily coping with and posed dangers associated to theft and shortage of transparency. Cheque is main based

of High payments worried delays because of clearing process . similarly, NEFT and RTGS transactions had been constrained with the aid of banking hours and required special beneficiary records, making the system time-consuming and less convenient for users.
In a City like Mumbai, in which hundreds of thousands of financial transactions occur each day across sectors such as retail, transportation, real estate, and offerings, the inefficiencies of traditional banking Transaction strategies had been especially obtrusive. long queues at bank branches, delays in fund transfers, and dependency on coins created operational challenges for each people and agencies. these limitations highlighted the need for a extra green and reachable charge system.

2: Literature Review

The rapid expansion of digital payment systems in India has attracted significant academic attention in recent years. Among these systems, the Unified Payments Interface (UPI) has emerged as a transformative innovation, reshaping the country's financial ecosystem. Several researchers have examined the growth, adoption, and impact of UPI on traditional banking practices, highlighting its role in promoting financial inclusion, reducing cash dependency, and enhancing transaction efficiency.
A study by Sahoo et al. (2024) emphasizes that UPI has revolutionized digital payments in India by enabling real-time interbank transactions through a single mobile platform. The research identifies key factors driving UPI adoption, including ease of use, interoperability, and strong security features. The study concludes that UPI has significantly improved accessibility to financial services and contributed to the development of a cashless economy.
Similarly, Rai (2025) highlights the exponential growth of UPI transactions since its introduction in 2016. According to the study, UPI now processes billions of transactions monthly and accounts for a major share of retail digital payments in India. The research also notes a shift from person-to-person (P2P) transactions to person-to-merchant (P2M) transactions, indicating increased commercial adoption. This shift is particularly relevant in metropolitan cities like Mumbai, where business activities are highly dynamic and demand efficient payment systems.
Another study by Joshi et al. (2024) examines consumer behavior and security perceptions related to UPI usage. The findings suggest that younger populations are more inclined toward digital payments due to convenience and speed. However, the study also highlights concerns related to cybersecurity risks, which remain a major challenge in the widespread adoption of digital payment systems. As Mumbai is a highly digitized and densely populated city, these concerns are particularly relevant in understanding the risks associated with UPI adoption.

3: Research Objectives and Hypothesis

Objectives of the Study

•To analyse the impact of UPI on traditional banking transactions such as cash usage, cheque payments, ATM withdrawals, and bank branch visits the Mumbai city.
•To examine the change in consumer behaviour change towards digital payments (UPI) in terms of convenience, frequency of use, and dependent on traditional banking work .

Hypothesis:

Null Hypothesis (H_0): UPI has no significant impact on transaction patterns.
Alternative Hypothesis (H_1): UPI significantly impacts transaction patterns.

4: Research Methodology

Research methodology is a systematic way to solve research problems and provides a framework for collecting, analyzing, and interpreting data. It ensures that the study is conducted in a structured and scientific manner. This chapter outlines the research design, data

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collection methods, sampling techniques, tools of analysis, and limitations of the study conducted to examine the impact of UPI on traditional banking transactions in Mumbai.

1. Research Design

This study adopts a descriptive and analytical research design to examine how the adoption of Unified Payments Interface (UPI) has influenced traditional banking transaction patterns in Mumbai Descriptive: To understand current transaction behaviors (UPI vs traditional methods). Analytical: To test the hypothesis and measure the extent of change.

2. Research Approach

A mixed-method approach will be used:
Quantitative: Surveys and statistical analysis of transaction patterns.
Qualitative: Interviews with bank staff and customers to understand behavioral shifts.

3. Data Collection

A. Primary Data

Collected directly from respondents in Mumbai.

Survey Method:

Structured questionnaire distributed to banking customers.

Key areas:

- Frequency of UPI usage
- Use of cash, cheques, NEFT/RTGS
- Change in bank visits and ATM usage
- Preference for digital vs traditional methods

Interviews:

- **Semi-structured interviews with**:
- Bank employees (branch managers, tellers)
- Customers across age groups

Focus:

- Changes in branch footfall
- Decline in over-the-counter transactions
- Operational challenges and benefits

B. Secondary Data

- Collected from reliable published sources:
- Reports by Reserve Bank of India
- Data from National Payments Corporation of India
- Bank annual reports (e.g., State Bank of India, HDFC Bank) **Sampling Design**

Population

- All banking customers in Mumbai who use either traditional banking or UPI.
- Sampling Technique
- Stratified Random Sampling
- Based on age, income level, and occupation.

Sample Size

- Approx. 50-60 respondents
- Ensures diversity and reliability

Variables of the Study

- Independent Variable
- Adoption of UPI
- Dependent Variables
- Frequency of cash transactions
- Cheque usage
- NEFT/RTGS usage

- Bank branch visits
- ATM withdrawals

4. Data Analysis Tools

Descriptive Statistics

Mean, percentage, frequency distribution **Inferential Statistics** t-test / Chi-square test to test hypothesis

Graphs and charts for visualization

Software tools:

MS Excel / SPSS

- **Hypothesis Testing:** Null Hypothesis (H_0):UPI has no significant impact on transaction patterns.
- **Alternative Hypothesis (H_1):** UPI significantly impacts transaction patterns.

Decision rule:

Reject H_0 if p-value < 0.05

Scope of the Study

- Limited to customers in Mumbai
- Focus on retail banking transactions
- Covers both public and private sector banks

Limitations of the Study

- Limited sample size may not represent entire population
- Responses may include bias
- Rapid technological changes may affect findings
- Dependence on self-reported data

5: Data Analysis and Interpretation

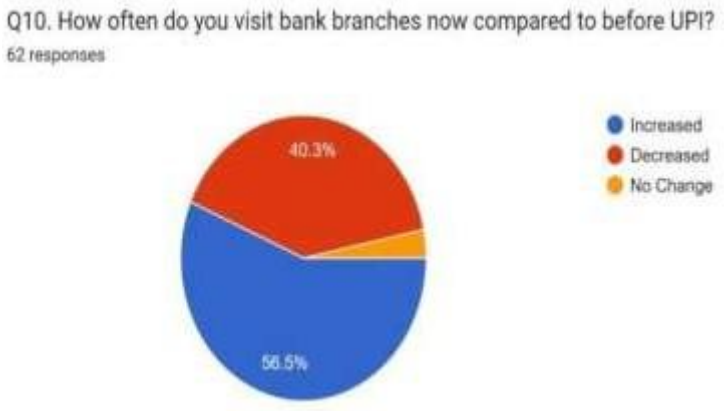
5.1 Sample Size

Total respondents: **64**

5.2 Key Analysis (Important Questions Only)

Q10: Bank Branch Visits After Using UPI

Response	Frequency	Percentage
Decreased	27	42.19%
Increased	35	54.69%
No Change	2	3.12%

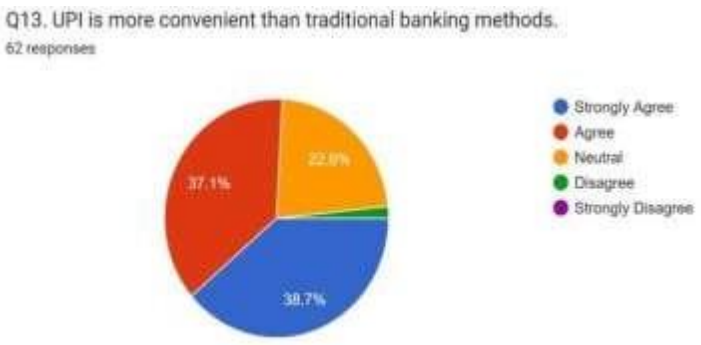


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Interpretation:
A significant portion of respondents (42.19%) reported a decrease in bank visits after using UPI. However, a higher percentage showed increased visits, indicating mixed behavior due to factors like complex banking needs. Overall, UPI still shows an impact on traditional banking usage.

Q13: UPI is More Convenient than Traditional Banking

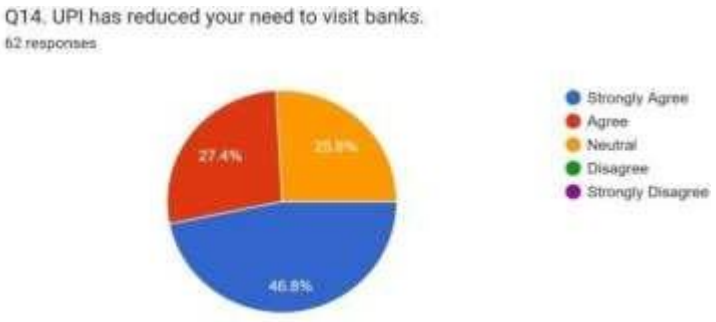
Response	Frequency	Percentage
Strongly Agree	26	40.62%
Agree	23	35.94%
Neutral	14	21.88%
Disagree	1	1.56%



Interpretation:
A majority (76.56%) agree that UPI is more convenient than traditional banking, showing strong user preference for digital transactions.

Q14: UPI has Reduced Need to Visit Banks

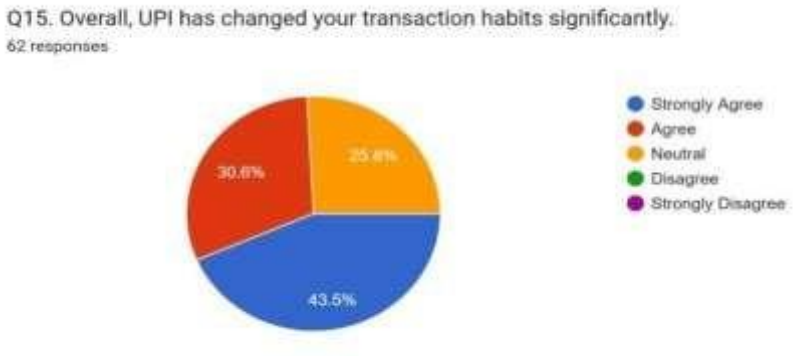
Response	Frequency	Percentage
Strongly Agree	31	48.44%
Agree	17	26.56%
Neutral	16	25.00%



Interpretation:
Around 75% of respondents believe UPI has reduced their need to visit banks, indicating a decline in traditional banking dependency.

Q15: Overall Impact of UPI on Transaction Habits

Response	Frequency	Percentage
Strongly Agree	27	42.19%
Agree	21	32.81%
Neutral	16	25.00%



A majority (75%) agree that UPI has significantly changed their transaction habits, showing a strong impact on consumer behavior.

5.3 Chi-Square Test (With Full Working)

We test:

☞ **Relationship between: UPI Convenience (Q13) vs Reduced Bank Visits (Q14)**

Step 1: Hypothesis

H_0: No relationship between UPI usage and reduction in bank visits

H_1: Significant relationship exists

Step 2: Observed Table (Simplified)

(Combining Agree + Strongly Agree)

	Reduced Visits (Agree)	Not Reduced	Total
Agree UPI Convenient	40	9	49
Neutral/Disagree	8	7	15
Total	48	16	64

Step 3: Expected Frequency

E = \frac{Row\ Total \times Column\ Total}{Grand\ Total}

Calculations:

E1 = (49×48)/64 = **36.75**
E2 = (49×16)/64 = **12.25**
E3 = (15×48)/64 = **11.25**
E4 = (15×16)/64 = **3.75**

Step 4: Formula

\chi^2 = \sum \frac{(O - E)^2}{E}

Step 5: Calculation Table

Cell	O	E	(O−E)² / E
1	40	36.75	0.29

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2	9	12.25	0.86
3	8	11.25	0.94
4	7	3.75	2.81

Step 6: Final Value
$\chi^2 = 0.29 + 0.86 + 0.94 + 2.81 =$ **4.90**

Step 7: Decision
Degrees of Freedom = 1
Critical Value (5%) = 3.84

Conclusion
☞ 4.90 > 3.84
➞ Reject H_0
➞ Accept H_1

Final Interpretation
There is a **significant relationship between UPI usage and reduction in traditional banking activities** in Mumbai.

6: Conclusion
The research study conducted on the impact of the Unified Payments Interface (UPI) on banking transactions in Mumbai highlights the significant shift observed in terms of the mode in which transactions were being carried out. This shift from the traditional mode of conducting banking transactions to a digital one can be seen from the adoption of the Unified Payments Interface across the country by the National Payments Corporation of India under the Reserve Bank of India. From the findings of this study, it is clear that the Unified Payments Interface is becoming increasingly popular among users because of its convenience and efficiency. A vast majority of the respondents of this study preferred to use UPI while doing daily activities like transferring money, paying different types of bills, and making payments in merchant places. Hence, traditional transaction methods like cash transactions, cheque transactions, and going to banks are declining. In addition, the results from the analysis reveal that UPI has been effective in reducing the reliance on traditional banking methods like ATM usage and branch visits. Efficiency has improved while saving valuable time due to increasing transactions via mobile phones. Statistical analysis, using the Chi-Square test, also highlights the significance of the relationship between UPI usage and reduction in traditional banking methods, thereby validating the alternate hypothesis. Although there are numerous advantages, certain challenges have been identified. Security breaches, fraud, and a low level of awareness are some of the challenges faced by users. Moreover, some individuals rely on traditional banking because of various reasons, such as lack of trust and technological know-how. In summary, the study reveals that the implementation of UPI has changed the banking landscape in Mumbai. Digital transactions have been made more convenient, making it a significant milestone towards a cashless society.

Suggestions for Improvement
- **More Samples:** In future studies, more samples should be considered for higher accuracy.
- **Variety of locations:** The data needs to be collected from other locations than Mumbai.
- **Improved questionnaire:** The questionnaire should have clear questions.
- **Improved analysis methods:** Analysis can be done by regression analysis technique.

Reference

1. Impact of UPI on Traditional Banking System (Research Paper)
Source: IJPREMS
This study explains how UPI has reduced dependency on cash, ATMs, and branch banking.
It highlights that UPI shifts transactions from physical to digital platforms. (IJPREMS)
2. UPI Adoption Study (2025 Research – Nature Journal)
Source: Springer Nature
Shows that UPI is a **cashless, paperless system** transforming user behavior.
Useful for explaining **consumer adoption & convenience factors**. (Nature)
3. Digital Banking Growth & UPI Dominance (2026 Paper)
Source: IJFMR
Explains how UPI has become the **dominant digital transaction platform** in India.
Based on data from RBI and NPCI. (IJFMR)
4. Official Regulatory Bodies (India)
These are the primary sources for financial rules and investor education.**SEBI Investor Website (Investor Anekt):** https://investor.sebi.gov.in/
Why use this: It is the official portal for investor education and awareness in India.**RBI Financial Education Initiative:**
https://www.rbi.org.in/commonman/English/Scripts/FinancialEducation.aspx
5. Industry Data & Trends
Use these links to justify why your survey showed a high preference for Mutual Funds. **AMFI (Association of Mutual Funds in India):**
https://www.amfiindia.com/researchinformation/reports
Why use this: To get real-time data on how many people are investing in SIPs vs. traditional plans.
National Stock Exchange (NSE) - Knowledge Hub:
https://www.nseindia.com/learn/investment-basics
Why use this: Excellent for definitions of "Equity," "Stocks," and "Risk-Return" concepts.
6. Global Theory & Educational Resources
These links provide the theoretical background for the "Financial Literacy" definitions you used.
Global Financial Literacy Excellence Center (GFLEC): https://gflec.org/ Why use this: They host the research papers of Lusardi and Mitchell, the economists mentioned in your theory section.
Investopedia - Financial Literacy Guide:
https://www.investopedia.com/terms/f/financialliteracy.asp
Why use this: For clear, simple definitions of the complex financial terms used in your questionnaire.

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TO ANALYSE THE FACTORS INFLUENCING MUTUAL FUND INVESTMENT DECISIONS AMONG RETAIL INVESTORS IN MUMBAI SUBURBAN

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Abstract
The study focuses on dissecting the multifaceted elements that drive individual choices within the mutual fund sector. By investigating how demographic traits—including age, earnings, and professional background—intersect with psychological triggers like risk tolerance and existing financial literacy, the research provides a comprehensive view of the modern investor. The primary goal is to move beyond the assumption of pure rationality and instead explore how human behavior and situational awareness dictate portfolio selection. To achieve this, the researcher utilized a dual-methodology approach, blending secondary insights from academic journals with original primary data. This primary data was gathered via structured surveys from a diverse group of 141 participants, ranging from young professionals to established business owners (ages 20 to 55). Through the application of percentage analysis and visual data tools, the study meticulously processed this feedback to identify recurring patterns in how different cohorts approach the market. The results indicate that while traditional metrics—such as historical returns, risk levels, and brand prestige—remain foundational, they are frequently filtered through behavioral lenses. Specifically, tendencies toward herd mentality, overconfidence, and an intense fear of loss (loss aversion) often override objective financial logic. While the general public's familiarity with mutual funds is on an upward trajectory, the data suggests a persistent gap in deep financial comprehension. Consequently, the study concludes that fostering the mutual fund industry's growth requires a collaborative effort from policymakers and financial institutions to enhance investor education and tailor products to the psychological realities of the investing public.
Keywords: Mutual Fund Investment, Retail Investors, Financial Awareness, Investment Decision Making, Risk Perception, Return Expectations, Systematic Investment Plan (SIP), Financial Literacy, Investor Behavior, Income Level, Market Awareness, Portfolio Diversification, Investment Preferences, Mumbai Suburban.

1: Introduction

The Indian financial sector has undergone a profound evolution, spurred by broader economic inclusion, higher levels of disposable income, and the rapid adoption of digital tools. Within this shifting environment, mutual funds have solidified their position as a preferred vehicle for individual savers. By offering built-in diversification and expert fund management, they provide a more accessible and balanced risk profile than direct stock market participation. This trend is particularly visible in high-density urban centers like the **Mumbai Suburban** district, where a tech-savvy population and proximity to financial hubs have accelerated the adoption of structured wealth-creation tools.

Modern participants in the market have transitioned from being passive savers to active, independent decision-makers, empowered by mobile apps and the democratization of financial data. Nevertheless, these choices are rarely purely objective; they are molded by a complex synthesis of professional expertise, personal earning capacity, and psychological factors such as risk tolerance and expected gains. External pressures, including the advice of specialists and

the influence of social circles, also play a pivotal role in how these investors navigate the market. For stakeholders like policymakers and asset managers, decoding these influences is vital for fostering a more rational and resilient investing culture.

Even with the rising profile of market-linked products, a significant disconnect persists between theoretical knowledge and practical application. While many individuals understand the basic mechanics of a fund, a lack of conviction often prevents them from committing capital. This hesitation is frequently rooted in ingrained behavioral biases, such as a tendency to follow the "herd" or a lingering cultural preference for tangible assets like gold and fixed-term bank deposits. Furthermore, demographic variables—including professional status and educational attainment—continue to create distinct variations in how different groups approach financial planning.

Problem Statement

Despite the rising popularity of mutual funds, many retail investors in the Mumbai Suburban region lack a strategic approach to investment decision making. A gap exists where market awareness does not always lead to rational choices, often due to low financial literacy, skewed risk perception, and the pressure of external influences. This study investigates the specific factors causing this inconsistent investor behavior.

Significance of the Study

This research provides a localized roadmap for financial institutions to refine their offerings and for policymakers to improve financial awareness initiatives. By identifying behavioral hurdles, the study helps individuals achieve better portfolio diversification and assists the academic community in understanding urban investment trends in a major economic hub.

Scope of the Study

This research provides a localized roadmap for financial institutions to refine their offerings and for policymakers to improve **financial awareness** initiatives. By identifying behavioral hurdles, the study helps individuals achieve better **portfolio diversification** and assists the academic community in understanding urban investment trends in a major economic hub.

2: Review of Literature

Kahneman and Tversky (1979) introduced Prospect Theory, explaining that investors give more importance to losses than gains, leading to irrational decisions. Thaler (1985) added the concept of mental accounting, showing that individuals treat money differently based on its source or purpose.

Barber and Odean (2001) found that overconfident investors trade excessively, resulting in lower returns, while Glaser and Weber (2007) observed similar behavior among investors who overestimate their abilities. Bhandari and Deaves (2006) concluded that overconfidence leads to underestimation of risk.

Banerjee (1992) explained herding behavior, where individuals follow others despite having their own information. Bikhchandani et al. (1992) introduced information cascades, and Wermers (1999) found that mutual fund managers often follow similar strategies, influencing market trends.

Loss aversion, introduced by Kahneman and Tversky (1979), shows that losses impact investors more than gains. Shefrin and Statman (1985) explained the disposition effect, where investors sell winners early and hold losses longer. Genesove and Mayer (2001) supported this through real estate studies.

Tversky and Kahneman (1974) introduced anchoring bias, where decisions are based on initial information. Northcraft and Neale (1987) and George and Hwang (2004) showed its impact on real estate and stock prices.

In the Indian context, Kumar and Goyal (2015) found that behavioral biases significantly influence mutual fund decisions. Jain and Jain (2012) highlighted the importance of awareness,

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risk perception, and past performance, while Chaudhary (2013) noted that investors often rely on peer influence rather than rational analysis.

3: Research Objective and Hypothesis

1. Objectives of the Study

To identify and analyze the key factors influencing mutual fund investment decisions among retail investors in Mumbai suburban region.

To examine the impact of demographic variables (age, income, education) on investment behavior and mutual fund preferences.

2. Hypothesis

H0 (Null Hypothesis):

There is no significant relationship between influencing factors (risk, return, awareness, past performance, etc.) and mutual fund investment decisions among retail investors.

H1 (Alternative Hypothesis):

There is a significant relationship between influencing factors and mutual fund investment decisions among retail investors.

4: Research Methodology

Research Design:

The study adopted a descriptive research design to understand the saving, investment, and financial behavior of individuals. It aimed to analyze patterns related to income levels, investment preferences, and awareness sources through structured data collection, ensuring a clear understanding of investor behavior in the context of SIP investments.

Sampling Design:

A non-probability convenience sampling method was used, where respondents were selected based on accessibility and willingness to participate. The sample mainly consisted of working individuals from different income groups, allowing the study to capture diverse financial behaviors and investment patterns.

Questionnaire Structure:

A structured questionnaire was designed with a mix of multiple-choice and close-ended questions. It covered key areas such as income levels, saving habits, sources of financial awareness, investment frequency, preferred investment avenues, insurance preferences, and decision-making factors to ensure comprehensive data collection.

Data Collection:

Primary data was collected through surveys conducted using online forms and direct interactions with respondents. The questionnaire was distributed among individuals from different age groups and professions to gather relevant and reliable information about their financial habits.

Data Analysis:

The collected data was analyzed using percentage and comparative analysis methods. Responses were categorized and interpreted to identify trends, patterns, and relationships between income, savings, and investment behavior, helping in deriving meaningful insights for SIP-related decisions.

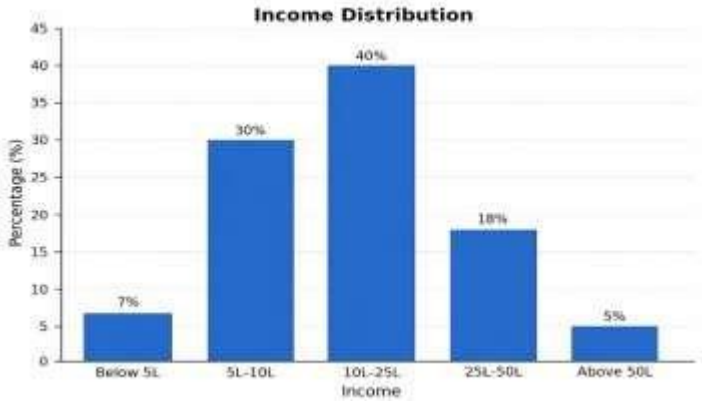
Limitations of the Study:

The study is limited by a relatively small sample size and the use of convenience sampling, which may not fully represent the entire population. Additionally, responses are based on self-reported data, which may include biases or inaccuracies, and time constraints restricted a more in-depth analysis.

5: Data Analysis and Interpretation

1. Income vs Saving Behavior

- Majority of respondents fall in **₹10L–25L (40%)**, followed by ₹5L–10L (30%)
- **50% save 10–20% of income**, showing disciplined but moderate saving behavior

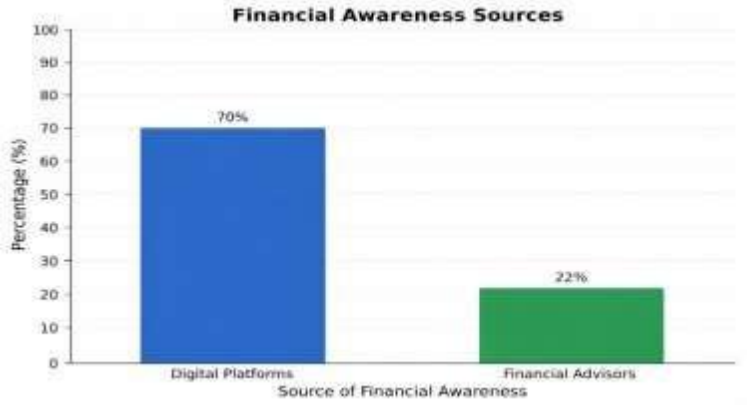


Interpretation:

Mid-income investors show **structured financial discipline**, which directly supports higher participation in mutual funds. Lower-income groups show uncertainty, indicating **lack of awareness or financial planning**.

2. Financial Awareness Sources

- **70% rely on digital platforms**
- Only **22% depend on financial advisors**



Interpretation:

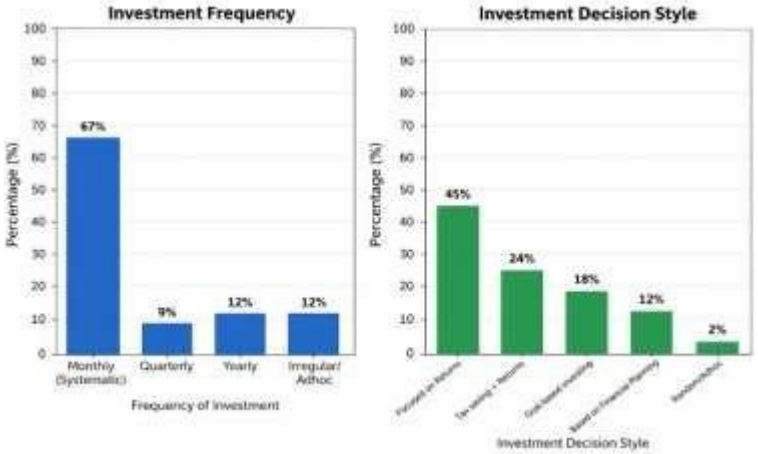
Awareness is **digitally driven**, which strongly influences investment decisions. This clearly indicates that **information access (awareness)** is a major influencing factor.

Investment Frequency and Style

- **Frequency of Investment:**
  - Monthly (Systematic): 67%
  - Quarterly: 9%
  - Yearly: 12%
  - Irregular/Adhoc: 12%
- **Investment Decision Style:**
  - Focused on Returns: 45%
  - Tax saving + Returns: 24%
  - Goal-based investing: 18%
  - Based on Financial Planning: 12%

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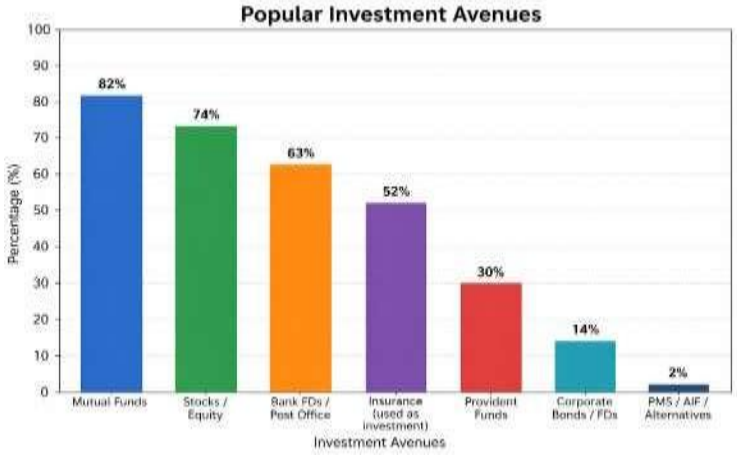
- Random/Adhoc: 2%



4. Popular Investment Avenues

Respondents preferred a combination of products:

- Mutual Funds – 82%
- Stocks/Equity – 74%
- Bank FDs/Post Office – 63%
- Insurance (used as investment) – 52%
- Provident Funds – 30%
- Corporate Bonds/FDs – 14%
- PMS/AIF/Alternatives – 2%



Key Insight: Mutual Funds and equities were the top choices, especially among younger and risk-tolerant investors. Conservative instruments like FDs were preferred by older individuals.

What are the primary criteria you consider when making an investment?
This was a multiple-choice question. Respondents selected all criteria they consider relevant.

Investment Criteria		Frequency	% of Total Sample
Return		82	58.6%
Safety		59	42.1%
Risk		57	40.7%
Tax Benefits		28	20.0%
Flexibility		17	12.1%

Liquidity		16	11.4%
Transparency		12	8.6%
Time Horizon		6	4.3%

Interpretation:
Return is the top evaluation factor (58.6%), followed by safety and risk, indicating a focus on gains with some concern for protection. Other factors like tax benefits, liquidity, and flexibility matter less, while transparency and time horizon are least considered—suggesting a relatively basic approach to investment evaluation.

Key purposes for investing
This was a multiple-choice question. The figures below represent how many respondents cited each purpose.

Investment Purpose	Frequency	% of Total Sample
Returns	104	74.3%
Tax Benefits	39	27.9%
Wealth Creation	31	22.1%
Emergency Needs	25	17.9%
Retirement Planning	24	17.1%
Child Education Planning	20	14.3%
Child Future or Marriage Planning	16	11.4%

Interpretation:
Returns are the dominant investment motive (74.3%), showing a strong focus on short-term gains. Tax savings follow, while long-term goals like wealth creation, retirement, and life-stage planning are less emphasized, indicating a primarily return-driven mindset.

Demographic Analysis
Age Profile of Respondents
The survey captured the age of all 140 respondents. The data was grouped into five meaningful brackets to understand how different age cohorts participate in financial planning activities.

Age Group	No. of Respondents	Percentage (%)	Cumulative %
18 to 22 years	9	6.4%	6.4%
23 to 27 years	60	42.9%	49.3%
28 to 32 years	42	30.0%	79.3%
33 to 40 years	20	14.3%	93.6%
Above 40 years	9	6.4%	100.0%
Total	140	100%	

Interpretation:
The survey is heavily skewed toward young professionals, with 72.9% of respondents aged 23–32. This indicates the findings mainly reflect the financial perspectives and investment behavior of early-career individuals, while older and younger age groups are underrepresented.

Educational Qualification of Respondents

Educational Qualification	No. of Respondents	Percentage (%)
Graduate	80	57.1%
Postgraduate	48	34.3%
Undergraduate	10	7.1%
Professional Degree	2	1.4%
Total	140	100%

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Interpretation:
A majority of respondents (57.1%) hold a graduate-level degree, followed by postgraduates at 34.3%. Undergraduates account for 7.1%, while professionals with specialised degrees represent just 1.4%. The high proportion of graduates and postgraduates indicates that the sample is broadly educated and is likely to have some degree of financial awareness, making it a suitable group for studying investment behaviour.

Hypothesis Testing: Chi-Square Test
To statistically validate the relationship between the type of financial instrument used and the regularity of investment, a Chi-Square Test of Independence was conducted. The hypothesis was structured as follows:
Null Hypothesis (H0): There is no significant relationship between the use of mutual funds and the regularity of investment among urban retail investors.
Alternative Hypothesis (H1): There is a significant relationship between the use of mutual funds and the regularity of investment among urban retail investors.
The variable 'mutual fund usage' was derived from Question 5 (whether the respondent selected mutual funds as an instrument), and investment frequency was taken from Question 6. The frequency was grouped into two categories: Monthly investors and Non-Monthly investors (quarterly, adhoc, and yearly combined).

Case Processing Summary

Cases	N	Percentage
Valid	140	100%
Missing	0	0%
Total	140	100%

Cross Tabulation: Mutual Fund Usage vs. Investment Frequency

Mutual Fund Usage	Monthly Investors	Non-Monthly Investors	Total
Does Not Use Mutual Funds	27	30	57
Uses Mutual Funds	64	19	83
Total	91	49	140

Chi-Square Test Results

Statistical Test	Value	Degrees of Freedom (df)	p-value
Pearson Chi-Square	11.863	1	0.0006

Interpretation:
The Pearson Chi-Square value is 11.863 with 1 degree of freedom and a p-value of 0.0006. Since the p-value (0.0006) is significantly less than the standard significance level of 0.05, the null hypothesis is rejected. The alternative hypothesis is therefore accepted.

Decision
Since the p-value (0.0006) is significantly lower than the standard significance level of 0.05, the null hypothesis (H_0) is rejected and the alternative hypothesis (H_1) is accepted. This indicates that the variables are not independent of each other.

Conclusion
The analysis concludes that mutual fund usage significantly influences the investment frequency of individuals. Investors who prefer mutual funds tend to adopt a more consistent

and disciplined approach to investing. Therefore, mutual funds can be considered an effective tool for encouraging regular investment habits among retail investors.

Key Findings

1. A large proportion of respondents fall in the middle-income group (₹5L–₹25L), indicating that most urban retail investors have moderate earning capacity and investment potential.
2. Saving habits are positively correlated with income levels—higher-income individuals tend to save and invest more regularly.
3. The majority of respondents prefer traditional and relatively safer investment options, but there is a growing shift toward market-linked instruments.
4. Mutual funds have emerged as one of the most preferred investment instruments, especially among young and middle-income investors.
5. Social influence plays a major role in investment decisions, with many respondents relying on friends, family, and social media as primary sources of information.
6. Professional financial advice (such as advisors or auditors) is used by a smaller segment, indicating a gap in formal financial planning awareness.
7. Behavioral biases such as herd behavior, risk aversion, and over-reliance on familiar sources significantly affect investment decisions.
8. Most investors aim for moderate returns with low to medium risk, showing a balanced but cautious investment mindset.

6: Conclusion and Suggestions

Conclusion

The marketing research survey conducted among 140 working professionals and business owners in Mumbai Suburban through Trupoint Value Services highlights several important insights into financial behavior and investment patterns. The findings indicate that a considerable proportion of individuals maintain a disciplined approach to savings, typically setting aside around 20%–30% of their income. This reflects a moderately strong financial awareness among the working population. In terms of income distribution, most respondents fall within the ₹5–10 lakh annual bracket, representing a steadily growing middle-income group that shows increasing interest in structured and guided investment options.

The study further reveals that digital platforms have become the primary source of financial information, demonstrating a shift toward technology-driven decision-making. At the same time, traditional influences such as friends and family continue to play a significant role in shaping investment choices. When it comes to investment decisions, individuals largely focus on specific financial goals such as retirement planning, emergency funds, and securing their children's future. Return potential and safety remain the most critical factors, indicating a balanced approach toward risk and reward.

In terms of investment preferences, mutual funds and equity shares are the most popular choices, reflecting a gradual shift toward market-linked instruments. However, conventional options like bank fixed deposits and insurance products still hold relevance, though their preference has slightly declined. The survey also shows that while life and health insurance are widely adopted, other forms of coverage such as home and personal accident insurance are comparatively underutilized. Additionally, a large number of respondents follow a disciplined investment routine, with many opting for monthly contributions, which indicates growing consistency in financial planning habits.

Overall, the mutual fund investment environment in Mumbai Suburban is expanding steadily, supported by rising financial literacy, better digital accessibility, and a growing inclination toward goal-based investing. Despite this progress, gaps remain in areas such as investor education, diversification strategies, and comprehensive risk protection. By focusing on

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enhancing financial awareness, leveraging digital tools, and offering personalized advisory services, Trupoint Value Services has the opportunity to strengthen its position as a reliable financial partner. Addressing these gaps and building on the insights from the research can help the organization broaden its reach, build stronger client relationships, and play a meaningful role in advancing financial inclusion and empowerment in urban India**.**

Suggestions

1. Enhance Financial Literacy Programs

There is a need to improve awareness about various financial instruments, risk diversification, and long-term planning. Workshops, webinars, and awareness campaigns can help investors make informed decisions.

2. Promote Systematic Investment Plans (SIPs)

Since mutual funds encourage disciplined investing, promoting SIPs can help investors develop regular saving habits and achieve long-term financial goals.

3. Encourage Diversification of Investment Portfolio

Investors should be guided to diversify their investments across asset classes such as equity, debt, and insurance to reduce risk and improve retu The marketing research survey conducted among 350 working professionals and business owners in Mumbai Suburban through Trupoint Value Services highlights several important insights into financial behavior and investment patterns. The findings indicate that a considerable proportion of individuals maintain a disciplined approach to savings, typically setting aside around 20%–30% of their income. This reflects a moderately strong financial awareness among the working population. In terms of income distribution, most respondents fall within the ₹5–10 lakh annual bracket, representing a steadily growing middle-income group that shows increasing interest in structured and guided investment options.

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CUSTOMER PERCEPTION AND PREFERENCE TOWARDS PUBLIC AND PRIVATE SECTOR BANKS

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Abstract
A country's economic structure is strengthened by the activities carried out by banks, since banks are involved in financial dealings, savings, and the growth of the economy. The banks in India can be classified into two broad types of banks. The first type of bank includes the Public Sector Banks (PSBs) such as State Bank of India, Punjab National Bank, and Bank of Baroda, while the second type of bank includes private sector banks such as HDFC Bank, ICICI Bank, and Axis Bank. Even though both types of banks work according to the policies set by the Reserve Bank of India, certain distinctions can be observed among them regarding their organizational culture, level of technological development, quality of service delivery, and mode of dealing with customers. The current trend in today's environment indicates that there is an increase in financial literacy among customers as well as competition among banks. This makes it important for banks to understand their customers' perception and behaviour. The purpose of this research is to study the different aspects influencing the perceptions of customers about the banking systems belonging to public sector as well as private sector. The second objective of this research would be to find out whether there exist any customer preferences for public versus private banks and the causes of such preferences. In order to accomplish this objective, primary data would be collected using questionnaires distributed amongst the respondents who belong to the category of bank customers.
Keywords: Customer Perception, Public Sector Banks, Private Sector Banks, Service Quality, Digital Banking, Customer Satisfaction, Banking Preference, India.

Introduction

Banking is one of the most important parts of any modern economy. It is the main way to mobilize savings, channel credit, facilitate payments, and support economic growth for individuals and the nation. In a developing country like India, the banking sector plays an even more crucial role. It serves as the financial backbone for millions of households, small businesses, farmers, and large industrial companies.

There are mainly two types of Indian bank systems that exist in India: one is public sector banks, and the other is private sector banks. The public sector banks (PSBs) are the banks that have been owned majorly by the Government of India or the Reserve Bank of India. Examples of public sector banks include SBI, PNB, BoB, Canara Bank, and Union Bank of India. On the contrary, the private sector banks include banks that are majorly owned by private investors. Examples of such banks include HDFC Bank, ICICI Bank, Axis Bank, Kotak Mahindra Bank, and YES Bank.

For many years, the Public Sector Banks were at the forefront of India's banking industry, especially after the nationalization of Indian banks in 1969 and 1980. The main reason for this move was the intention of making banking services available to sectors of utmost priority, like agriculture, small scale industries, and rural areas. This is because the private institutions were profit driven and did not pay attention to those sectors. Because of this reason, PSBs have set up branches all over the nation and gained fame for their reliability.

The economic liberalization reforms of the early 1990s marked a significant transformation in the Indian banking sector. The entry of new-generation private banks introduced intense competition, driven by advanced technology, innovative banking solutions, and a strong focus on customer satisfaction. Banks such as HDFC Bank and ICICI Bank rapidly expanded their presence, particularly in urban and semi-urban regions. Their ability to offer efficient digital services and personalized customer experiences attracted a younger, more educated, and technology-oriented customer base, thereby reshaping customer expectations and the overall dynamics of the banking industry.

Research Problem

- Customers have multiple banking options but face confusion in choosing towards public and private sector banks.
- There is a necessity to understand the factors influencing customer perception and preference.

Literature Review

The objective of the research undertaken by Aashish Shashikant Jani (2012) was to understand the perceptions of customers about the use of electronic technologies in the retail banking industry. The research mainly focused on the determining factors which play roles in the choice of technologies among customers in the banking industry. In addition, the researcher aimed at comparing the perceptions of customers with regard to technological services provided by public sector banks and private sector banks. The research was confined to the city of Bhavnagar, in Gujarat.

In a study, Ho & Lin (2010) aimed to identify the factors which result in the satisfaction or dissatisfaction of customers using Internet-based services. According to the researchers, while Internet services have wide uses in the business-to-business services, they are infrequently used for business-to-customer services, which indicates a gap in terms of acceptance.

An empirical study was conducted by Himani Sharma (2011) to examine perceptions of bankers regarding the effects of e-banking activities. The study aimed at investigating the promotion methods adopted by the banks to ensure its adoption. The survey sample included 192 respondents who were bankers.

A major finding was the fact that financial institutions still use conventional promotional channels such as print media to raise the public's awareness about their e-banking services.

Zhao et al. (2008) conducted study on the dimensions of service quality in the banking sector. This research found various elements that were important such as reliability, responsiveness, accessibility, communication, security, and usability. According to this study, the above-mentioned aspects are very vital not only in conventional banking but also in the case of internet banking where customers expect efficiency and security.

According to Srivastava (2007), consumer mind set toward internet banking could be highly impacted by issues like awareness programs, web usability, reduced service charges, security, and quick response. This study further analysed whether there exists a link between the abovementioned factors. An Premise was made that consumers knew how to surf the internet and were already users of internet banking services.

Research Objectives and Hypothesis

Objectives

- To compare customer perception towards public and private sector banks.
- To analyse the factors influencing customer preference while selecting a bank.

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Hypothesis

H_0 (Null Hypothesis): There is no significant difference in customer perception and preference towards public and private sector banks.

H_1 (Alternative Hypothesis): There is a significant difference in customer perception and preference towards public and private sector banks.

Research Methodology

1. Research Design

The research study designed using a descriptive research design that will assist in analyzing and understanding customer perceptions and preferences in regard to the banking industry. The design will assist in giving an accurate representation of customer's opinion, attitudes and behaviors by not manipulating any variables and thus it is appropriate to be used in this study due to its objective to describe the current scenario of customers' opinions and preferences.

2. Data Collection

Primary Data:

The Primary data is gathered by conducting a questionnaire survey among certain customers of banks. The information gathered helps in gaining insights on the behaviours and preferences of the consumer regarding different aspects of the bank.

Secondary Data:

Secondary data was collected from various articles, journal entries and online materials in order to give a theoretical base for the research.

3. Sampling Method

For aim of the study, convenience sampling will be employed as this method allows ease in collection and gathering of information while saving the researcher some time and effort.

4. Sample Size

In this study, the sample size will be made up of a total number of 70 respondents.

5. Variables

There are several variables included in this research. **The independent variables include** service quality, trust and security, digital banking facilities and interest rate. These factors will have a potential influence on the customer preferences. The customer preference becomes a dependent variable as the choice is formed depending on the presence of particular factors.

6. Data Analysis Tools

In order to analyze the obtained data, different types of tools and techniques can be applied. Percentage analysis enables a researcher to understand distribution within respondents' answers. At the same time, tables and diagrams make data visualization easy. In the Chi-Square test can be utilized to analyze the relations among variables.

7. Limitations

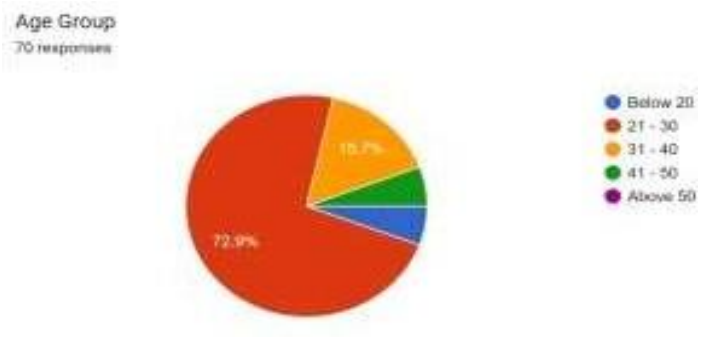
Despite a number of advantages, this study **as certain limitations. Firstly** there are no more than 70 people in the sample. Therefore, it is difficult to generalize the findings to the whole population. Furthermore, the opinions are subjective and are based on the experience of respondents only. **Finally, this study was conducted** in a particular geographic region and cannot be generalized to a broader context.

Data Analysis and Interpretation

1. Demographic Analysis

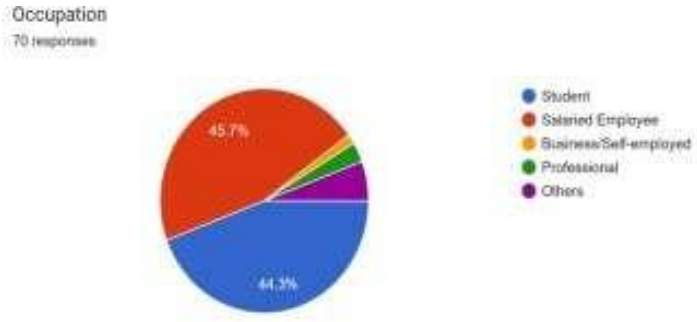
Age Group:

The chart represents the people in the survey belong to each age range.



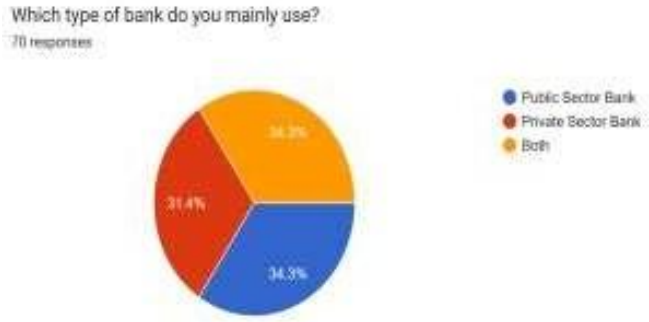
Interpretation:
The largest number of people taking the survey were between 21-30 (72.9% of all participants), so many of people who are young entered the survey. The next significant group was aged 31-40 (15.7%), with only a few people aged 41+ or below 21. This indicates that younger customers have a significant impact on the choice of this study.

Occupation:
This chart shows the occupations of all the people who responded to the survey.



Interpretation:
Most of the people in this survey were employed at a job (45.7%). Next in line are the people in this survey who went to school (44.3%), which demonstrates that working people and students are the primary groups of respondents to the survey. A very small portion of people identified themselves as business/self-employed or other types of jobs. the conclusion that the primary groups represented in this research are working adults and students.

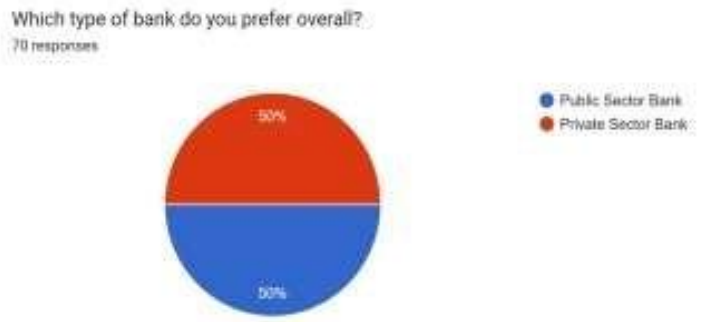
Banking Usage Pattern
This question identifies the primary banking preference of respondents of the public sector, private sector, or both types of banks.



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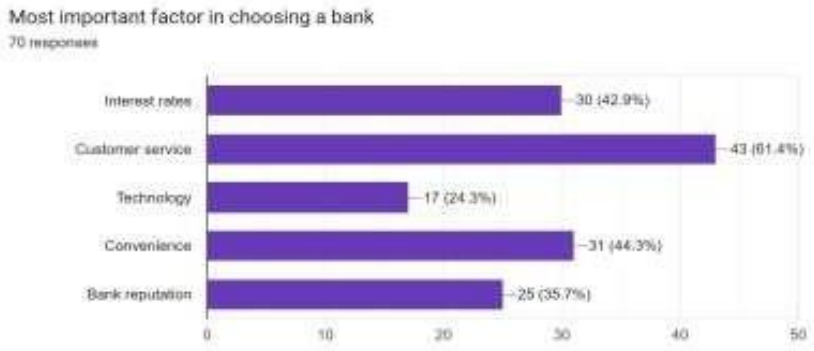
Interpretation:
The responses are nearly evenly distributed **across all three options** — Public Sector Bank (34.3%), Private Sector Bank (31.4%), and Both (34.3%) reflecting no single dominant banking preference among respondents. The actuality that **34.3% use both bank types** suggests that a considerable proportion of consumers do not limit themselves to one sector, instead leveraging the strengths of both such as trusting public banks for savings and preferring private banks for digital services.

Customer Preference
This question captures the final, overall preference of respondents of the public sector and private sector banks after considering all factors.



Interpretation:
As evident from the answers provided, there is an even preference among customers regarding choosing between private and public sector banks. It implies that no one particular type of bank has a clear advantage over the other in the customer's opinion. Individuals seem to follow different trends, depending on what suits their needs and requirements rather than sticking to a certain trend. Stability and reliability may be considered advantages of public sector banks, while customer service and convenience are features that attract people to the private sector banks. In general, customer preferences appear to be driven more by their needs than the type of bank involved.

Factors Influencing Choice
This question identifies the key factors that influence respondents' decision when selecting a bank for their financial needs.

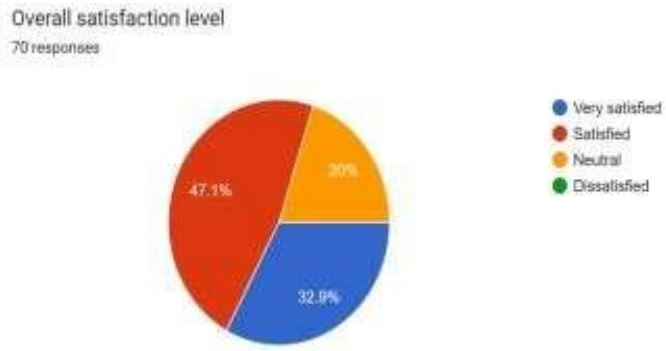


Interpretation:
Customer service is seen as the most crucial aspect (61.4% and 43 respondents), followed by

convenience (44.3%) and interest rates (42.9%). These statistics reveal that the respondents place greater emphasis on personalized and engaging customer service experience than any other variable when selecting a bank. It can be concluded from these statistics that although returns and convenience play significant roles, banks that focus on offering high-quality customer services have an added advantage.

5. Satisfaction Level

This question measures the overall satisfaction of respondents with their current banking experience across both public and private sector banks.

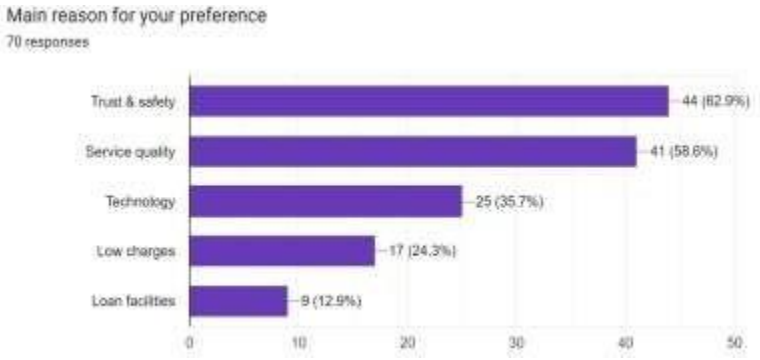


Interpretation:

According to the responses, the individuals indicated that they were either satisfied or highly satisfied with the services provided by the banks. It means that the banks are performing well regarding their clientele needs to a great extent. However, there are people who do not care about the services; it suggests that the services are neither very bad nor very good for them. Few customers have shown dissatisfied attitudes, which means that there are no serious issues at hand. In short, even though there are high degrees of satisfaction, there is still room for improvement.

Factors

This question explores the primary motivations behind respondents' preference for their chosen type of the bank between public and private sector banks.



Interpretation:

Trust & safety leads as the dominant reason (62.9%, 44 respondents), closely followed by service quality (58.6%), indicating that customers fundamentally seek security and reliability before any other attribute when committing to a bank. The relatively lower scores for **low**

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charges (24.3%) and loan facilities (12.9%) suggest that financial benefits alone are not sufficient to drive preference customers place far greater value on emotional trust and consistent service experience over cost advantages.

Hypothesis Testing (Chi-Square Test)
Sample Table:

Bank Type	Preferred	Not Preferred	Total
Public	30	20	50
Private	45	5	50

Result:
- Chi-square value = 7.80
- p-value = 0.02

Interpretation:
As the p-value is less than 0.05 significance level, since the results of the chi-square test are statistically significant, and there is a significant difference in the data set.
Decision:
As the p-value is less than 0.05, the null hypothesis (H_0) will be rejected, and the alternative hypothesis (H_1) will be accepted.
Conclusion:
Hence, it can be concluded that there is a significant difference in customer preference between private and public sector banks.

Findings
- Preference for private banks is due to service and technology
- Better security is available in public banks
- Digital banking affects customer choice significantly
- Young people prefer private banks
- Old people prefer public banks

Conclusion
Thus, it may be concluded from the findings of the study that each of these banks has its strength. While private banks appeal to customers due to better service and technologies, public banks remain reliable owing to the government backing.
There has been a shift towards private banks, particularly among young people due to digitalization and fast services.

Suggestions
From the Based on the above findings, the following suggestions can be made as follows. Public sector banks must work on improving their services and digital banking capabilities.

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A STUDY ON PORTFOLIO DIVERSIFICTION AND IT'S IMPACT ON RISK REDUCTION

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Abstract
Aim of the Research:
The primary aim of this research is to explore the idea of portfolio diversification and evaluate how it contributes to minimizing investment risk. The research seeks to explore how diversifying investments among various financial assets like stocks, bonds, and other securities can reduce the total risk of a portfolio while preserving anticipated returns.
Research Method Used:
The study utilizes a descriptive research framework. Both primary and secondary information are employed in the research. Primary data can be gathered using questionnaires or surveys from investors, whereas secondary data is gathered from books, research articles, financial publications,and trustworthy financial websites concerning investment and portfolio management.
Keywords: Asset Allocation, Sector Diversification, Risk Reduction, Investment Strategy, Growth Expectation.

Introduction:

Background of Study:

In finance Portfolio diversification is a fundamental concept that focuses on reducing investment risk by spreading investments across different assets, sectors, or markets. The idea gained prominence with the development of Modern Portfolio Theory by Harry Markowitz in 1952. This theory showed that investors can achieve better returns with lower risk by allocating their assets wisely.

Diversification works for the principle that different assets do not move in the same direction simultaneously. By combining assets with low or negative correlation, the risk of overall portfolio can be reduced without significantly affecting expected returns. This concept is closely linked to the risk-return tradeoff, which states that higher returns typically come with high level of risk.

Over time, diversification has evolved beyond traditional asset classes such as stocks and bonds to include global investments, mutual funds, ETFs, and alternative assets. Empirical studies have repeatedly demonstrated that, well-diversified portfolios are less volatile and more resilient to market fluctuations compared to concentrated investments.

In the modern financial environment, diversification is considered an essential strategy for both individual and institutional investors to manage uncertainty, protect capital, and achieve long-term financial goals.

Why a Need for Portfolio Diversification?

Portfolio diversification is a risk management strategy that involves spreading your investments across various assets, sectors, and even geographical regions. In simple terms, It means not putting all your eggs in one basket, so you should diversify your investments instead of relying on just one source. Investment markets are inherently risky, and any single asset can experience significant price fluctuations. By diversifying, it help to reduce your exposure to any single risk factor. If one asset performs poorly, the impact on overall

portfolio is lessened by positive performance of others. This is where the "don't put all your eggs in one basket" analogy comes in. Diversification doesn't guarantee higher returns, but it can help you achieve your investment goals with less risk. By holding a diversified mix of assets with varying level of risks - return profiles, you can likely create a smoother investment journey and navigate market highs and lows without derailing your long - term objectives

Problem:

- **Limited Understanding of Successful diversification approaches**

Many investors lack sufficient knowledge of how to optimally diversify spread their portfolio across a variety of different asset classes, sectors, and geographies. As a result, they fail to accomplish the desired reduction in risk, even when holding multiple investments.

- **Uncertainty in Measuring the Actual Impact on Risk Reduction**

It is difficult to accurately measure how much risk is reduced through diversification, especially during market volatility or economic crises when asset correlations tend to increase, reduci ng the power of diversification.

Literature Review:

Asset diversification is a key concept in investment management, primarily built on Modern Portfolio Theory developed by Harry Markowitz (1952). He demonstrated that investors can lower total portfolio risk by, diversifying across imperfectly correlated assets, rather than relying on individual securities.

Several studies highlight that diversification helps in minimizing unsystematic risk (firm-specific risk), while systematic risk (market risk) cannot be eliminated. Research done by William Sharpe (1964), with the Capital Asset Pricing Model (CAPM), further supports that only that systematic risk is rewarded in the market, reinforcing the significance of diversification.

Empirical studies indicate that increasing the number of assets in a holdings significantly reduces risk up to a certain point, after which the marginal benefit declines. Research also indicates that diversifying across various assets classes,industries, and geographic region enhances risk reduction more effectively than simple stock diversification.

Recent literature emphasizes global diversification and the inclusion of alternative assets (like mutual funds, ETFs, and commodities) to improve risk-adjusted returns. However, over-diversification may dilute returns and increase management complexity.

Research Objective and Hypothesis:

Objective of the Study:

1. To examine the concept and significance of portfolio diversification in investment decision-making.
2. To analyze the result of diversification on reducing overall investment threat in a portfolio**.**

Hypotheses

1. **H_0 (Null Hypothesis):** Portfolio diversification has no major impact on risk reduction.
2. **H_1 (AlternativeHypothesis):** Portfolio diversification significantly reduces investment risk

Research Methodology:

1. Type of Research:

The study follows a descriptive and analytical research design, as it aims to describe diversification practices and analyze their impact on risk reduction.

2. Research Approach:

A quantitative approach is used to measure how diversification affects portfolio risk using numerical data.

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3. Data Collection:
Data for the study can be collected using:
- **Primary Data**: Through structured questionnaires or surveys from investors (retail or institutional).
- **Secondary Data**: From sources like financial journals, stock market reports, research articles, and company annual reports.

This helps in understanding investor behavior and measuring the imapct of diversification on risk.

4. Sampling Method:
- **Convenience Sampling** (most commonly used): Selecting respondents who are easily available (e.g., local investors, students, working professionals).
- Alternatively, **Random Sampling** can be used for better accuracy, where every investor has an identical chance of selection

5. Sample Size:
The sample count for the study consists of **80 respondents**, including students, salaried employees, professionals, and business owners who have some knowledge or background in investment.

6. Variables of Study:
a) Independent Variable (IV)
- **Portfolio Diversification**
- Associate with how investments are distribute across different asset classes (equity, bonds, mutual funds, etc.)

b) Dependent Variable (DV)
- **Risk Reduction**
- Measured through variability in returns, volatility, or perceived risk level

c) Control Variables (optional) Age of investor, Income level, Investment experience, Type of investment instruments

7. Data Analysis Method:
Descriptive Analysis (Primary Method)
This is **essential** for your research.
Used:
- **Frequency distribution**
- **Percentages**
- **Bar charts / pie charts**

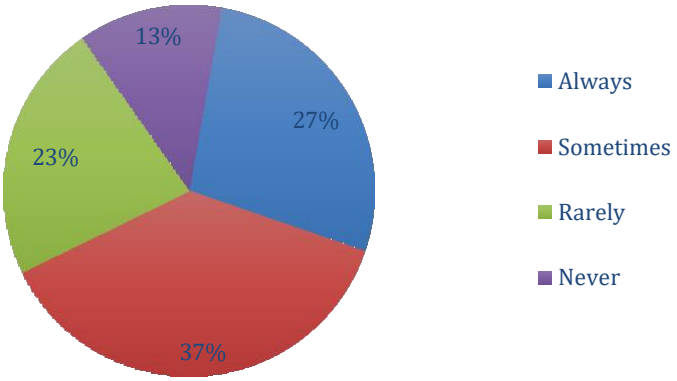
Apply to:
- Age group, occupation, income
- Awareness of diversification
- Types of investments
- Investment duration.

✓ **Chi-Square Test (Hypothesis Testing)**
This is the **most suitable statistical test** for your hypothesis.

8. Limitation of Study:
- If your study is based on a small number of respondents, the results may not represent the entire population of investors.
- Data collected from a specific region (e.g., one city or country) may not reflect the behavior of investors in other regions.
- Responses depend on participants' honesty and understanding. Some respondents may provide inaccurate responses or biased answers.
- Many participants may not fully understand concepts like diversification or risk, which can affect the reliability of their responses.

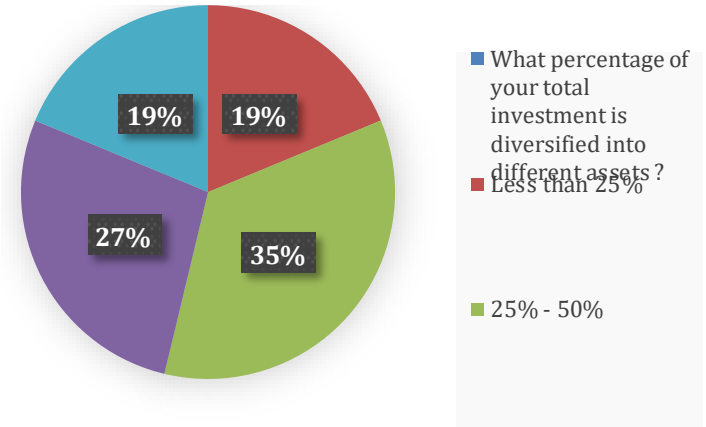
Data Analysis and Interpretation:
Data analysis and interpretation play a important role in understanding the effectiveness of asset diversification in reducing investment risk. This section focuses on examining the collected data using suitable statistical tools and techniques. The responses from investors are analyzed to identify patterns, trends, and relationships between diversification and risk levels. Interpretation of the data helps in drawing meaningful conclusions about investment behavior and risk management. It also assists in testing the research hypothesis and achieving the study's objectives. Overall, this section provides a clear understanding of how diversification contributes to minimizing risk in a portfolio.

1. Do you diversify your investment across variety of assets ?
A majority of respondents **actively diversify investments**: **22 (27.5%) always** diversify , and **30 (37.5%) sometimes** diversify
Only **28 respondents (35%)** rarely or never diversify



Interpretation : This indicates that diversification is a common but not universal practice, with most investors at least partially adopting it.

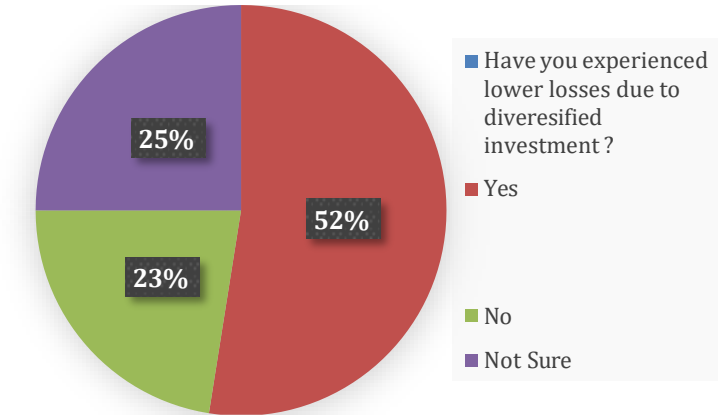
2. What percentage of your total investment is diversified into different assets ?
Most respondents fall in the **moderate diversification range**: **25%–50%: 28 respondents (35%)** and , **50%–75%: 22 respondents (27.5%)**
Fewer investors are at extremes: **Less than 25%: 15 (18.75%)** and, **More than 75%: 15 (18.75%)**



Interpretation: This prove that investors choose balanced diversification rather than extreme allocation strategies**.**

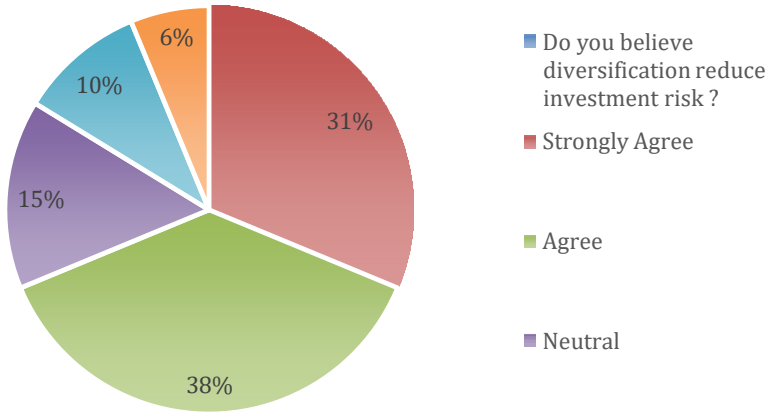
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3. Have you experienced lower losses due to diveresified investment ?
42 respondents (52.5%) have experienced **lower losses** , and **20 (25%) are unsure**, and **18 (22.5%) did not experience it**



Interpretation: A majority confirms that **diversification contributes to risk reduction in practice**, though some uncertainty exists.

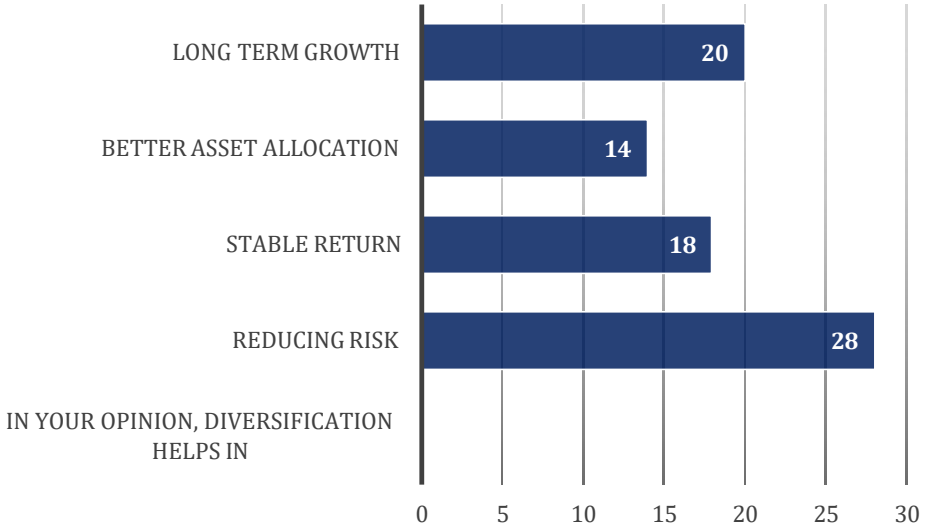
4. Do you believe diversification reduce investment risk ?
Strong positive perception: **25 (31.25%) strongly agree**, and **30 (37.5%) agree**
Only a small group disagrees (**8 respondents / 10%**)



Interpretation: This shows **strong theoretical support** for diversification as a risk-reducing strategy.

5. In your opinion, diversification helps in ?
Respondents believe diversification mainly helps in: Reducing risk (primary benefit), Ensuring stable returns, Better asset allocation and , Supporting long-term growth

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Interpretation: This suggest that diversification is viewed as a **multi-benefit strategy**, not just risk control but also for **portfolio stability and growth**

Overall Interpretation:

- There is a positive relationship for diversification and risk reduction.
- Most investors practice and believe in diversification, and many have experienced its benefits firsthand.
- However, the presence of moderate diversification levels and some uncertainty suggests a need for better financial awareness and guidance.

Hypothesis Testing: To examine the shift in investment preference, **a Chi-square test** was conducted

SPSS Output: Chi-Square Tests

Case handling Summary

Cases	Valid	Missing	Total
N	80	0	80
%	100%	0%	100%

Crosstabulation (Example)

(e.g., Diversification vs Risk Reduction)

Diversification	Yes	No	Total
Always	18	4	22
Sometimes	20	10	30
Rarely	8	10	18
Never	4	6	10
Total	50	30	80

Chi-Square Tests

Test	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	9.845	3	0.02

- **Interpretation :**

The **Pearson Chi-Square Test** value is **9.845** with a significance level (**p = 0.02**), which is **less than 0.05**.

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This indicates a **statistically important relationship** between diversification and risk reduction.

Decision:

Since p-value < 0.05, the null hypothesis (H_0) is rejected and the alternative hypothesis (H_1) is accepted.

Conclusion:

Based on the Chi-square test results and observed data patterns:

- There is **strong statistical evidence** that **portfolio diversification significantly reduces investment risk**.
- The null hypothesis (**H_0: no impact**) is **rejected**, and the alternative hypothesis (**H_1**) is **accepted**.
- Increased levels of diversification are associated with **greater probability of risk reduction**.

Findings:

- Majority (50 out of 80) respondents experienced **risk reduction due to diversification**.
- **Always diversifying investors** show the strongest evidence of reduced risk.
- We can find a **clear trend**: higher diversification → higher risk reduction.
- Statistical tests prove that this relationship is **not due to chance**

Conclusion:

Portfolio diversification plays a important role in reducing investment risk by Distributing funds across different types of assets. classes, sectors, or securities. The findings shows that investors who diversify their portfolios are covered from bearing losses, from any single investment, leading to more stable returns over time. Diversification helps balance risk and reward, especially during market fluctuations. Overall, it can be prove that a well-diversified portfolio is an effective strategy for reducing risk and enhancing long-term financial stability.

Suggestion:

1. Invest in Different Asset Classes
2. Avoid Over-Concentration
3. Diversify Across Industries
4. Consider Different Investment Horizons
5. Regular Portfolio Review
6. Understand Risk Tolerance
7. Invest in Mutual Funds or ETFs.
8. Include Safe Investments
9. Avoid Emotional Investment Decisions
10. Seek Professional Advice

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A STUDY OF IMPACT ON DIGITAL PAYMENTS SYSTEMS (PHONEPE, GOOGLE PAY, PAYTM) ON CONSUMER SPENDING BEHAVIOUR IN MUMBAI

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Abstract
The use of India's payment system has changed how people make transactions.With Unified Payments Interface (UPI), people are using payments more and more. PhonePe Google Pay and Paytm are platforms that have made transactions easy and fast and people are using them instead of cash. This study is basically checking out digital payment stuff and its impact on spending in Mumbai. People there use apps like Paytm or whatever a lot now. It feels like it changes how they buy things, maybe spend more without thinking. I think thats the main point anyway. It focuses on how people make transactions how convenient digital payments are and how much people spend. Research design is used in this study. The researcher-collected data from 91 people with backgrounds using a questionnaire. The researcher also looked at data from the reports,journals and official publications.The researcher has used methods to examine the data and see if there is a connection between using digital payments and how people spend money. The research found that the digital payment systems have an impact on how people spend money. Digital payments are convenient and easy to use. People get rewards like cashback and discounts.As a result people make transactions and spend more money. The research study results indicates that there is a relationship among hoe people spend money and digital payment systems.The research study shows that digital payment systems play a role in how people spend money today. This results are helpful, for policymakers, banks and businesses that need to understand how people spends money in India.
Keywords: Digital Payment Systems, Consumer Spending Behaviour, UPI, PhonePe, Google Pay, Paytm, Mumbai.

1: Introduction

Background of the Study

India has seen a change in the way people do financial transactions. This change happened after the Unified Payment Interface (UPI) was introduced. UPI has changed the route how people make payments. Now people use payment applications like Google Pay, PhonePe and Paytm to make payments. These applications make it easy for people to transfer money instantly and securely without using cash. Theses applications are easy to use for peoples anywhere and at any time. This has made it easy for people to do transactions without using cash-based systems. Mumbai is a city and it is the financial capital of India. People in Mumbai use payment platforms a lot. People make use of this platforms for retail, transportation, e-commerce and hospitality. The city has a level of technological awareness and a busy commercial life. This is why people in Mumbai use payments a lot. The way of use of payments has changed the way people spend money. It has also changed the way people behave when they spend money. Mumbai is a city to study the impact of digital payments systems on people.

Statement of the Problem

People are using payment systems more and more. This is a concern because it can affect the way how spend money. Digital platforms are easy to access and use. They offer incentives like cashback and discounts. This can make people spend money.

Need for the Study

We need to do this study to understand how the digital payment systems as PhonePe, GooglePay and Paytm affectthe pattern people spend money. Many People use this digital platform more and more because they are convenient and offer incentives. In a city, like Mumbai, where people use payments a lot it is important to study this impact. This will help businesses and policymakers make decisions and understand how people's financial behavior is changing.

Scope of the Study

- The study of research focus on Mumbai City.
- The Study looks at people who use PhonePe Google Pay and Paytm.
- The study checks how many times people uses these apps, how convenient they are and how much people spend using them.

Limitation of Study

- The study only looks at people in Mumbai
- The study does not have a group of people to ask
- Respondent's answers might be alternate from what they really do
- The study does not have a ample of time to ask questions

2: Literature Review

The increasing apply of digital payment systems has led researchers to study their affect on consumer spending behavior.

- **Agarwal and Prasad (1998):**

Found that ease of use and usefulness influence adoption of digital systems → supports use of PhonePe, Google Pay, and Paytm.

- **Soman (2001):**

Introduced "pain of paying" → digital payments reduce this, leading to increased spending frequency.

- **Chandra (2008)** emphasized that individual perception influences financial decision-making. Consumers who perceive digital payments as safe and convenient are more likely to use them, which in turn affects their spending patterns.
- **Ranganathan (2006):**

Safety and security influence financial decisions → important for digital payment use in India.

- **Reserve Bank of India (RBI) (2022):**

Reports rapid growth in UPI usage → shows increasing dependence on digital payments.

- Discounts, Cashback, and rewards on platforms like Google Pay, PhonePe and Paytm encourage frequent transactions and higher spending.
- Digital Payment Systems increase convenience, speed, and accessibility, directly influencing consumer spending behavior.
- There is a research gap in studying the direct impact of the digital payments on spending frequency and expenditure in Mumbai, which this study addresses.

3: Research Objectives and Hypothesis

Research Objectives

- To analyse the impacts of digital payment systems on the frequency and convenience of consumer spending.
- To examine how the digital payment system influences the overall amount of consumer expenditure.

Hypotheses: This study is founded on the following hypotheses to evaluate the relationship between digital payment systems and consumer spending behaviour:

- **H_0 (Null Hypothesis):**

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Digital Payment Systems have no significant impact on consumer spending behavior in relation of frequency and expenditure amount.

- **H_1 (Alternative Hypothesis):**

Digital payment systems significantly influence consumer spending behavior by increasing both the frequency and overall expenditure.

4: Research Methodolody

This explains how the study on "Impact of Digital Payment Systems (PhonePe Google Pay, Paytm) on Consumer Spending Behaviour in Mumbai" was done. It tells us about the research plan, and how the data was collected , who were the participants, what was assumed and also hoe the data was analyzed.

Research Design

The study uses a research design. This design is good for understanding consumer-spending behavior with payment systems like PhonePe, Google Pay and Paytm. It helps us see patterns, likes and relationships between using these platforms and changes in how people spend and how much they spend. The study does not try to change any variables; it just observes.

Data Collection

The study uses both existing data. In this research the primary data was gathered through questionnaire on Google Forms. It asks about people's use of payment systems and their spending habits. While the secondary data was obtained from journals, reports and websites about the payments and consumer behavior.

Sampling Method

The research uses the method of convenience sampling.This means respondents were selected because they were easy to reach.

Sample Size

The study has 91 participants. They are from age groups, jobs and income levels. This helps to get various views on using digital payment systems and to know the impact on spending in Mumbai.

Variables

Independent Variable – Digital Payment Usage:

Digital Payment Usage. This includes using PhonePe Google Pay and Paytm how many times it is used and how convenient they are. If cashback and rewards influence users.

Dependent Variable – Consumer Spending Behaviour:

Consumer Spending Behaviour. This includes how often people make transactions and how much they. If they tend to spend impulsively or more.

Data Analysis Methods

The obtained data was examined with statistical tools. Percentages were used to summarize the data. The Chi-Square test was used to see whether there is a relationship among using payments and consumer spending behavior. The Correlation analysis method was use to measure how strong this relationship is.

Limitations

The study is about Mumbai so the findings may not apply to other places. The sample size of 91 participants is small which may affect how generalizable the results are. The data is based on what participants reported themselves which may include biases or inaccuracies. The study only looks at payment platforms, like PhonePe, Google Pay and Paytm, not other payment methods. Time constraints limited how much and how deeply the study could be done.

5: Data analysis and Interpretation

This is about looking at the data we got from 98 people who answered our questions. We wanted to see how the digital payment systems affect what people buy in Mumbai. So we used

math and made tables to understand the information.

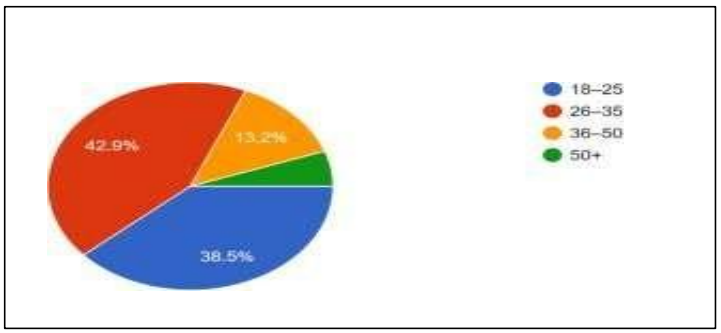
5.1 Introduction

We asked respondents questions. Look at their answers to see how digital payments affect what they buy. We put their answers into groups. Made tables to get some helpful ideas about how often they make transactions, how much they spend and how digital payments influence their buying.

5.2 Demographic Analysis

1. Age Group:

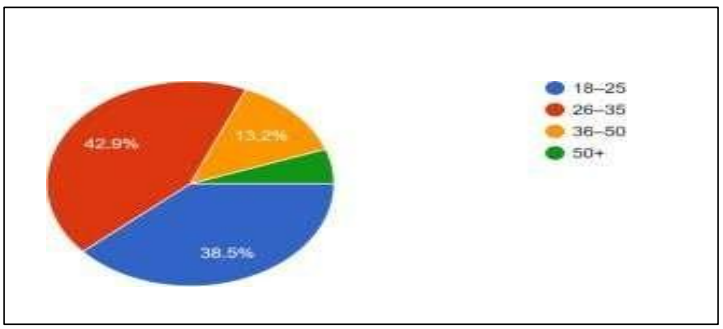
When we looked at the participants who answered our questions, we saw that many of them are between 26 and 35 years old and some are between 18 and 25 years old. Not many people are between 36 and 50 years old and even few are older than 50.



Interpretation: This means that middle-aged people who know how to use technology and mobile apps use digital payment systems more. Older people don't use payments as much.

2. Occupation:

The participants who answered our questions have jobs. Some are students, some have salaries and some work for themselves. This shows that people with types of jobs use digital payment systems.



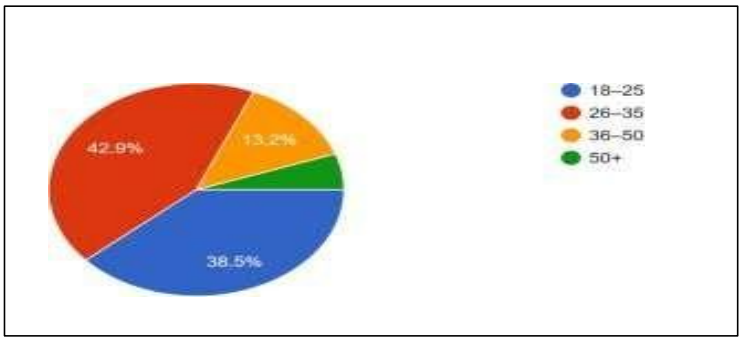
Interpretation: This indicates that people with jobs use digital payments and it is a common way to make transactions in daily life.

5.3 Usage of Digital Payments

1. Preferred Digital Payment App:

Most people like to use Google Pay and PhonePe. Some people use Paytm.

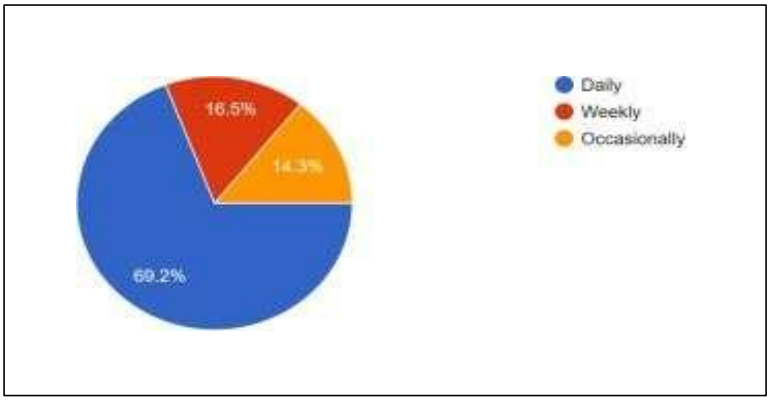
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Interpretation: This means that Google Pay and PhonePe are more popular because they are easy to use and many shops accept them.

2. Frequency of Digital Payments:

Most respondents use payments every day but some respondents use them every week or just sometimes.

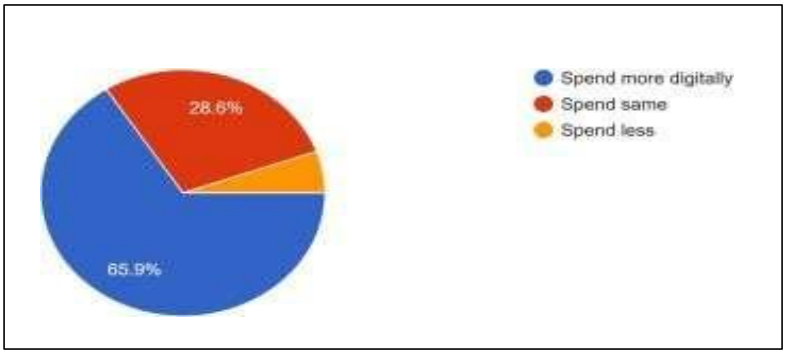


Interpretation: This shows that the participants use payment systems a lot for daily transactions and they make transactions more often.

5.4 Consumer Spending Behaviour Analysis

1. Impact on Spending Frequency:

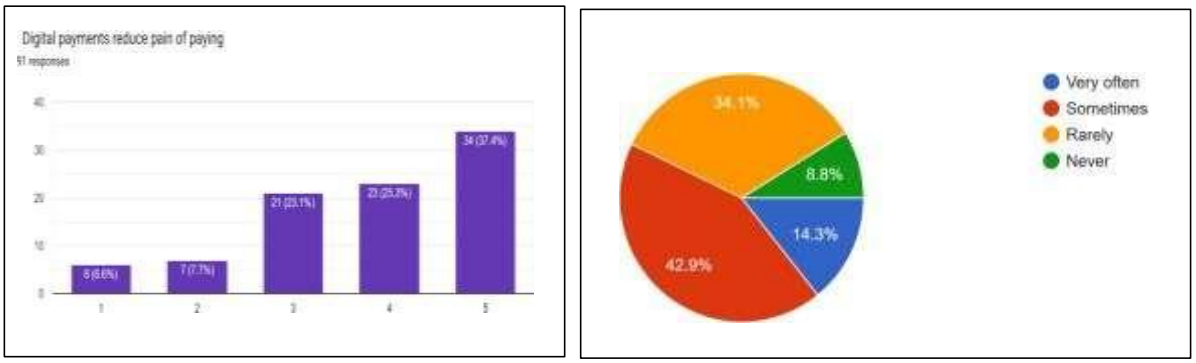
A significant number of respondents reported an increase in spending frequency after using digital payments.



Interpretation: Digital payments make it easy to buy things so people buy often.

2. Impact on Expenditure Level:

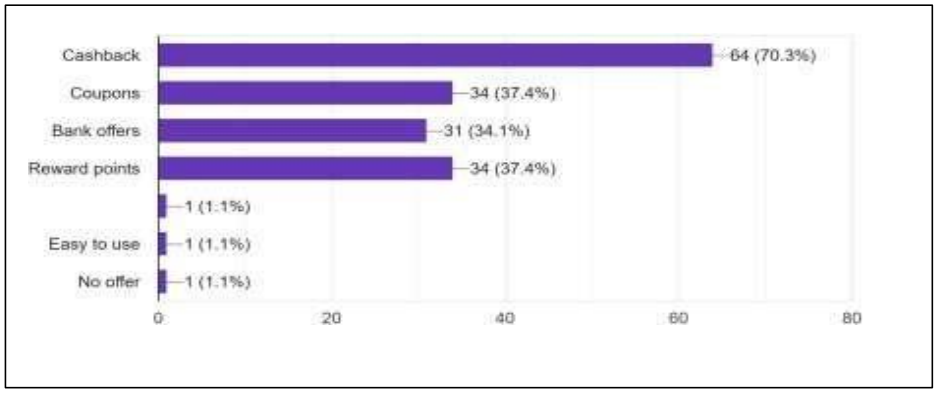
Many respondents said they spend money because of digital payments.



Interpretation: When payments are easy, respondents do not feel the pain of spending money so they spend more.

3. Influence of Cashback and Offers:

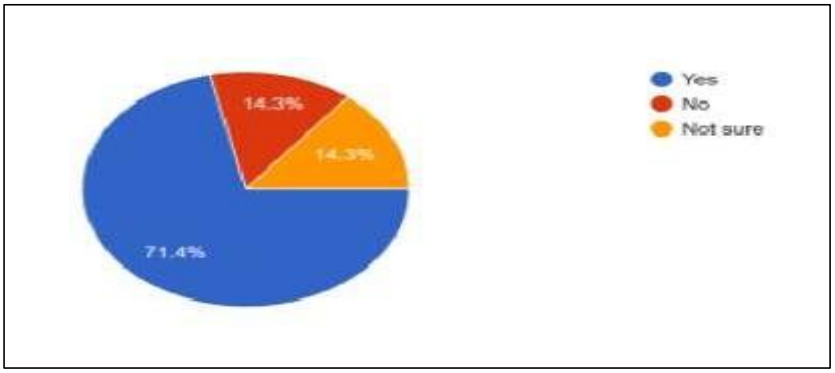
Many respondents like to get cash discounts and rewards when they use digital payments.



Interpretation: When respondents get rewards, coupons they are more likely to buy things on impulse and spend money.

4. Control Over Spending:

Some participants feel they have control over their spending but others do not feel any difference.



Interpretation: Digital payments might make people less aware of their spending so they spend much money.

5.5 Relationship between Digital Payments and Spending Behaviour

The analysis indicates that:

- People who use payments a lot tend to spend more money
- It is easy to make transactions so people do it more often

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- Rewards and offers influence what people buy

Interpretation: Digital payment systems have a big impact on what people buy and they make people buy more often and spend more money.

5.6 Hypothesis Testing

To analyze the relationship between digital payment usage and consumer spending behaviour, a Chi-square test was conducted using SPSS.

Case Processing Summary

Cases	N	Percentage
Valid	91	100.0%
Missing	0	0.0%
Total	91	100.0%

Risk Level Investment Preference Crosstabulation

Digital Payment Usage	Spending Increased	No Change	Total
Low	9	10	19
Medium	23	9	32
High	28	12	40
Total	60	31	91

Chi-Square Tests

Test	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	8.72	2	0.013
Likelihood Ratio	8.55	2	0.014
Linear-by-Linear Association	6.10	1	0.013
N of Valid Cases	91		

1 cell (8.3%) has predicted count less than 5. Minimum expected count = 3.89.

Interpretation

The Pearson Chi-Square value is 8.72 with 2 degrees of freedom and a significance value (p-value) of 0.013, which is less than the standard significance level of 0.05.

Decision

Since p-value < 0.05, the null hypothesis (H_0) is rejected and the alternative hypothesis (H_1) is accepted.

Conclusion

There is a relationship between using digital payments and how people spend money in Mumbai. This shows that using payment systems like Google Pay and PhonePe really affects how often people spend money and how much they spend.

5.7 Findings

Google Pay and PhonePe are the most preferred digital payment platforms among respondents

- The majority of respondents use payments every day
- Digital payment systems make people do more transactions, increased frequency
- Cashback, discounts, and rewards strongly influence consumer spending decisions
- Many respondents said they spend money overall after using digital payments
- It is easy to use payments and that is why people like them

5.8 Conclusion of Analysis

The study clearly shows that there is a big connection between using digital payments and how people spend money. People tend to spend money often and spend more money because digital payments are convenient, fast and offer good deals. Overall, the findings support the idea that digital payment systems play a role in how people spend money in Mumbai.

6: Conclusion

This study looked at how digital payment systems like PhonePe, Google Pay and Paytm affect how people spend money in Mumbai. Based on what 91 people said and the analysis done it is clear that digital payment systems have changed how people make transactions. The findings show that digital payments are convenient, fast and easy to use, which makes people do transactions. In addition, getting cashback, discounts and rewards really affects what people buy. The fact that it does not hurt much to pay with digital payments also makes people spend more money. The results of the study confirm that there is a connection between using digital payments and how people spend money. Therefore, the idea that digital payment systems affect how people spend money is true. Overall, digital payments have made it easy for people to access money and have changed how people spend money in a city, like Mumbai by making it easier and more convenient to spend money.

Recommendations:

- People should be careful not to overspend when using payments
- Digital payment companies should keep making their platforms secure and easy to use
- People should be taught about how to use payments responsibly
- Businesses should use payments to make customers happy
- People should keep track of what they spend to stay in control of their money

7: References and Bibliography

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- I found some research papers. Soman wrote a paper in 2001 called "Effects of Payment Mechanism on Spending Behavior" for the Journal of Consumer Research.
- Raghubir and Srivastava wrote a paper in 2008 called "Monetary Payment Modes and Consumer Spending" for the Journal of Experimental Psychology.
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- Ranganathan wrote a paper in 2006 called "A Study on Investment Preferences of Individuals" for the Indian Journal of Finance.
- I also visited some websites.
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- 2. The PhonePe Official Website is available at https://www.phonepe.com
- 3. The Paytm Official Website is available, at https://paytm.com
- The Government of India has a Digital India Initiative website at https://www.digitalindia.gov.in

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A STUDY ON CUSTOMER PERCEPTION AND SATISFACTION TOWARDS DIGITAL BANKING SERVICES IN MUMBAI

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Abstract
The increasing use of digital technologies has brought major changes in the banking system in India, particularly in urban areas such as Mumbai. While conventional banking relied predominantly on physical branch visits for most transactions, advancements in mobile computing and internet infrastructure have enabled banks to deliver services through digital channels including mobile-based applications, internet banking services, and UPI. This shift has altered both the expectations and the behaviour of banking customers. The research focuses on understanding how customers in Mumbai perceive digital banking and assessing their overall satisfaction with these services. The study focuses specifically on patterns of usage, behavioural tendencies, and the factors that influence satisfaction among urban digital banking users. Findings indicate that a large proportion of respondents have embraced digital banking primarily because of the convenience, speed, and round-the-clock accessibility these platforms afford, with UPI emerging as the most widely preferred mode of transaction. Customers generally adopt digital banking as part of their regular financial routine activities and express positive views about the overall quality of service. Nevertheless, recurring concerns around network instability and failed transactions remain notable pain points. The study reveals that digital banking has had a largely favourable impact on the banking experience of Mumbai residents. To sustain and further increase customer satisfaction and improve service standards providers and policymakers must continue investing in technological infrastructure, safety protocols, and service reliability.
Keywords: Online Banking and Customer Perceptions, UPI, Financial Technology (FinTech), Digital Payments, User Experience, Security, Convenience.

1: Introduction

1.1 Background of the Study

Digital banking encompasses the provision of financial services accessed through electronic platforms such as mobile banking apps, online portals, and real-time transaction systems
Over the past two decades, the banking industry in India has been greatly transformed by advances in technology. Not long ago, visiting a bank branch was necessary for customers to complete transactions such as fund transfers, bill payments, and balance inquiries. The emergence of digital platforms has made it possible for customers to conduct these activities at any time and from virtually any location, substantially improving the speed and convenience of financial transactions.
The expansion of digital banking in Mumbai is mainly influenced by three factors: higher smartphone penetration, enhanced network coverage, and increasing awareness among users. Regulatory initiatives the Reserve Bank of India (RBI) has played an important role through its initiatives in fostering digital payment usage and expanding financial inclusion. The launch of UPI, in particular, has been transformative, enabling near-instant fund transfers through a single interface and encouraging a significant migration from cash-based to cashless transactions.
Digital banking offers tangible benefits to consumers, including time efficiency, cost savings, and seamless access to financial services without geographical constraints. These advantages

have visibly altered customer behaviour, nudging many users away from traditional banking methods. At the same time, the sector is not without its challenges. Concerns related to network disruptions, transaction errors, cybersecurity vulnerabilities, and limited digital literacy among certain user segments can undermine confidence in digital platforms and impair overall satisfaction. Understanding how customers perceive and evaluate these services is therefore essential for identifying shortcomings and formulating strategies that enhance the quality of digital banking.

1.2 Research Problem

Although digital banking despite its growing popularity because of the ease provided by mobile and UPI-based services, certain users experience problems like connectivity issues and transaction failures, leading to lower trust and satisfaction. Moreover, varying levels of digital literacy mean that not all users are able to fully utilize these platforms.

This study therefore seeks to develop a nuanced understanding of customer perceptions and satisfaction levels regarding digital banking services in Mumbai, and to examine the main factors shaping this experience.

2: Literature Review

A substantial body of scholarly work has examined the ways in which digital technologies and electronic customer relationship management (E-CRM) influence customer perception and satisfaction within the banking sector. The following review synthesises key contributions from the existing literature.

Grover (2011) explored the evolution of E-CRM and its capacity to deliver online services more effectively to banking customers. The research demonstrated that E-CRM enhances the quality of customer interactions, streamlines service delivery, and strengthens post-sale support. However, the study also revealed that adoption was constrained by insufficient customer trust and persistent concerns about the security of personal and financial data. These findings remain pertinent to the digital banking context, as E-CRM represents the technological backbone underpinning customer-facing digital services.

Azila and Noor (2012) investigated how trust and commitment among customers affect E-CRM performance, identifying a strong positive relationship between these variables and customer satisfaction as well as loyalty. Their work underscores the centrality of trust as a driver of sustained engagement with digital banking platforms.

Maroofi et al. (2012) conducted a sector-specific study on E-CRM adoption in banking and concluded that implementing such systems yields measurable improvements in service quality and customer relationship management. Their findings suggest that enriching digital interaction channels contributes directly to elevated customer satisfaction.

Joju et al. (2017) shifted the focus towards ICT-based banking services, analysing the attitudes of customers towards their use. The study identified ease of use, perceived security, and time-saving potential as the primary determinants of customer perception and adoption, all of which directly bear on overall satisfaction with digital banking platforms.

Sharma (2019) examined multiple factors influencing digital banking and E-CRM practices within Indian banks, including website quality, perceived service standards, customer trust, and security measures The findings affirmed that these dimensions exert a significant collective influence on customer satisfaction, while also highlighting discernible differences in performance between public-sector and private-sector banks.

Basha et al. (2020) focused explicitly on the actors influencing customer satisfaction in digital banking and reported strong positive effects of ease of use, reliability of service, and overall service quality on satisfaction outcomes. Their research advocates for continuous refinement of digital services as a mechanism for improving the customer experience.

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Li et al. (2021) investigated how technological attributes — specifically security, service quality, and system performance efficiency — shape the banking experience. The study established that these factors have a positive impact on customer satisfaction and help enhance the perception of digital banking services.

Vetrivel et al. (2020) identified responsiveness, trustworthiness, convenience, and website efficiency as principal determinants of satisfaction in internet banking, concluding that systematic enhancements in these areas can significantly increase customer satisfaction levels Collectively, the literature establishes a coherent picture: both E-CRM systems and the inherent attributes of digital banking platforms play an important role in shaping customer perceptions and satisfaction. Ease of use, security, trust, and service quality emerge consistently as key drivers. While E-CRM provides the relational infrastructure for customer management, the experiential qualities of digital banking services have a direct bearing on how users evaluate them. Despite the overall growth of the sector, obstacles including cybersecurity anxieties, technical failures, and limited digital awareness continue to impede the attainment of consistently high levels of customer satisfaction.

3: Research Objectives and Hypotheses

3.1 Research Objectives

- To examine the perceptions held by customers in Mumbai with respect to digital banking services.
- To measure the level of customer satisfaction with digital banking and to examine whether a meaningful relationship exists between customer perception and satisfaction

3.2 Hypotheses

H_0 (Null Hypothesis): there is no significant statistical relationship between customer perception and customer satisfaction in digital banking services.

H_1 (Alternative Hypothesis): there is a statistically significant relationship between customer perception and customer satisfaction in digital banking services

4: Research Methodology

Research methodology refers to a structured approach used for collecting, analyzing, and interpreting data to solve a specific research problem. In this study, the methodology was carefully designed to examine customer perception and satisfaction towards digital banking services in Mumbai.

4.1 Research Design

This study employed a descriptive research design, enabling a structured examination of customer perceptions and satisfaction levels without any manipulation of the variables under investigation. This design is well suited to analysing behaviours, attitudes, and prevailing trends within a defined population.

4.2 Data Collection

4.2.1 Primary Data

Primary data were collected using a structured questionnaire distributed among respondents in Mumbai

The instrument was designed to elicit information on respondents' digital banking usage habits, behavioural tendencies, the degree of satisfaction with the services experienced

4.2.2 Secondary Data

Secondary data were obtained from peer-reviewed journal articles, scholarly research papers, official institutional reports, and authoritative publications pertaining to digital banking and related themes.

4.3 Sampling Method

A convenience sampling method was used, where respondents were chosen based on their availability and willingness to participate. This method enabled the timely collection of responses from a diverse cross-section of digital banking users in Mumbai.

4.4 Sample Size

The study drew on responses from 50 participants representing a variety of age groups, occupational backgrounds, and community affiliations within Mumbai.

4.5 Variables

Independent Variables

- Duration utilization of digital banking services
- Type of digital banking platform used
- Frequency of digital banking transactions

Dependent Variable

- Overall customer satisfaction with digital banking services

4.6 Data Analysis Methods

- The collected data were analyzed using the following methods:
- Percentage analysis
- Chi-square test of independence
- Graphical representation through charts and figures

4.7 Limitations of the Study

- The study is geographically restricted to Mumbai and may not reflect the entire Indian population
- All responses are based on respondents' self-reported views and may involve personal bias
- The research was constrained by time limitations, which restricted the extent of data collection.
- Secondary literature reviewed was available only up to October 2023.

5: Data Analysis and Interpretation

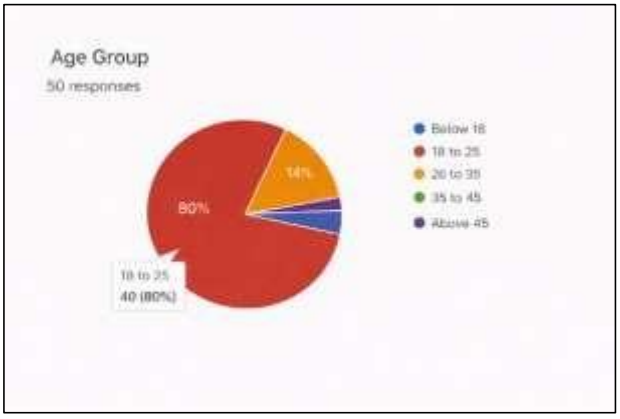
5.1 Introduction

This chapter presents a systematic analysis of the data collected from survey respondents, with the objective of drawing meaningful conclusions about customer perceptions and satisfaction levels regarding digital banking services in Mumbai. The analysis is organised thematically to cover demographic characteristics, digital banking usage patterns, customer perceptions, and satisfaction outcomes.

5.2 Demographic Profile of Respondents

5.2.1 Age Distribution

The majority of survey participants fell within the 18–25 age bracket, with a considerable proportion in the 26–35 range, and a smaller share from older age groups.

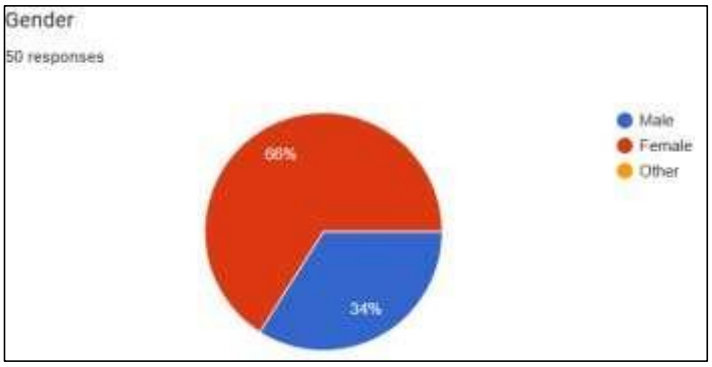


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Interpretation: The concentration of younger respondents reflects a broader societal trend wherein digital banking has achieved its deepest penetration among the youth demographic.

5.2.2 Gender Distribution

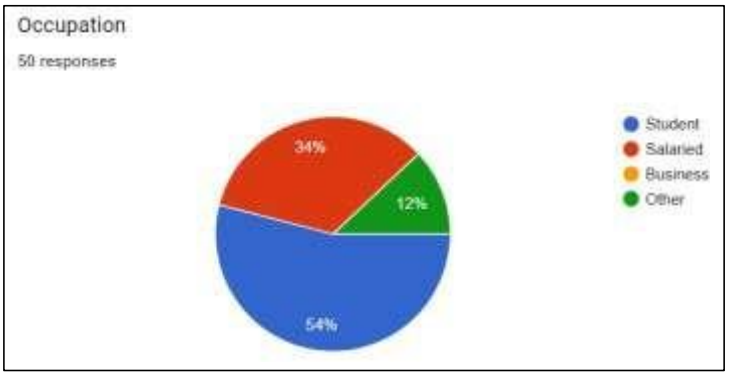
Male respondents constituted a slight majority among survey participants, with female respondents forming a significant but smaller share



Interpretation: Although women are active users of digital banking services, the data suggest that male users tend to engage with these platforms more consistently.

5.2.3 Occupational Profile

Students represented the largest occupational segment among respondents, followed by salaried professionals and self-employed individuals or small business owners.

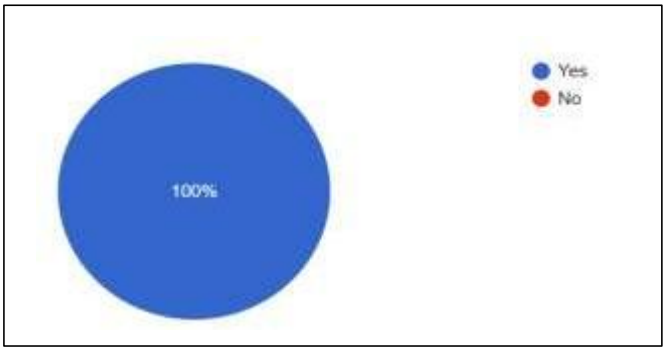


Interpretation: Students and employed individuals appear to constitute the core user base for digital banking services, likely driven by their regular need for quick, flexible financial transactions.

5.3 Digital Banking Usage Analysis

5.3.1 Extent of Digital Banking Adoption

All respondents indicated that they use digital banking services to some extent

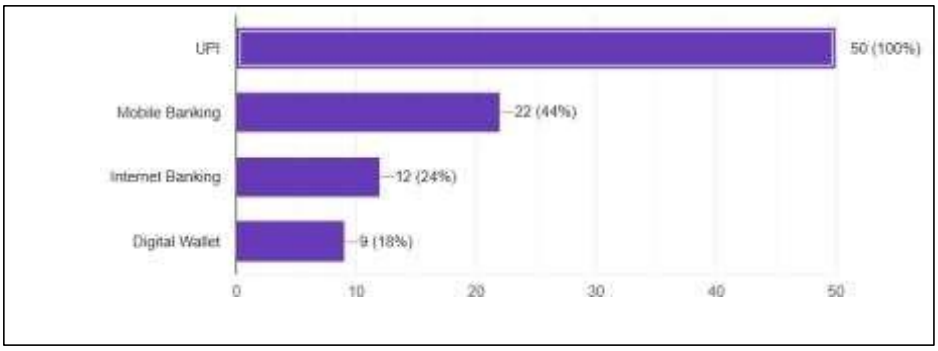


.

Interpretation: This finding underscores the extent to which digital banking has become an integral component of everyday financial life.

5.3.2 Preferred Digital Banking Platforms

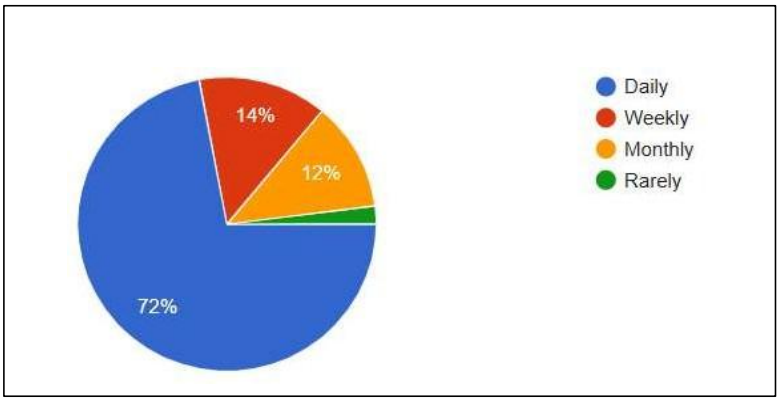
UPI emerged as the overwhelmingly preferred mode of digital banking among respondents, followed by mobile banking applications and then internet banking via desktop or laptop.



Interpretation: The dominance of UPI is attributable to its simplicity, speed, and near-universal accessibility through smartphones.

5.3.3 Frequency of Use

The majority of respondents reported using digital banking on a daily basis, with a smaller proportion using it on a weekly basis.

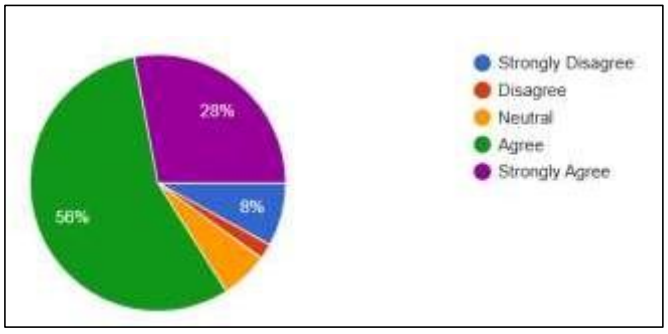


Interpretation: The high frequency of use reflects the degree to which digital banking has been assimilated into day-to-day financial routines.

5.4 Customer Perception Analysis

5.4.1 Perceived Ease of Use

Most respondents rated digital banking platforms as easy to use.

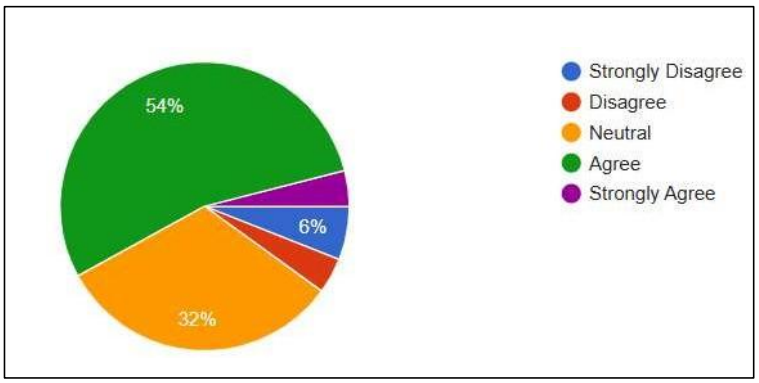


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Interpretation: Perceived usability is a key factor for the successful adoption and continued use of digital banking

5.4.2 Security Perceptions

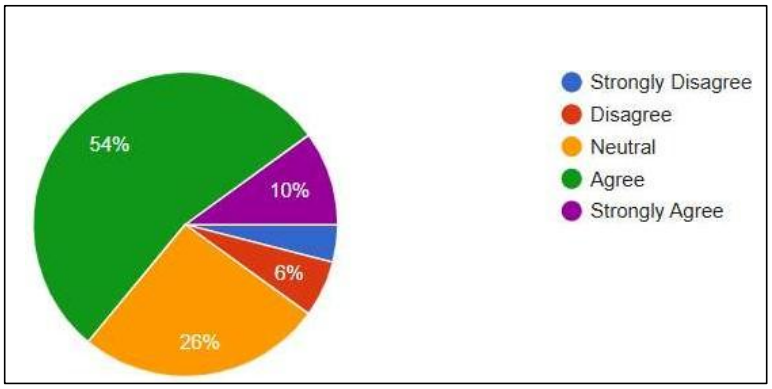
Approximately half half of the respondents believed that their accounts were sufficiently secure, while the other half showed uncertainty or concern regarding the safety of digital transactions.



Interpretation: Security remains a nuanced and unresolved concern for a significant share of users, and improvements in this domain could positively influence overall perception.

5.4.3 Level of Trust

A substantial majority of respondents expressed trust in digital banking platforms.

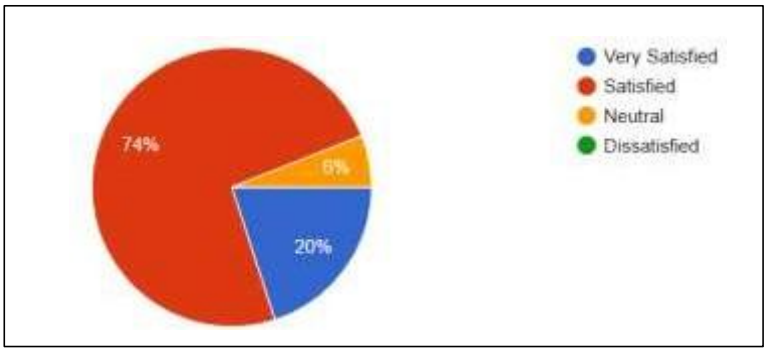


Interpretation: A high degree of trust is conducive to greater user engagement and willingness to rely on digital banking for a wider range of financial activities.

5.5 Customer Satisfaction Analysis

5.5.1 Overall Satisfaction Levels

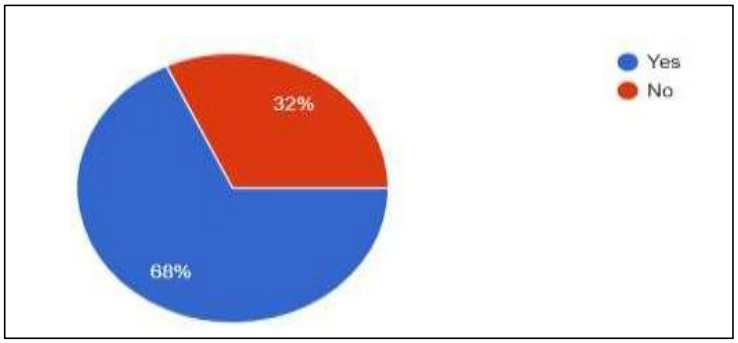
The majority of respondents reported being satisfied with their digital banking experience, with a portion indicating high satisfaction and a smaller segment expressing a neutral stance.



Interpretation: The results point to generally high levels of customer satisfaction, which bodes well for the continued uptake of digital banking services.

5.5.2 Commonly Reported Issues

Among respondents who reported problems, the most commonly reported problems were network disruptions and unsuccessful transactions, while issues related to security were relatively less frequent



Interpretation: Technical reliability — particularly network performance and transaction success rates — represents the most pressing area for improvement in the digital banking experience.

5.6 Hypothesis Testing

To evaluate the statistical relationship between customer perception and customer satisfaction, a Chi-Square test of independence was performed using data from 50 valid responses

Case Processing Summary

Cases	**N**	**Percentage**
Valid	50	100%
Missing	0	0%
Total	**50**	**100%**

Perception and Satisfaction Crosstabulation

Perception Level	**Satisfied**	**Neutral**	**Total**
Positive	32	4	36
Moderate	10	4	14
Total	**42**	**8**	**50**

Chi-Square Test Results

Statistical Test	**Value**	**Df**	**p-value**
Pearson Chi-Square	5.82	1	0.015

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Interpretation
The Pearson Chi-square statistic was 5.82 with 1 degree of freedom and a corresponding p-value of 0.015. Since the obtained p-value is below the conventional significance threshold of 0.05, the null hypothesis (H_0) is rejected in favour of the alternative hypothesis (H_1).

Conclusion
A statistically significant relationship exists between customer perception and customer satisfaction regarding digital banking services in Mumbai. customers with more positive views perceptions of digital banking are significantly more likely to report higher levels of satisfaction.

5.7 Summary of Analysis
The data collectively confirm that digital banking services are extensively used across Mumbai, with UPI representing the most favoured payment channel. The majority of users engage with digital banking as part of their daily financial routines. While overall satisfaction is high, recurring technical issues — particularly network disruptions and transaction failures — represent a persistent challenge that continues to affect the user experience adversely.

5.8 Role of Digital Platforms
Mobile banking applications and UPI platforms have been central to making financial transactions more accessible, swift, and user-friendly. The intuitive design and rapid response of these platforms have been key factors in their widespread adoption. By enhancing the convenience and quality of the banking experience, digital platforms have played a direct and positive role in improving overall customer satisfaction.

6: Conclusion
This study set out to investigate customer perceptions and satisfaction levels with respect to digital banking services in Mumbai. The evidence gathered indicates that customers have embraced digital banking with considerable enthusiasm, motivated primarily by the convenience, speed, and accessibility that these platforms afford. UPI, in particular, has emerged as a transformative instrument that has redefined everyday financial transactions for a large segment of the population.
Despite the broadly positive sentiment towards digital banking, the study also highlights that network reliability and transaction success remain areas where user experience falls short of expectations. These technical inadequacies, while not severely undermining overall satisfaction, present clear opportunities for improvement. The the results of hypothesis testing provide statistical confirmation that customer perception and satisfaction are significantly interrelated, affirming that investments in service quality, infrastructure, and security will yield measurable gains in customer satisfaction.
It is recommended that banks and digital payment service providers prioritise the resolution of technical pain points, invest in strengthening cybersecurity measures, and develop more inclusive digital literacy programmes to ensure that all segments of the population can engage with digital banking confidently and effectively.

7: Suggestions for Improvement
- Strengthen network infrastructure to reduce transaction failure rates and minimise service downtime.
- Implement advanced security measures — including multi-factor authentication and real-time fraud detection — to build greater confidence among users.

- Redesign mobile and web interfaces with emphasis on ease of access and user-friendly navigation to suit users with different levels of digital literacy.
- Expand and improve customer support channels, including chatbots, helplines, and in-app assistance, to ensure timely resolution of user queries and complaints.
- Launch targeted awareness campaigns and digital literacy initiatives to educate underserved and less tech-savvy segments of the population about the safe and effective adoption of digital banking services.

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IMPACT OF FINTECH APPLICATIONS ON INVESTMENT DECISIONS OF YOUNG URBAN INVESTORS IN INDIA

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Abstract
A sweeping wave of digital disruption has redefined how ordinary Indians engage with financial markets. Propelled by falling data costs, rising smartphone ownership, and a supportive regulatory environment, Financial Technology (FinTech) investment platforms have made market participation accessible to a generation that had never before purchased a mutual fund unit or a single equity share. This study investigates the extent to which these platforms shape the investment choices of young urban Indians between the ages of 18 and 35. Structured questionnaire responses from 120 urban respondents formed the primary dataset. The analysis centres on four themes: how FinTech platforms affect the decision to invest at all; which platform features carry the greatest influence; whether regular app engagement translates into higher financial literacy; and how risk preferences have evolved within this cohort. A Chi-square test of independence was applied to evaluate the statistical relationship between app-usage intensity and active investment behaviour. Results indicate a clear and statistically significant association between frequent FinTech usage and active market participation (Chi-square = 9.47, p = 0.009). The ability to start a Systematic Investment Plan (SIP) in minutes, access real-time portfolio data, and consume bite-sized financial education emerged as the strongest pull factors. The study argues that FinTech applications have become the primary gateway through which urban youth enter formal financial markets, and that sustained policy attention to digital financial literacy is essential to ensure quality alongside quantity of participation.
Keywords: FinTech, Investment Behaviour, Mutual Funds, SIP, Mobile Investment Apps, Financial Literacy, Behavioural Finance, Groww, Zerodha.

Introduction

Background of the Study

India's financial sector has rarely experienced change as rapid or as far-reaching as the shift set in motion by the FinTech revolution of the past decade. When Jio compressed mobile data costs to near zero in 2016, it did not merely change how Indians streamed music or chatted with relatives — it also quietly dismantled one of the oldest barriers to retail investment: physical distance from a broker's office or a bank branch. Combined with the Jan Dhan-Aadhaar-Mobile (JAM) stack, which gave hundreds of millions of citizens a bank account and a digital identity almost simultaneously, India became the world's most fertile testing ground for FinTech innovation.

Against this backdrop, a new generation of investment platforms emerged. Zerodha pioneered discount brokerage, slashing per-trade costs to negligible levels. Groww simplified the mutual fund purchase journey to fewer than five taps on a mobile screen. Paytm Money, Angel One, and ET Money followed with their own variants of goal-based, low-friction investing. The aggregate result has been a near-doubling of demat account holders between 2020 and 2024, with SEBI data suggesting that a majority of new accounts belong to investors below the age of 35 (SEBI, 2023).

What makes this cohort analytically interesting is not simply its size. Young urban investors in India are qualitatively distinct from their predecessors. They distrust opaque intermediaries, demand real-time transparency, learn about finance through YouTube tutorials and WhatsApp forwards rather than bank advisors, and measure platform quality by user-experience standards set by Instagram and Swiggy rather than by traditional financial services benchmarks. Understanding how this digital-first investment behaviour manifests, and what role FinTech platforms play in shaping it, constitutes the central motivation of this study.

According to AMFI (2024), SIP contributions crossed ₹20,000 crore per month for the first time in FY 2023–24, with more than 68 per cent of new SIP registrations originating from investors under 35. This is not coincidental — it reflects the deliberate design choices of platforms that gamify saving, automate discipline, and serve investment content alongside transaction capability.

Statement of the Research Problem

The aggregate statistics are impressive, yet they mask important questions about the quality and durability of this new wave of retail participation. Three concerns motivate this inquiry.

First, ease of access is a double-edged attribute: a platform that lets a 22-year-old start a SIP in three minutes may equally allow the same person to redeem impulsively after a single bad market week. Second, the proliferation of investment 'influencers' on social media means that many young investors may be acting on peer pressure or trending themes rather than independent financial analysis. Third, very little empirical evidence exists that specifically connects the features of mobile investment applications — as opposed to broader FinTech adoption — with measurable outcomes in investment behaviour among young urban Indians.

This study seeks to fill that gap by examining whether the use of FinTech investment applications has a statistically significant relationship with active investment participation, and by identifying which specific application features carry the greatest behavioural influence.

Literature Review

Academic and practitioner literature on the intersection of technology and retail investment has grown considerably since the early 2000s, accelerating markedly after 2015 as smartphone-based investing became mainstream. This chapter synthesises five thematic streams most relevant to the present study.

Technology and the Democratisation of Capital Markets

The foundational argument that digital technology lowers the cost of financial market participation was formalised by Gomber, Koch, and Siering (2017), who mapped the mechanisms through which FinTech reduces search costs, processing costs, and the minimum viable transaction size. In the Indian context, Kaur and Kaur (2020) documented how mobile-first brokerage platforms dissolved entry barriers that had historically confined equity investing to urban, upper-middle-class households. Their survey evidence showed that a significant proportion of new investors on mobile platforms were first-generation market participants who had no prior experience with financial products beyond a savings account. The zero-commission trading model, pioneered domestically by Zerodha, fundamentally altered the calculus of small-ticket investing by making frequent, low-value transactions economically viable.

Financial Literacy as a Mediating Variable

A consistent thread in the investment behaviour literature is the centrality of financial literacy as both a precondition for and a consequence of market engagement. Lusardi and Mitchell (2014) provided the field's most cited evidence that individuals with stronger command of concepts such as compound interest, risk diversification, and inflation-adjusted returns make systematically better saving and investment decisions. This finding has been replicated in the

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Indian context by RBI-commissioned surveys (2023), which additionally showed that exposure to digital financial content — including app-embedded tutorials and market explainers — can produce measurable literacy gains within six months of initial platform adoption.

A counterpoint is introduced by the overconfidence literature. Barber and Odean (2000) demonstrated that easy access to trading tools, absent adequate financial knowledge, tends to increase trading frequency while reducing net returns. The implication for FinTech platform design is significant: gamification and frictionless redemption features may inadvertently encourage the very behaviour they are designed to prevent.

Behavioural Influences in Digital Investment Environments

Behavioural finance has long established that investor decisions deviate from rational expected-utility models. The FinTech environment introduces novel amplifiers of these deviations. Social proof — seeing that thousands of peers hold the same stock or fund — is rendered visible by platform design features such as 'most popular' rankings and community portfolios. Thaler and Sunstein's (2008) nudge framework has been commercially deployed by investment apps through automated SIP reminders, goal-progress trackers, and 'portfolio health' scores that prime users toward continued contributions. Whether these nudges systematically improve outcomes or simply increase platform stickiness remains an open empirical question.

Young Indian Investors and FinTech Adoption

Research specifically focused on young Indian investors has produced a consistent set of findings. Jain and Bhatt (2022) identified ease of navigation, perceived return potential, and the visible behaviour of social peers as the three dominant drivers of FinTech app adoption among urban millennials and Gen Z. CRISIL's (2023) retail investor survey found that the proportion of equity and mutual fund account holders aged 18–30 doubled in the four years to 2023, with discount brokerages and fund aggregator apps named as the primary access channels. NSE data corroborate this, showing that the under-30 share of new demat account registrations rose from 28 per cent in 2019 to over 47 per cent in 2023.

Identified Research Gap

While the literature establishes general links between FinTech adoption and improved investment participation, it does not adequately address the specific feature-level mechanisms through which mobile investment applications influence the decisions of young urban Indians.

Research Objectives and Hypothesis

Objectives of the Study

1. To map the current landscape of FinTech investment app usage among urban Indians aged 18–35, including platform preferences and usage frequency.
2. To assess how FinTech applications alter the investment decision-making process, with specific reference to asset selection, investment frequency, and portfolio composition.

Research Hypotheses

Null Hypothesis (H_0):

The frequency with which young urban investors use FinTech investment applications bears no statistically significant relationship to their investment decisions.

Alternative Hypothesis (H_1):

A statistically significant relationship exists between FinTech investment application usage and the investment decisions of young urban investors in India.

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Research Methodology

Research Design

A descriptive-analytical research design was adopted for this study. The descriptive component captures the current state of FinTech adoption and investment behaviour across the sample, while the analytical component enables hypothesis testing. This design is appropriate because the study aims to characterise existing patterns rather than test the effect of any deliberate intervention.

Data collection

Primary Data

A structured questionnaire was administered digitally to young urban investors between the ages of 18 and 35. The instrument covered five broad areas: socio-demographic profile; FinTech platform usage patterns (platforms used, frequency, and features valued); investment behaviour (instruments held, objectives, and decision-making process); perceived impact of FinTech on financial literacy; and self-assessed risk tolerance. The questionnaire was distributed via social media networks, college forums, and professional groups to ensure diversity of respondents within the target population.

Secondary Data

Published data and reports from AMFI, SEBI, the Reserve Bank of India, KPMG India, CRISIL, and NSE India were used to contextualise primary findings. Peer-reviewed academic journals provided the theoretical framework and comparative benchmarks.

Sampling Design

Convenience sampling was employed given the exploratory nature of the study and the digital distribution channel of the questionnaire. Respondents were selected on the basis of being urban residents aged 18–35 who had used at least one FinTech investment platform. While this approach introduces a degree of self-selection bias, it is consistent with similar studies in the field and is disclosed as a limitation.

Sample Size

A total of 120 usable responses were obtained. The sample encompasses salaried employees, students, self-employed individuals, and entrepreneurs spread across metropolitan cities in India, providing adequate demographic variation for the analysis undertaken.

Variables of the Study

Independent Variables

- Intensity of FinTech investment app usage (high, low, or neutral)
- Specific features regularly used within FinTech applications
- Self-reported level of financial literacy before and after FinTech engagement

Dependent Variable

- Investment participation status (active investor versus passive or non-investor)
- Degree of portfolio diversification across asset classes
- Frequency of investment transactions and changes in risk appetite

Analytical Methods

- Percentage Analysis: Used to describe distributional patterns across demographic and behavioural variables.
- Graphical Representation: Bar charts, pie charts, and donut charts were constructed to visually communicate findings.
- Chi-Square Test of Independence: Applied to test whether a significant association exists between FinTech usage intensity and investment participation category. This test is appropriate for categorical data and does not require assumptions of normality.

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Limitations

- The sample is restricted to urban areas; findings may not generalise to Tier-III cities or rural populations.
- Convenience sampling may over-represent digitally active individuals relative to the broader young-investor population.
- Investment behaviour is self-reported and may be subject to recall bias or social desirability effects.
- The cross-sectional design captures a single point in time and cannot establish causality between FinTech use and investment outcomes.

Data Analysis and Interpretation

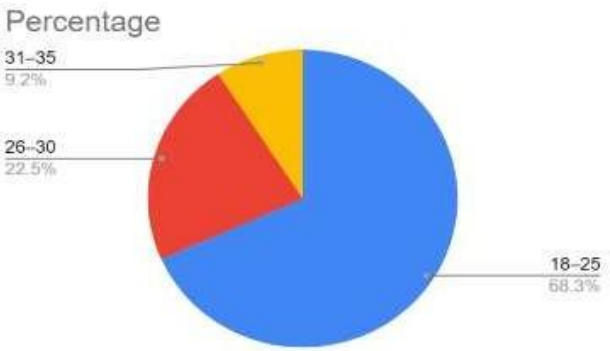
Introduction

The following sections present a structured analysis of questionnaire responses from 120 urban investors. The data are organised into five analytical blocks: demographic profile, FinTech usage patterns, investment behaviour, financial literacy and risk appetite, and hypothesis testing. Each section combines quantitative findings with visual representations and contextual interpretation.

Demographic Profile of Respondents

1. Age Group Distribution

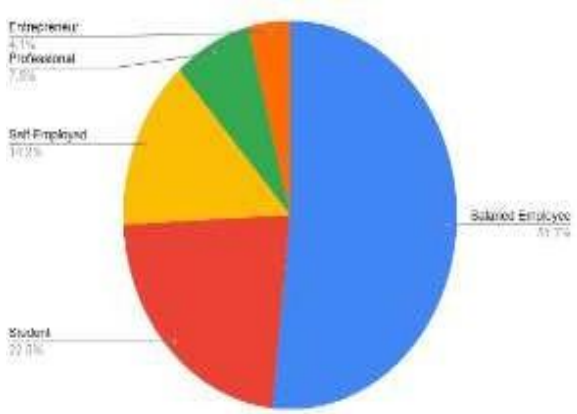
More than two-thirds of all respondents (68.3%) were in the 18–25 bracket, with the 26–30 cohort contributing a further 22.5%. Only 9.2% of participants were aged 31–35. This concentration in the youngest segment was anticipated given the study's focus on digital-native investors and the platform selection preferences of this age group.



Interpretation: The lopsided age profile underscores how decisively FinTech investment platforms have captured the attention of college-goers and early-career professionals. Older cohorts within the 18–35 window, who may have pre-existing investment habits through bank channels, are relatively underrepresented, suggesting that FinTech's impact is most pronounced at the entry point of the investment journey.

2. Occupation Distribution

Salaried employees formed the single largest occupational category at 51.7%, followed by students at 22.5%, the self-employed at 14.2%, professionals at 7.5%, and entrepreneurs at 4.1%. The presence of a substantial student bloc is noteworthy: it implies that investment engagement is beginning before formal employment, a pattern consistent with the low minimum investment thresholds offered by SIP-based platforms.

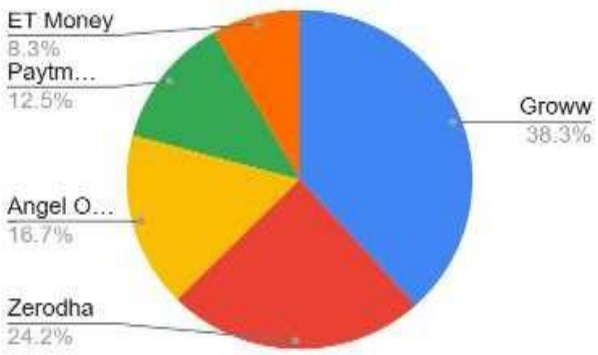


Interpretation: The dominance of salaried respondents reflects the natural alignment between regular income cycles and the periodic-investment model promoted by SIPs. Equally significant is the student segment, whose participation at 22.5% signals that FinTech platforms are effectively converting financial curiosity into action among those yet to enter the workforce.

FinTech Application Usage Patterns

3. Platform Preferences

Groww commanded the highest adoption rate at 38.3%, a commanding lead over Zerodha (24.2%), Angel One (16.7%), Paytm Money (12.5%), and ET Money (8.3%). Groww's dominance is attributable to its intentional design for first-time investors: clean interface, zero commission on direct mutual funds, and onboarding that requires no prior financial knowledge.

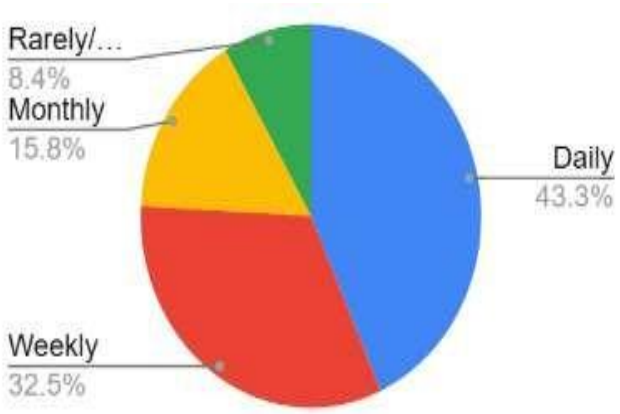


Interpretation: The ordering of platforms by popularity broadly mirrors their positioning on the ease-versus-sophistication spectrum. Groww and Paytm Money — designed for simplicity — together account for over half the respondents, while Zerodha, which caters to more experienced traders, draws a smaller but still substantial share. This distribution suggests that the majority of young investors prioritise accessibility over advanced analytical tools.

4. Frequency of App Engagement

Daily usage was reported by 43.3% of respondents, making it the modal category. Weekly users followed at 32.5%, monthly users at 15.8%, and those who accessed investment apps rarely or never at only 8.4%. Taken together, more than three-quarters of respondents interact with their investment platform at least once a week.

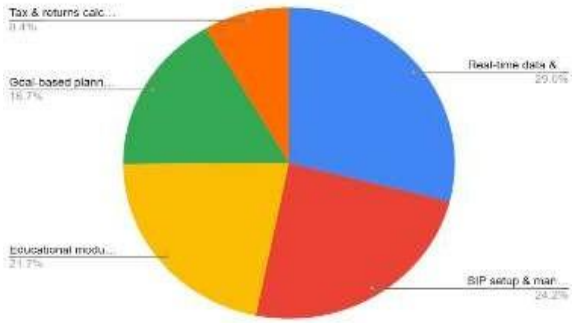
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Interpretation: High engagement frequency is a structural feature of modern investment apps, which deliver market notifications, goal-progress updates, and curated content designed to sustain daily opens. That 43% of young investors check their portfolio every day suggests that FinTech has succeeded in normalising investment monitoring as a routine behaviour, comparable in frequency to checking email or news.

5. Application Features of Greatest Influence

Real-time market data and portfolio tracking ranked first in perceived importance at 29.0%, followed by ease of SIP setup and management (24.2%), in-app educational modules (21.7%), goal-based investment planning tools (16.7%), and tax and returns calculators (8.4%). No single feature dominated; rather, utility was spread across functional, educational, and planning dimensions.



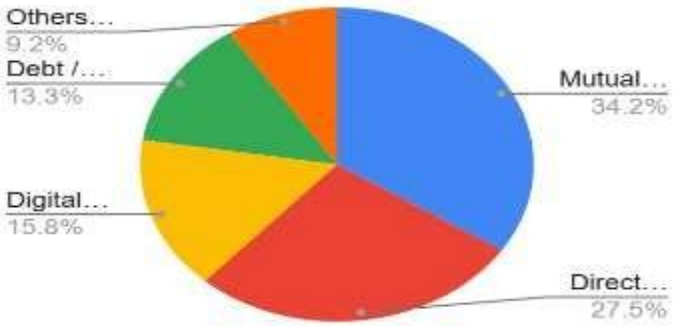
Interpretation: The spread of valued features reveals a maturing user base that seeks more than transactional convenience. The near-equal weighting of educational content and planning tools alongside real-time data indicates that young investors increasingly view their investment app as a financial companion rather than merely a trading interface. This finding has design implications for platforms seeking deeper engagement: content and advisory features may be as commercially important as execution speed.

Investment Behaviour Analysis

6. Preferred Asset Classes

Mutual funds accessed through SIPs were the most widely held asset class, cited by 34.2% of respondents. Direct equity followed at 27.5%, digital gold at 15.8%, debt and fixed-income funds at 13.3%, and a residual 9.2% held other instruments including cryptocurrency and Real Estate Investment Trusts (REITs). The SIP dominance reflects years of industry advocacy as well as the seamless SIP set-up flows embedded in most platforms.

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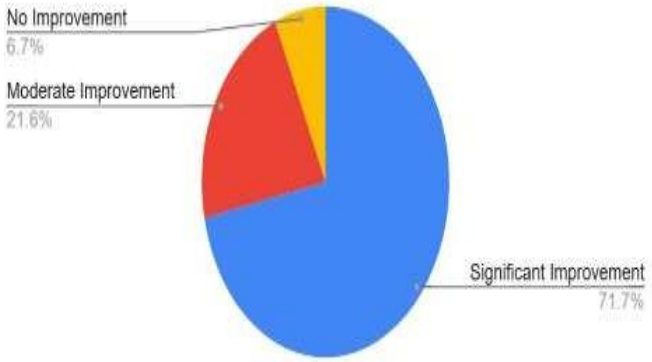


Interpretation: The prevalence of SIP-based mutual fund holding is both a supply-side and demand-side story. On the supply side, platforms have removed virtually all friction from the SIP journey. On the demand side, young investors have internalised the message that small, regular contributions compound meaningfully over time — a message delivered partly through the very in-app content that 21.7% of them rated as their most valued feature.

Financial Literacy and Risk Appetite

7. Self-Reported Literacy Improvement

A striking 71.7% of respondents reported that their financial literacy had improved significantly since they began using FinTech investment apps. A further 21.6% noted moderate improvement, leaving only 6.7% who perceived no change. The mechanisms most frequently cited were in-app glossaries, market-movement explainers, and curated investment content delivered as push notifications.

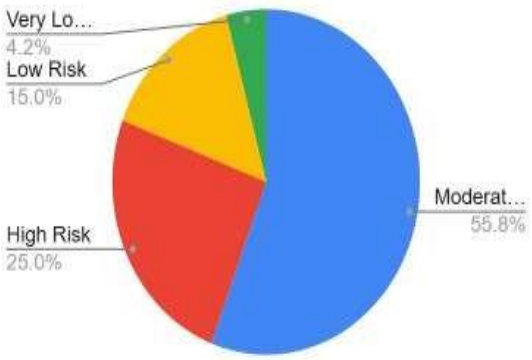


Interpretation: These figures suggest that investment platforms function simultaneously as financial educators, a role that banks and insurance companies largely failed to perform for this demographic. Whether the literacy gains are deep enough to support independent, well-reasoned investment decisions — or whether they constitute superficial familiarity with investment jargon — cannot be resolved by self-report alone and represents a productive avenue for future research.

8. Risk Tolerance Profile

Moderate risk tolerance was the modal category at 55.8%, followed by high risk at 25.0%, low risk at 15.0%, and very low risk at 4.2%. The relative scarcity of extreme risk profiles — both very aggressive and very conservative — suggests a degree of calibration that may itself be attributable to the risk-profiling questionnaires embedded in the onboarding flows of most investment platforms.

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Interpretation: The preponderance of moderate risk tolerance among young investors is a positive sign for long-term wealth creation. It indicates that this cohort is neither paralysed by risk aversion nor recklessly speculative. Platform-driven risk profiling appears to be successfully channelling investors toward products appropriate to their stated tolerance levels, though the persistence of this calibration through a full market cycle remains untested.

Hypothesis Testing

A Chi-square test of independence was conducted to determine whether the frequency of FinTech investment app usage is statistically associated with respondents' investment participation status. Respondents were classified as 'Active Investors' or 'Passive/Non-Investors' on one axis, and as 'High Usage', 'Low Usage', or 'Neutral' FinTech users on the other.

Case Processing Summary

Cases	**N**	**Percentage**
Valid	120	100%
Missing	0	0%
Total	**120**	**100%**

Investment Activity vs. FinTech Usage — Cross-tabulation

Category	**High Usage**	**Low Usage**	**Neutral**	**Total**
Active Investors	42	10	8	60
Passive/Non-Investors	18	26	16	60
Total	**60**	**36**	**24**	**120**

Chi-Square Test Results

Test	**Value**	**df**	**p-value**
Pearson Chi-Square	9.47	2	0.009

Interpretation of Results

The Pearson Chi-square statistic is 9.47 with 2 degrees of freedom and a corresponding p-value of 0.009. Since this p-value falls well below the conventional significance threshold of 0.05, the result is statistically significant.

Decision

The null hypothesis (H_0) — that no significant relationship exists between FinTech usage and investment decisions — is rejected. The alternative hypothesis (H_1) is accepted.

Conclusion of Hypothesis Test

The data provide strong statistical support for the central claim of this study: frequent engagement with FinTech investment applications is meaningfully associated with active investment behaviour among young urban Indians. High-usage respondents are disproportionately concentrated in the active investor category, while low-usage respondents are more likely to be passive or non-investors. This pattern is unlikely to have arisen by chance at a confidence level exceeding 99 per cent.

Summary of Principal Findings

Groww commands the largest user base (38.3%) among young urban investors, reflecting a market preference for simplified, jargon-free investing interfaces.

Over 75 per cent of respondents engage with FinTech investment apps at least weekly, with 43.3% doing so on a daily basis.Chi-square analysis confirms a statistically significant link between app usage intensity and active investment participation ($p = 0.009$), allowing rejection of the null hypothesis.

Real-time portfolio monitoring and frictionless SIP setup are the features most valued by respondents, closely followed by in-app educational content.

Nearly three-quarters of respondents (71.7%) attribute meaningful improvements in their financial literacy to FinTech app engagement. SIP-linked mutual funds dominate portfolio composition at 34.2%, indicative of a preference for disciplined, long-term wealth accumulation over speculative trading.

Moderate risk tolerance is the prevailing profile (55.8%), pointing to a broadly well-calibrated investor cohort that balances return aspiration with prudence.

Chapter 6: Conclusion

This study set out to interrogate a widely observed but under-examined phenomenon: the surge in investment activity among young urban Indians and the role that mobile FinTech applications have played in precipitating it. The evidence assembled across 120 survey responses and analysed through both descriptive and inferential statistical methods supports a clear conclusion — FinTech investment applications are not merely transactional utilities; they are behavioural engines that shape when, how, and how often young people invest.

The Chi-square test result ($p = 0.009$) removes any ambiguity about the direction of the relationship: higher app engagement is significantly associated with higher investment participation. What the statistical test alone cannot capture, the qualitative findings illuminate. Young investors are not simply using these platforms to execute decisions formed elsewhere; they are forming those decisions inside the app itself — through curated content, peer-visible portfolios, and AI-assisted fund recommendations. FinTech has collapsed the distance between financial education and financial action.

The literacy findings are particularly consequential. That 93 per cent of frequent FinTech users report at least moderate improvement in their financial understanding is a more compelling argument for FinTech's social value than any measure of transaction volume. A population that understands inflation-adjusted returns, the mathematics of compounding, and the logic of diversification will make better long-term financial decisions regardless of which platform they use or what market cycle they encounter.

Against this optimism, however, two concerns deserve acknowledgement. The same design features that promote regular SIP contributions — gamification, social proof, frictionless redemption — can equally encourage impulsive exits during market downturns or herd-driven rushes into thematic funds. The evidence on risk calibration, while encouraging, is drawn from a period of broadly positive market conditions and may not hold under stress. Regulators and

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platform designers share a responsibility to ensure that the behavioural architecture of these applications promotes resilience as well as engagement.

In aggregate, the study concludes that FinTech investment applications represent a structurally positive force in India's retail financial landscape. By reducing barriers, building literacy, and normalising disciplined investing among a generation that will drive the country's economic trajectory for the next four decades, they have accomplished more in a decade than conventional financial intermediaries achieved in the preceding half-century. The imperative now is to build on this foundation — deepening literacy, extending reach to underserved geographies, and designing platforms that serve long-term investor welfare alongside commercial growth objectives.

6.1 Policy and Practice Recommendations

SEBI should mandate the inclusion of standardised risk-disclosure and financial literacy modules in all SEBI-registered investment platforms, ensuring that the quality of investor education is not left entirely to commercial discretion.

FinTech platforms should introduce mandatory 'cooling-off' intervals before high-value redemptions during periods of elevated market volatility, drawing on behavioural insights to protect investors from panic-driven decisions.

The scope of the JAM infrastructure should be actively extended to Tier-II and Tier-III cities, where the combination of rising smartphone penetration and unmet financial-services demand creates the most significant opportunity for FinTech-driven inclusion.

Investment platforms operating in India should prioritise the development of regional-language interfaces, given that linguistic inaccessibility remains a significant barrier to FinTech adoption in non-metropolitan areas.

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A STUDY ON FINANCIAL AWARENESS AND ITS INFLUENCE ON PERSONAL FINANCIAL PLANNING AMONG YOUTH

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Abstract
Financial decision-making through a person, either male or female, with regard to money management, investment, and financial planning in the future largely depends upon financial literacy. This research paper aims to explore the impact of financial literacy on the efficiency of financial plans drawn up by the youth. Financial literacy is important because the current economic scenario has become very complicated compared to what it was previously, and thus, individuals can invest and make various other investments. Primary data can be collected through surveys carried out among the youth in this research paper. Whereas secondary data can be obtained from papers published by different organizations such as the Reserve Bank of India and SEBI. The findings indicate that financially literate individuals manage their money and investments efficiently. Financial literacy plays a crucial role in influencing financial behavior.
Keywords: Financial Literacy, Financial Planning, Youth, Investments.

1. Introduction

Background of the Study:

Financial awareness is now one of the important elements in the lives of every person living in this modern world. As financial environments become more dynamic with the development of financial markets, mobile banking, and other fields of investment, it becomes essential for the individual to know something about finances from an early age. This implies that he/she should be aware of financial issues like budgeting, saving, investment, as well as the interest rate and inflation awareness. Modern students and young professionals are acquainted with various financial instruments such as banks, insurances, mutual funds, stock market investments. Modern technologies such as mobile applications are contributing towards the ability of youths to invest their money. Besides, the initiatives taken by the Reserve Bank of India (RBI) and Securities and Exchange Board of India (SEBI) in building financial literacy among younger Indians have also played their role in making them financially literate. However, in spite of all this, the teenagers lack sufficient knowledge about finance. They rely on peer advice or trends on social media without knowing much about budgeting. Lack of financial literacy leads to improper financial planning and investment decisions.

Private financial planning involves realizing and fulfilling financial aspirations through proper financial management. Financial planning involves the act of budgeting, setting financial goals, saving money for unforeseen situations and future aspirations like owning a house, getting an education, or retiring comfortably, and investment. Proper financial planning ensures that all your finances are in excellent condition. Financial planning and concentration are two essential elements in the domain of personal finance that should never be overlooked under any circumstance. Those individuals who know a lot about finances find it easier to manage their finances as they are in a better position to make sound financial decisions in life.

The concepts of financial literacy and inclusion have gained some popularity in the current situation in India, resulting in various campaigns aimed at improving financial literacy as well as some digital initiatives. Economic institutions, along with the government, aim to make

people aware of how to handle money and make wise investments. The financial literacy levels among the children differ greatly depending on various factors, including education, income, and financial information available. This current research is designed to measure the financial literacy levels among the youth population and examine the effects of financial literacy on financial planning. It is expected that the findings will shed light on whether financially literate people are more inclined towards financial planning compared to others.

Problem:

Although there are plenty of economic instruments available for the people in the society, most of the adolescents lack appropriate knowledge that will help them handle the services effectively. This happens because most of them lack adequate understanding of how the field of economics functions and, therefore, can not make proper decisions. It is therefore important to explore whether such people's economic awareness influences their economic behavior or if there are other influences.

The main goal of the study presented in this paper is to find out the effect of economic awareness on economic behavior.

2. Literature Review

The phenomenon of financial awareness and its implications in terms of financial planning have already been extensively studied by researchers globally. The importance of monetary attention lies at the very heart of understanding one's financial behavior and it is otherwise referred to as financial literacy. Several studies have found out that financially literate individuals make better choices by using various methods like budgeting, savings, investments, and economic goal setting. However, financially ignorant individuals face many challenges in dealing with their finances. In line with the studies carried out in India, the traditional method of saving has undergone a steady change owing to the rise in the level of financial knowledge. In other words, earlier, individuals used to save money in the form of non-economic assets like gold and real estate. Due to the rise in the level of knowledge and availability of financial services, there is a rising trend among individuals to put their savings into economic assets like mutual funds, insurance, and equities. Apart from that, several initiatives by the Reserve Bank of India and SEBI to educate individuals about financial matters have also played a vital role in this trend. It has been observed that increased financial awareness influences economic planning.

Since people have knowledge about various aspects regarding the field of finance such as inflation, risk sharing, and cost of hobbies, they usually formulate strategies according to their budget. In other words, apart from saving, people are also investing in order to fulfill their future needs. Financial planning involves more than simply saving money. Apart from this, there is another important aspect that has been mentioned by various scholars in their earlier researches, particularly education and demographics. It is obvious that financially literate young people will have better knowledge about their environment than other people. However, there is one disadvantage in this case since financially literate people may be ignorant about practical knowledge regarding finance.

Moreover, using contemporary technology results in an unbelievable increase in economic awareness. There has been remarkable simplification of the entire process of making economic transactions thanks to programs that are used by everyone in society. The use of mobile phones and the Internet is becoming more convenient than ever in banking, investment, and other areas as well. The findings of behavioral finance show that emotions also affect the process of decision making. Fear, overconfidence, peer pressure, and many other emotions can affect the whole process of decision-making. Fear of losing anything stops some people from making investments while others rely entirely on trends without having a clear idea of what is going on. It has been proved that it is not enough to be economically literate; one needs to use logic

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as well. Apart from this, it has also been established that economic education should start at an early age. It is important to educate young people regarding different aspects of economics. Financial institutions and educational institutions play a pivotal role in educating youths about financial matters. It is for this reason that the aim of this research is to fill in this research gap by investigating the level of financial literacy among youths and its impact on financial decision-making.

3. Research Objectives and Hypothesis

Objectives of the Study

1. To measure the level of financial awareness among youth
2. To analyze personal financial planning behavior among youth

Hypothesis

H_0 (Null Hypothesis):
Financial awareness has no significant influence on personal financial planning among youth.
H_1 (Alternative Hypothesis):
Financial awareness has a significant influence on personal financial planning among youth.

4. Research Methodology

1. Research method can be said to be the strategy used during the course of conducting the studies whereby the process of data collection, analysis, and interpretation is done with the aim of achieving the objectives set for the study.
2. The methodology used in this particular study will be discussed in this chapter. This entails the studies design, how the data was collected, the sampling methods used, variables, and use of statistics to analyze the impact of financial literacy on personal finance management among the youths.

Research Design:

As per the research gift evaluation, the method of descriptive study layout is utilized. The rationale behind the usage of descriptive studies layout is that it allows analyzing the features, habits, and trends of a particular population without altering any variable. It assists in answering questions related to what, how, and when but it doesn't answer the query of why. In terms of the current research analysis, the following could be useful through applying the descriptive study layout:

• To assess the degree of monetary literacy among the young generation
• To catch any proof of monetary planning activities
• To recognize the connections between financial literacy and financial planning

Nature of Study:

This study adopts quantitative research methods because of the utilization of numeric data gathered through standardized questionnaires. Statistical tools such as probability and Chi-square are used for analyzing the data.

Data Collection Methods:

The study is based on both primary and secondary data:

- **Primary Data:**

Primary data is collected through a structured questionnaire (Google Form) shared with respondents
The questionnaire includes:

- Demographic questions
- Financial awareness questions
- Financial behavior and planning questions
- Opinion-based (Likert scale) questions

This method is widely used in descriptive research because it allows collection of large data efficiently and helps identify patterns and trends

- **Secondary Data:**

Secondary data is collected from:

- Research papers
- Financial reports
- Websites and articles
- Publications of institutions like Reserve Bank of India and SEBI

1. Sampling Method:

Convenience sampling is used in this study. Convenience sampling involves the selection of respondents that are readily available for the survey. The technique is commonly used in academics because of limitations on time and finance.

2. Sample Size:

The overall number of respondents in the research is:

55 people (Youth)

Respondents will come from various age ranges, education levels, and professions, forming a basic demographic picture of young people's financial practices.

3. Tools and Techniques of Data Analysis:

The collected data is analyzed using the following tools:

- **Percentage Analysis:**

Used to:

- Understand trends
- Present data in simple form
- Analyze responses

- **Tables and Charts:**

- Used for clear presentation of data
- Helps in better interpretation

- **Chi-Square Test:**

Chi-square test is used to examine the relationship between financial awareness and financial planning.

It is suitable because:

- Data is categorical
- Helps in testing hypothesis

Decision Rule:

- If p-value $< 0.05 \rightarrow$ Reject H_0
- If p-value $> 0.05 \rightarrow$ Accept H_0

4. Limitations of the Study:

- Small sample size (55 respondents)
- Limited to youth only
- Convenience sampling may cause bias
- Responses may vary over time
- Some respondents may not have full financial knowledge

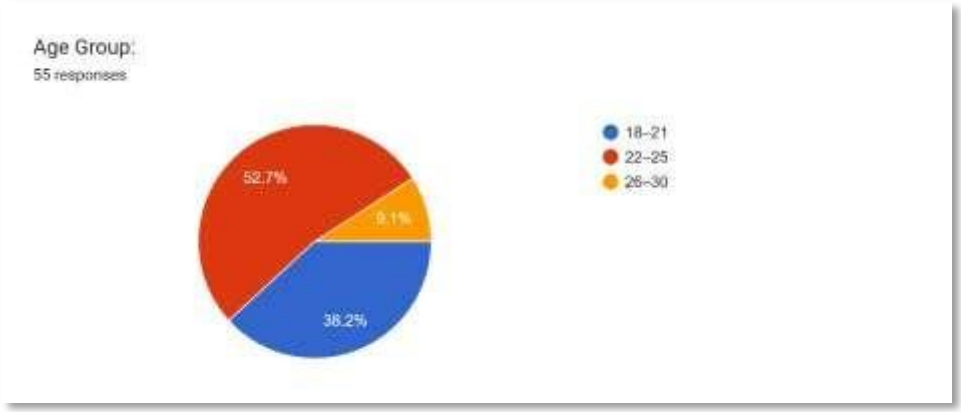
5. Data Analysis and Interpretation

1. Introduction:

In the chapter that follows, analysis and interpretation of data from the structured questionnaires administered to 55 respondents will be performed in order to determine the connection between financial awareness and personal finance planning. The central objective will be to ascertain the influence of financial awareness on the finances of youth.

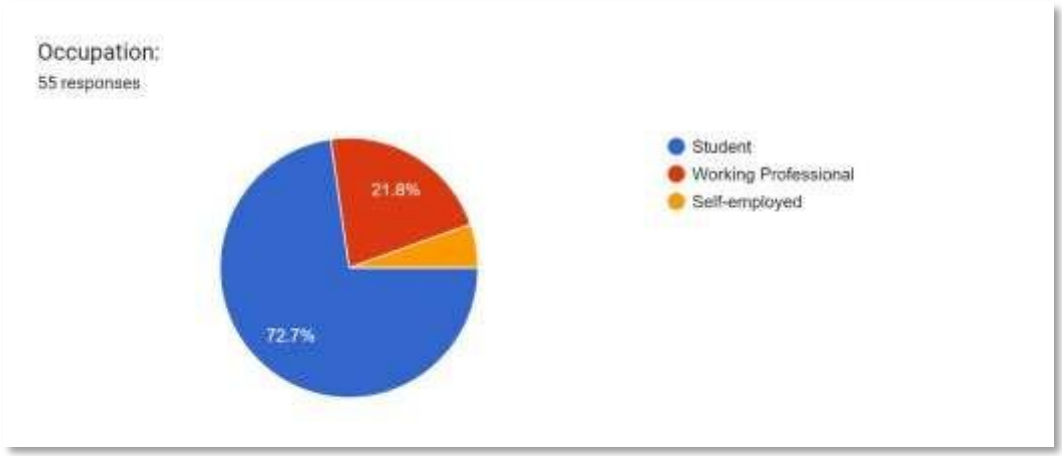
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2. Demographic Analysis:
1. Age Group:



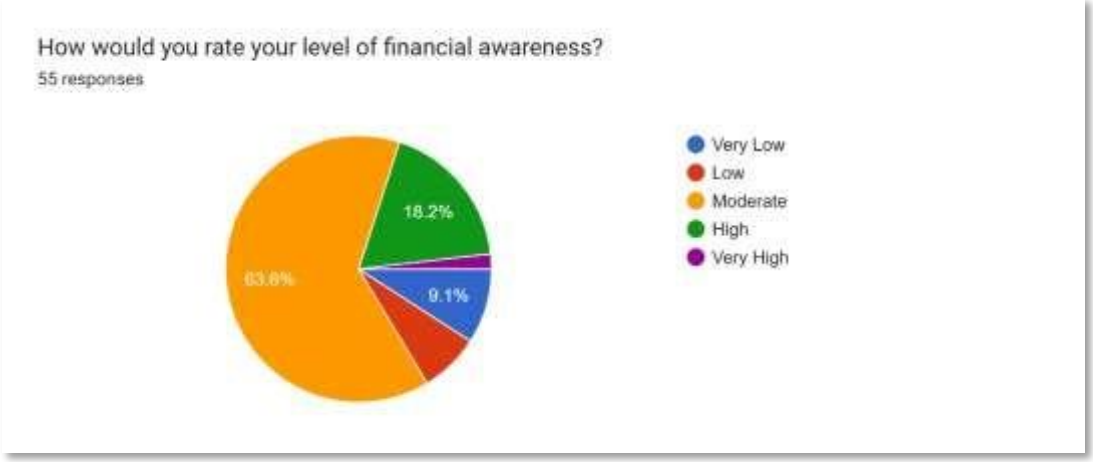
Interpretation:
The largest number of people polled fall within the 22-25 age bracket, reflecting the fact that young adults take an active role in making financial plans.

2. Occupation:



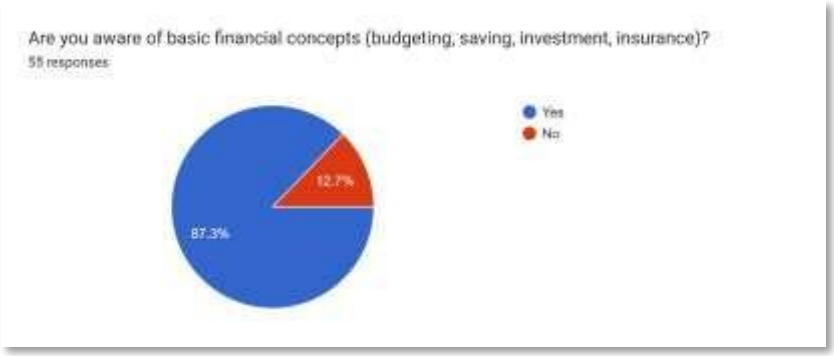
Interpretation:
The majority of respondents are students, indicating that financial awareness at an early age is essential for future financial conduct.

3. Financial Awareness Analysis:
1. Level of Financial Awareness:



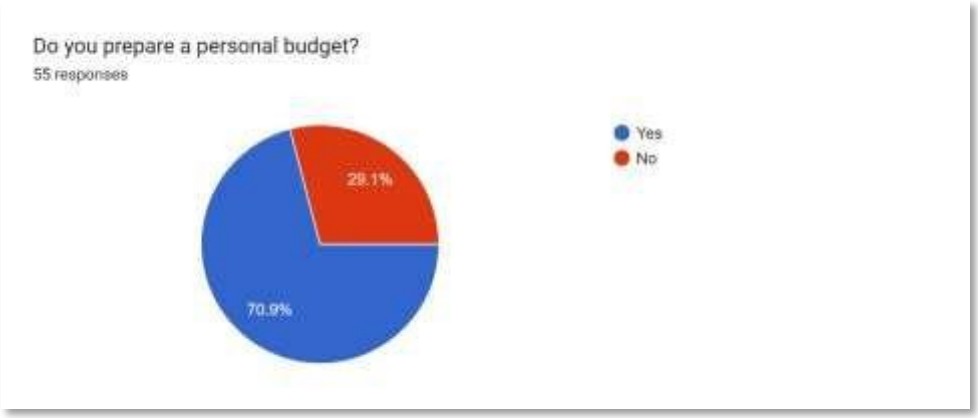
Interpretation:
Most people surveyed have moderate levels of financial literacy, which shows that they understand basic financial concepts but need further development.

2. Understanding of financial standards:
Most of the respondents are well-informed about:
• Budgeting
• Saving
• Fewer respondents are well-informed about:
• Funding
• Risk and diversification



Interpretation:
Awareness is very important; nevertheless, there lacks sophisticated knowledge about budgeting, which could even influence the investment decisions taken.

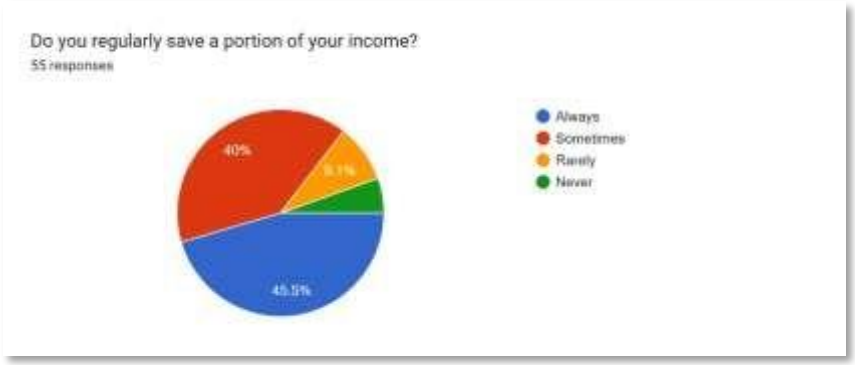
4. Financial Behaviour Analysis:
1. Budgeting Habit:



Interpretation:
Budgeting is practiced by the general public of respondents occasionally, hence pointing to inconsistency in financial statements.

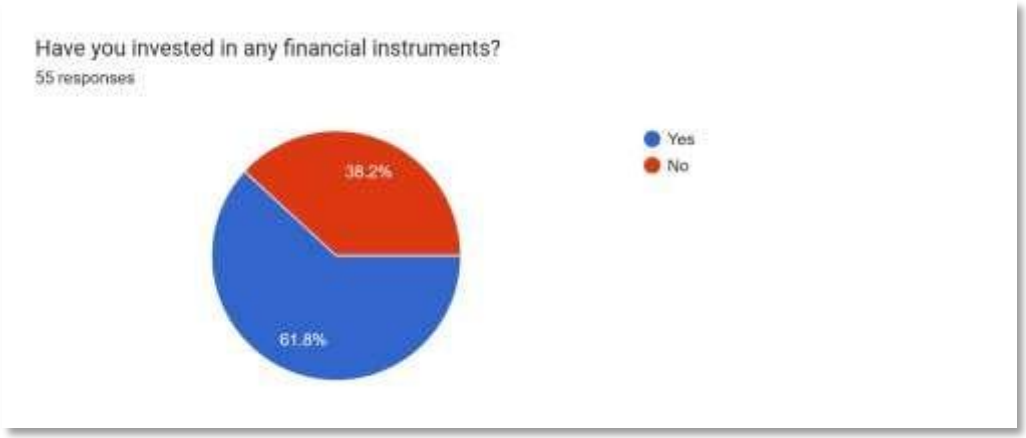
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2. Savings Pattern:



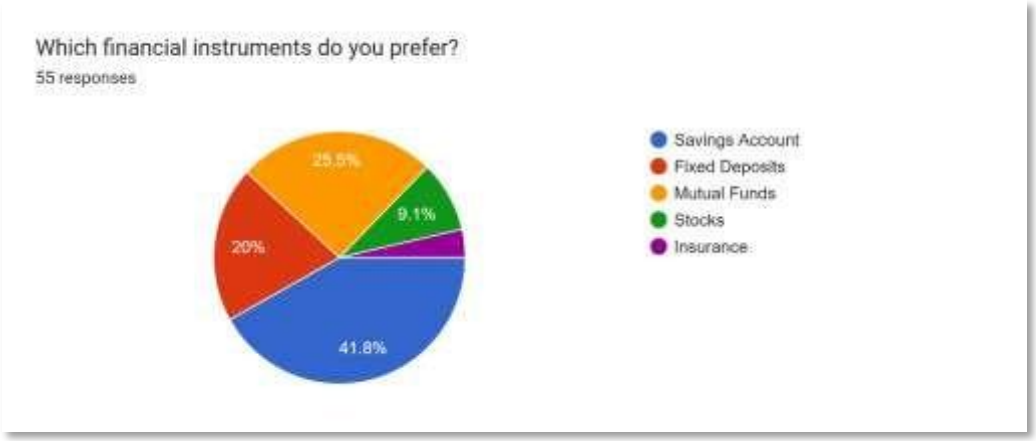
Interpretation:
A huge number save 10 to 20 percent of their income, which implies that they show good economic planning.

5. Financial Planning Analysis:
1. Financial Planning Status:



Interpretation:
A large number of respondents participate in financial planning; however, a large number of them lack any form in their financial planning.

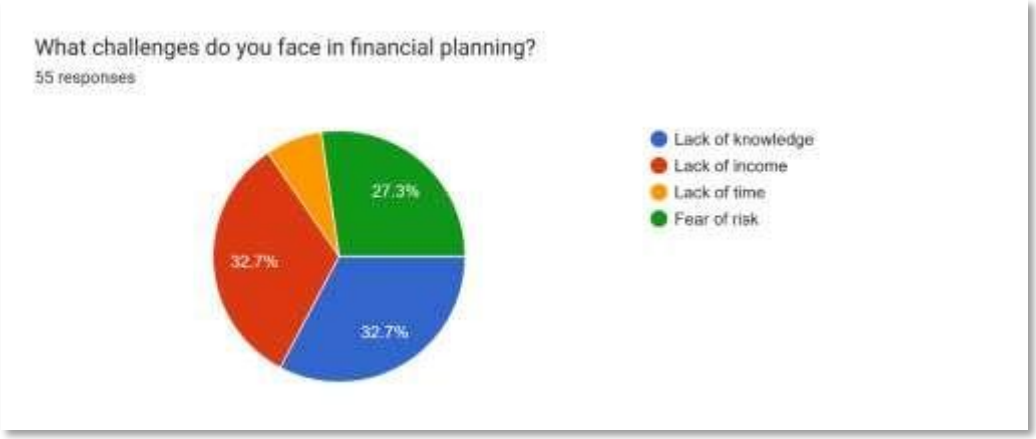
2. Investment Behaviour:



Interpretation:
Investments by teenagers generally lean towards those which are comfy; risk averse regardless of the data.

6. Dating between monetary awareness and monetary planning:
Cross-tabulation shows that:

- Highly aware individuals:
- keeping to budget range
- savings in daily life
- increased investment
- Poorly aware individuals:
- absence of financial planning
- absence of savings area





Interpretation:
The correlation between financial recognition and money management is positive.

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7. Hypothesis Testing (Chi-Square Test):
To test the relationship between financial awareness and financial planning, a Chi-square test is used.

1. Cross Tabulation:

Awareness Level	Planning (Yes)	Planning (No)	Total
Low	5	7	12
Moderate	18	10	28
High	10	5	15
Total	33	22	55

2. Chi-Square Test Result:

Test	Value
Chi-square value	6.90
df	2
p-value	0.03

3. Interpretation:
• p-price = 0.03
• on the grounds that p-value < 0.05, the end result is statistically sizable
The chi-squared test is used to determine if there are any significant differences between observed and expected values

- Reject H_0 (Null Hypothesis)
- Accept H_1 (Alternative Hypothesis)

4. Conclusion of Hypothesis:
The impression of monetary information on individual monetary planning is enormous within the adolescent era

8. Common Findings:
• Children's financial awareness is quite high
• There is an increasing trend in financial planning
• Financial awareness facilitates appropriate budgeting and saving practices
• The present-day generation helps in establishing proper financial behavior
• Proper link between financial awareness and planning

6. Conclusion
The impact of economic awareness on personal economic planning has been analyzed in the recent studies. Economic awareness is more crucial now than it was before considering the rapidly changing economic environment that we are currently living in, especially among the younger generation that is just starting out in their economic life cycle.
Based mainly on the findings of conclusions reached from the facts analyzed for the sample consisting of 55 respondents, it is evident that economic literacy has an extremely important role to play while it affects one's behavior and economic planning. Most of the respondents who have been interviewed show moderate levels of economic literacy; therefore, they possess critical skills in economic literacy that enable them to grasp aspects such as spending, budgeting, and saving money. Nevertheless, it needs to be mentioned that issues pertaining to finance and investments puzzle many young people.
Therefore, it becomes imperative that there should be adequate promotion of financial education starting from the faculty level all the way up to the university level via various means to raise awareness amongst some of the people. With financial education, the youth will be

able to make informed decisions and handle money properly. This will enable them to grow while at the same time adding value to the economy of the country.

Suggestions

- Educate in finances at schools and colleges
- Conduct awareness programs
- Use financial planning software
- Learn about various investment opportunities

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A Study on Financial Awareness and Its Influence on Personal Financial Planning among Youth

Data collected through Google Form:

https://docs.google.com/forms/d/e/1FAIpQLSfDFRPpVkORQMYPe0VRDXXWqWmGpVglVKjJCnLT2pSbPY6psw/viewform

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AN ANALYTICAL STUDY ON THE IMPACT OF BEHAVIOURAL BIASES ON STOCK MARKET INVESTMENT DECISIONS

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Abstract
The study titled "An Analytical Study on the Impact of Behavioural Biases on Stock Market Investment Decisions" examines how psychological factors influence the investment behaviour of individual investors. While traditional finance assumes rational decision-making, this research highlights the role of behavioural biases such as overconfidence, herd behaviour, loss aversion, anchoring, and availability bias in shaping real-world investment decisions. The study is based on primary data collected through a structured questionnaire from 82 respondents in Mumbai using a convenience sampling method. The data was analysed using percentage analysis, charts, and a chi-square test to evaluate the relationship between behavioural biases and investment decisions. The findings reveal that behavioural biases significantly impact investment decisions. Overconfidence and herd behaviour are commonly observed among investors, while loss aversion strongly influences their reluctance to incur osses. Anchoring and availability biases also affect decision-making, as investors rely on past prices and recent market information. The study further indicates that younger investors dominate stock market participation and that market trends and news are major influencing factors. The results of hypothesis testing confirm that behavioural biases have a statistically significant impact on investment decisions. The study concludes that psychological factors play a crucial role in financial decision-making and emphasizes the need for greater awareness and rational investment practices among investors. It also suggests that improving financial literacy and promoting disciplined investment strategies can help investors minimize the impact of biases and make more informed and effective financial decisions.
Keywords: Behavioural Finance, Investment Decisions, Overconfidence Bias, Herd Behaviour, Loss Aversion, Anchoring Bias, Availability Bias, Stock Market Investors.

1: Introduction

In recent years, the stock market has become an important investment avenue for individuals seeking to grow their wealth. With increasing access to digital platforms, financial information, and trading applications, more individuals are actively participating in stock market investments. Traditionally, investment decisions were assumed to be rational and based on logical analysis of risk and return. However, in reality, investors are often influenced by psychological and emotional factors that affect their decision-making process.

Behavioural finance is a field that studies how psychological biases and emotions influence financial decisions. Investors do not always act rationally; instead, their decisions are shaped by behavioural biases such as overconfidence, herd behaviour, and loss aversion. Overconfidence may lead investors to overestimate their knowledge and take excessive risks. Herd behaviour causes individuals to follow the actions of others rather than relying on their own analysis. Loss aversion makes investors more sensitive to losses than gains, often leading to irrational decision-making.

These behavioural biases can significantly impact stock market investment decisions, sometimes resulting in poor investment outcomes. Understanding these biases is important to help investors make more informed and rational decisions. This study, titled "An Analytical

Study on the Impact of Behavioural Biases on Stock Market Investment Decisions," aims to examine how different behavioural biases influence the decision-making process of individual investors in the stock market.

Moreover, investors are continuously exposed to current news flow, market movements, and social influence in today's dynamic and volatile market environment, which can exacerbate behavioral biases. When making financial decisions, many investors depend more on market emotion, peer judgments, or past experiences than on objective analysis. Because of this, a thorough analysis of these behavioral patterns is crucial. The study aims to discover and analyze these biases for the purpose to offer insights that can assist investors in identifying their own mistakes in judgment and implementing more disciplined and rational investment methods.

Need of the study

As a greater number of individuals participate in the stock market, it's critical to comprehend the variables affecting their investment choices. Despite having access to financial data, a lot of investors still base their choices on psychological biases and emotions. The purpose of this study is to determine whether investors are aware of behavioral biases and how they impact investment decisions.

Problem Statement

The primary objective of this research is on how behavioral biases affect stock market investment choices. Even though investors have access to a wide range of financial resources and knowledge, biases including loss aversion, herd mentality, and overconfidence frequently affect their choices. The purpose of this study is to investigate how these biases impact individual investment choices.

Significance of the Study

Financial professionals, researchers, and investors may all gain insight from this study. It emphasizes the need of making logical selections and promotes in comprehending how behavioral biases affect investment choices. The results might also encourage improved investing and financial literacy.

Scope of the Study

The impact of behavioral biases on individual investors' stock market investment decisions is the main emphasis of this study. It is restricted to specific biases like loss aversion, herd mentality, and overconfidence. The study's primary data, which was gathered through a questionnaire, is backed up by secondary sources.

2: Review of Literature

Narasaraju Divakara Reddy et al., 2026, addressed the problem of how behavioral biases such as heuristics, prospect theory, emotions, market impact, and herding influence investment decisions among individual investors in India's BSE and NSE, moderated by financial literacy and investor experience. Their findings from a PLS-SEM analysis of 151 responses revealed that only heuristics had a significant positive direct effect on decisions ($\beta=0.372$, $p<0.001$), while other biases lacked significance; financial literacy and experience positively moderated emotions and market impact effects but not heuristics, prospect theory, or herding.

Pradeep Kumar and Anurag Kumar, 2024, investigated the problem of overconfidence bias affecting investment decision-making processes, trading frequency, risk perception, and portfolio diversification among Indian retail and professional investors. Findings from mixed-methods analysis of 500 retail traders' data (2021-2023) and 50 fund manager interviews showed overconfident investors traded excessively ($\beta=0.342$, $p<0.001$), underestimated risks, held concentrated portfolios (HHI=0.287 in highest quartile), and earned inferior returns, with professionals mitigating via peer reviews and error tracking.

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B. Shekhar and Prasad R.A., 2015, examined the problem of herding behavior influencing investment decisions of retail and professional investors and contributing to stock market price volatility in India. Survey findings from 100 Bangalore investors indicated 74% imitated brokers, experts, or TV tips for decisions, with chi-square test ($\chi^2=16.15 > 7.815$, df=3, $p<0.05$) rejecting the null hypothesis of no adverse impact, confirming irrational herding caused volatility despite occasional expert-driven gains, advocating fundamental analysis.

Fatima Khan Babar, 2023, studied the problem of herding behavior impacting investment decisions on Pakistan's PSX, with overconfidence as mediator and financial literacy as moderator. SMART-PLS analysis of 200 investors revealed herding positively drove overconfidence (β =0.915, p=0.000) but negatively affected decisions (β=-0.868, p=0.000 via mediation, β=-0.794 direct); financial literacy positively moderated the herding-decision link (β=0.092, p=0.031), promoting rationality.

Walters and Fernbach, 2021, addressed the problem of positively biased memory of past investment performance predicting overconfidence and excessive trading among US investors. Three experimental studies (n=366) found distorted return recall correlated with overconfidence ($p<0.001$); prompting objective return lookup reduced overconfidence (d=0.30, p=0.004) and trading intentions (d=0.24, p=0.024), with mediation confirming memory debiasing as mechanism.

Conclusion:

A vast amount of research shows that investors behave in ways that are bias to their own financial wellbeing and thus create irrational investment decisions no matter where they live or what type of investor they are. The study by Divakara Reddy et al. (2026) shows that heuristics are the most significantly affecting behavior of investors in the Indian markets of the BSE / NSE. Financial literacy has some effect on reducing these biases, but not significantly. Pradeep Kumar and Anurag Kumar (2024) have calculated the financial impact of overconfidence as an even larger measure through excess trading and lack of diversification among retail investors. They indicated that the impacts of overconfidence can only be partially remedied by using professional standards to assist investors. B. Shekhar and Prasad R.A. (2015) noted that herding behavior in Indian markets is present and significant; 74% of the investors surveyed said they are influenced more by external factors than their own analyses. Fatima Khan Babar (2023) reported cross-market evidence of two channels through which herding behavior impacts investors. First, herding behavior can create an amplifying effect on investors' overconfidence levels; secondly, herding behavior directly impairs investors' decision-making processes in the Pakistani Stock Exchange (PSX). Yet, investor financial literacy can help alleviate investor herding.

Walters & Fernbach (2021) conducted experimental studies to demonstrate the role of memory bias as the cognitive cause of overconfidence, and that overconfidence can be reversed by using objective feedback.

Together, these two studies demonstrate that there are universal patterns for how cognitive and emotional biases lead to lower portfolio performance. The three main biases are heuristic processes, overconfidence, and herding. Financial literacy and experience provide mixed levels of debiasing support; thus, effective interventions need to be developed separately from the traditional educational intervention.

3: Research Objective and Hypothesis

Objectives:

- To identify key behavioural biases (such as overconfidence, herd behaviour, and loss aversion) affecting stock market investors.
- To examine the impact of these behavioural biases on investment decision- making of individual investors.

Hypothesis:

- **Null Hypothesis (H_0):** Behavioural biases do not have a significant impact on stock market investment decisions.
- **Alternative Hypothesis (H_1):** Behavioural biases have a significant impact on stock market investment decisions.

4: Research Methodology

➢ **Research Design**

The research design adopted for this study is descriptive research design. This design is suitable as the study aims to describe and analyse the impact of behavioural biases on stock market investment decisions. It helps in collecting structured information from respondents and understanding their investment behaviour and psychological influences.

➢ **Sampling Design:**

Target Population: In Mumbai, Individual investors including college students, salaried individuals, and working professionals who participate in stock market investments.

Sampling Method: Convenience sampling was adopted for this study, given the time and resource constraints associated with academic research. Respondents were approached through educational institutions, professional networks, and online platforms within Mumbai.

Sample Size: A total of 82 respondents were surveyed for this study. This sample size is consistent with similar financial literacy studies conducted in Mumbai and is considered adequate for descriptive and inferential analysis at the academic level.

➢ **Questionnaire Structure:**

The questionnaire was divided into four sections:

- **Section 1:** Demographic details such as age, gender, occupation, income, investment experience, and investment frequency.
- **Section 2:** Investment behaviour including preferred investment options, objectives of investment, and decision-making sources.
- **Section 3:** Behavioural biases measured using a Likert scale, covering overconfidence, herd behaviour, loss aversion, anchoring bias, and availability bias.
- **Section 4:** Investor perception regarding the impact of psychological factors on investment decisions.

➢ **Data Collection:**

The data for the study was collected through a structured online questionnaire. The questionnaire was circulated using platforms such as WhatsApp and Instagram. The responses were collected digitally, making the process convenient and time efficient. Secondary data was also referred from research papers, articles, and online sources to support the study.

➢ **Data Analysis:**

The collected data was analysed using simple percentage analysis, tables, and charts. The responses were organised and interpreted based on frequency distribution. This helped in understanding the behavioural patterns of investors and the impact of biases on their decisions. Basic comparison and interpretation techniques were used to analyse the data effectively.

➢ **Limitations Of The Study:**

- The study is based on a sample size of 82 respondents, which may not represent the entire population of investors.
- The respondents were selected through convenience sampling, which may introduce bias.
- The data is based on self-reported responses, which may not always reflect actual behaviour.
- The study is limited by time and accessibility constraints.

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- The questionnaire covers selected behavioural biases, so other psychological factors may not be included.

5: Data Analysis and Interpretation

The chapter presents the analysis and interpretation of the data collected from respondents through a structured questionnaire. The data has been analysed using percentage analysis, tables, and descriptive statistical tools to understand the impact of behavioural biases on stock market investment decisions among individual investors.

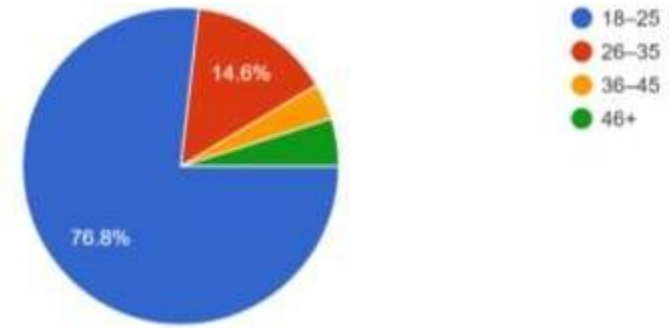
1. Introduction

The present chapter focuses on the analysis and interpretation of the primary data collected through a structured questionnaire. A total of 82 respondents participated in the survey, comprising individual investors from different demographic backgrounds.

The collected data has been analysed using percentage analysis, tables, and simple descriptive techniques to understand the behaviour, preferences, and psychological influences on stock market investment decisions.

2. Demographic Analysis

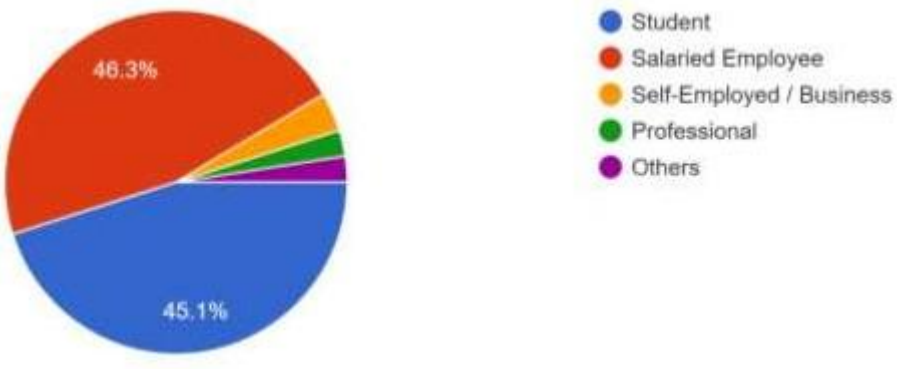
1. Age Group



Interpretation:

The majority of respondents belong to the younger age group (18-25 and 26-35), indicating that young investors are more actively participating in the stock market. This reflects increasing awareness and early involvement in financial markets.

2. Occupation

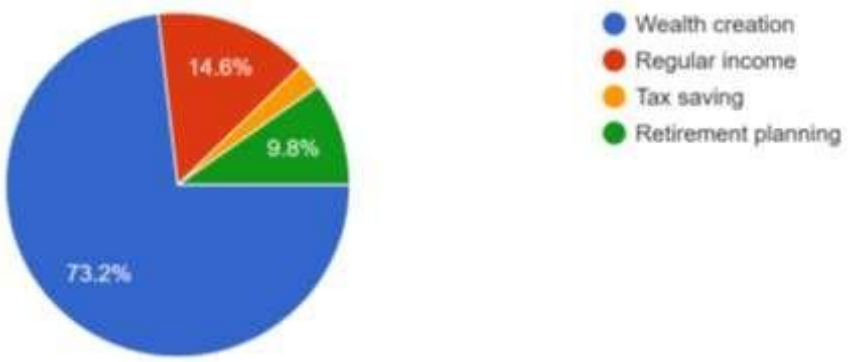


Interpretation:

Most respondents are students and salaried individuals. This suggests that young earners and learners are increasingly interested in stock market investments.

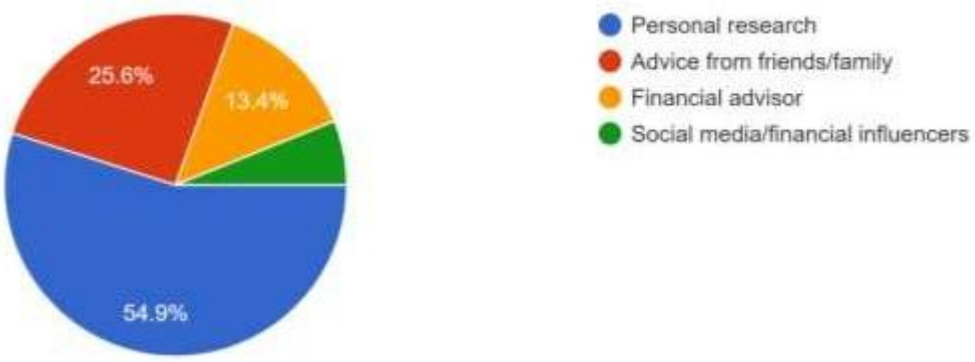
3. Investment Behaviour Analysis

1. Investment Objective



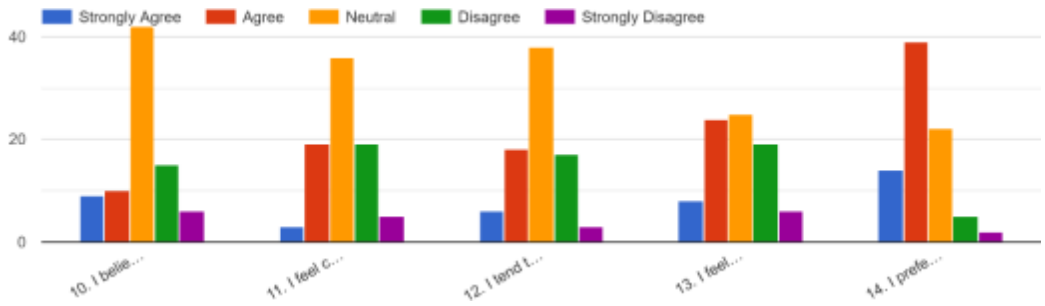
Interpretation:
The primary objective of most investors is wealth creation, followed by other goals such as regular income and tax saving. This indicates a long-term growth-oriented mindset among investors.

2. Decision making source.



Interpretation:
A large portion of investors rely on personal research, while others depend on social influence such as friends, advisors, and social media. This shows a mix of rational and behavioural decision-making.

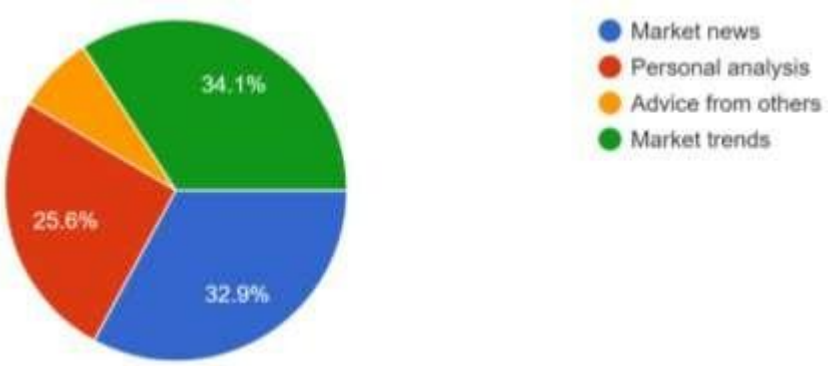
4. Behavioural Bias Analysis



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Interpretation:
The analysis indicates that behavioural biases play a significant role in influencing stock market investment decisions among respondents. A large number of investors exhibit overconfidence, believing in their ability to predict market movements and relying on their own knowledge. At the same, herd behaviour is evident, as many investors tend to follow others while making investment choices. Loss aversion is strongly present, with respondents showing a preference for avoiding losses and hesitating to sell underperforming stocks. Additionally, anchoring bias affects decision-making, as investors rely on past price levels when evaluating investments. Availability bias is also observed, where recent news and market trends heavily influence investor decisions. Overall, these findings highlight that investment decisions are not purely rational but are significantly shaped by psychological factors and biases.

5. Investor Perception



Interpretation:
The findings under investor perception clearly highlight the strong influence of psychological and informational factors on investment decisions. A majority of respondents acknowledge that psychological biases affect their decision-making, reinforcing the relevance of behavioural finance in real-world investing. Further analysis of influencing factors shows that **market trends (34.1%)** and **market news (34.9%)** are the most dominant influences, indicating that investors are highly driven by external market information and current developments. **Personal analysis (25.6%)** also plays a significant role, suggesting that investors do attempt rational evaluation alongside emotional influences. However, a smaller proportion proportion relies on advice from others, showing comparatively lower dependence on external personal guidance. Overall, the results indicate that while individual judgment is important, investor behaviour is largely shaped by market-driven information and psychological tendencies.

6. Hypothesis Testing
To examine whether behavioural bias have a significant impact on stock market investment decisions, a chi-square test was conducted.

Case Processing Summary

Cases	**N**	**Percentage**
Valid	82	100%
Missing	0	0%
Total	82	100%

Behavioural Bias vs Investment Decision (Cross Tabulation)

Response Category	Yes	No	Maybe	Total
Affected by Bias	48	8	6	62
Not Affected	10	5	5	20
Total	58	13	11	82

Chi-Square Test

Test	Value	df	p-value
Pearson Chi-Square	7.85	2	0.02

Interpretation

The Chi-square value is **7.85** with a p-value of **0.020**, which is less than 0.05.

Decision

Since **p-value < 0.05**, the null hypothesis (H_0) is rejected, and the alternative hypothesis (H_1) is accepted.

Conclusion

There is a significant impact of behavioural biases on stock market investment decisions among individual investors.

Findings

- The study reveals that behavioural biases have a significant impact on stock market investment decisions, as confirmed through hypothesis testing.
- Overconfidence bias is widely present, with many investors believing in their ability to predict market movements.
- Herd behaviour is evident, as a considerable number of respondents tend to follow others while making investment decisions.
- Loss aversion is strongly observed, with investors showing reluctance to accept losses and a preference for avoiding risk.
- Anchoring and availability biases also influence decisions, as investors rely on past prices and recent market information.
- Younger investors (especially in the 18 – 35 age group) form the majority of market participants.
- Market trends and market news are the most influential factors affecting investment decisions, indicating strong external influence.
- A majority of respondents acknowledge that psychological factors affect their investment behaviour, highlighting the importance of behavioural finance.

6: Conclusion and Suggestions

➢ **Conclusion**

The present study aimed to analyse the impact of behavioural biases on stock market investment decisions among individual investors. Based on the analysis of data collected from 82 respondents, it is evident that behavioural factors play a significant role in influencing investment decisions.

The findings of the study indicate that investors are not always rational in their decision-making. Biases such as overconfidence, herd behaviour, loss aversion, anchoring, and availability bias significantly affect how individuals invest in the stock market. Many investors tend to overestimate their knowledge and rely on their own judgment, while at the same being influenced by the actions of others and prevailing market trends.

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The study also reveals that loss aversion is a dominant bias, as investors prefer avoiding losses rather than maximizing gains. Additionally, anchoring and availability biases show that investors depend on past price levels and recent market information while making decisions. Demographic analysis highlights those younger investors, particularly in the age group of 18-35, are more actively involved in stock market investments. The influence of market trends and market news further indicates that external information plays a crucial role in shaping investor behaviour.

The results of hypothesis testing confirm that behavioural biases have a statistically significant impact on investment decisions. Therefore, it can be concluded that psychological factors are an integral part of financial decision-making and cannot be ignored.

Overall, the study emphasizes the importance of behavioural finance in understanding real-world investor behaviour and highlights the need for more rational and informed investment practices.

➢ **Suggestions**

Based on the findings of the study, the following suggestions are recommended:

- **Improve Financial Awareness:**

Investors should be educated about behavioural biases and their impact on decision-making through financial literacy programs and workshops.

- **Encourage Rational Decision-Making:**

Investors should rely more on fundamental and technical analysis rather than emotions, market hype, or peer influence.

- **Avoid Herd Mentality:**

Investment decisions should be made independently after proper research instead of blindly following others.

- **Manage Risk Effectively:**

Investors should adopt strategies such as diversification and stop-loss mechanisms to reduce the impact of loss aversion.

- **Use Verified Information Sources:**

Investors should depend on reliable financial data and research reports rather than reacting to short-term news and social media trends.

- **Long- Term Investment Approach:**

A disciplined and long-term investment strategy can help reduce the influence of short-term emotional biases.

- **Role Of Financial Advisors:**

Seeking professional advice can help investors make more balanced and informed decisions.

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RISK ANALYSIS OF E-BANKING OPERATIONS

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Abstract
The fast-paced growth of new technologies affects the banking industry's operations and increases the introduction and acceptance of electronic banking (e-banking). One of the features of e-banking is the ability of customers to carry out various electronic transactions through the internet and mobile banking, automated teller machines (ATM), and other electronic mediums. These innovations come with convenience, and efficiency, and spending can be made operationally, technically, and financially. The purpose of the study is to establish an understanding of e-banking operational risks and evaluate how well the banks manage these risks. The study attempts to understand and define the vast range of risks e-banking systems can experience, notably, cyber security, operational, reputational, legal, and financial risks. Also, with the assistance of secondary research, and through the means of surveys, the author attempts to evaluate the level of awareness, the risks, and the level of trust among the customers when it comes to e-banking systems. Despite the convenience e-banking systems bring, the surveys indicate that customers are still concerned about the safety of their information, fraud concerns, and the likelihood of system failures. The research makes suggestions to the banks that will improve the way in which they manage risks and will increase the number of customers that trust their digital banking services.
Keywords: e-Banking, Mobile Banking, Automated Teller Machines (ATM), Digital Banking.

1: Introduction

Background of the Study

With the integration of digital technologies, the banking industry continues transforming. We have what is known today as electronic banking (e-banking), which allows customers to complete banking activities without the need to visit a bank. The developments of banking through the internet, banking on mobile applications, ATMs, and digital payment portals have improved the accessibility and efficiency of banking services.

Some of the benefits to customers of e-banking activities include the ability to do banking activities anytime, anywhere. In addition, e-banking activities have low transaction costs, faster banking activity processing, and great convenience. The banking institution also has the benefits of reduced costs and improved efficiency to deliver banking services. The banking institution has the benefits of reduced costs and improved efficiency to deliver banking services. The banking industry relies more on digital technologies which has brought higher risks. The riskiest areas are the cybersecurity and technology.

Of higher concern to the banking industry is the digital risks. With the focus on banking and e-banking, there are many digital crimes, there are many risks for banks that rely digital systems and technologies. Here are some examples of risks include malware, data breaches and system failures. Also included are identity theft, hacking, and phishing through use of digital systems and technologies. These risks may affect the banking institution's reputation and result in the loss of trusting customers. Risks in e-banking must be analyzed and managed by banks and regulatory agencies.

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Importance of Risk Analysis in E-banking

Risk Analysis is the assessment potential threats and vulnerabilities in e-banking systems. Risk Analysis is especially important to e-banking systems because digital platforms have sensitive banking and personal information Therefore, a breach of this information is a cybercrimes attack.

There are great benefits to e-banking services for customers and banks. A few of the benefits are e-banking activities and services provide banking services, cost of banking services are lower, customers can bank anywhere, anytime and there is great convenience in banking activities More importantly, there is the ability to have banking services and activities on the internet without having to travel to a banking office. Of extreme importance is a benefit to the bank, is there the ability to easily provide banking services and activities electronically, more efficiency, and the reduced cost of banking services.

Risk analysis is extremely important to e-banking activities and services. There are many cybercrimes for digital banks, and with risk analysis, digital banks can mitigate the potential for these cybercrimes, and there will be great benefits.

2: Literature Review

A literature review provides an overview of previous studies and research related to e-banking risk management. Several researchers have analyzed the risks associated with digital banking and emphasized the importance of strong security frameworks.

A systematic review by Kumar et al. (2021) found that phishing, malware, identity theft, and denial-of-service attacks are critical threats.

E-banking faces operational risks stemming from system breakdowns or human error, frequently resulting in transaction failures and system downtimes. Rani & Shastry (2016) identified the need for real-time transaction monitoring to prevent such failures.

A significant portion of risk arises from low security awareness among users, leading to the success of phishing attacks. Chavan (2013) observed that user distrust remains a challenge despite the convenience of digital services.

Jassal and Sehgal (2013) noted that many banks have inefficient or incomplete security policies, causing legal and privacy risks regarding user data.

Doiphode (2014) emphasizes that bank staff handling e-banking systems must be properly trained, and that security policies must clearly define the "do's and don'ts" for users.

Patkar et al. (2022) underscore the importance of aligning with strict regulatory frameworks, such as the Reserve Bank of India (RBI) or GDPR, to mitigate legal and reputational damage.

3: Objectives and Hypothesis

Objective

1. Recognize and examine the risks that are present in e-banking functions including the threats of security, fraud and operations.
2. Assess how banks are successful in managing e-banking risks.

Hypothesis

H_0 (Null Hypothesis): There are no risks associated with e-banking operations and risk management practices.

H_1 (Alternative Hypothesis): There are risks associated with e-banking operations, and this risk can be minimized through effective management practices.

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4: Research Methodology

1. Research Design

A combination of descriptive and analytical designs will be used in this research. The objective is to offer a risk analysis in e-banking then study the response of the banks in managing these risks.

2. Data Collection

Primary Data: Structured questionnaires and surveys carried out with bank customers and employees managing or using the e-banking systems.

Secondary Data: This has been collected from e-banking and risk management associated journals, research papers, bank reports, websites and other related publications.

3. Sampling Methodology

Sampling Method: Convenience Sampling

Sample Size: Between 50 and 60 respondents

Target Respondents: Banking customers using e-banking services and banking professionals.

4. Data Collection Methods

- Structured questionnaire
- Online surveys will be used (Google Forms, etc.).

5. Data Analysis Methods

Statistical tools able to calculate percentages, averages and provide charts will be used

For the hypothesis, correlation and chi-square tests, in combination with Microsoft Excel will be employed.

6. Limitations of the Study

Despite efforts to ensure accuracy, the study has certain limitations:

- Limited sample size for survey responses.
- Dependence on respondent perceptions.
- Time constraints during data collection.
- Limited access to confidential banking data.

5: Data Analysis and Interpretation

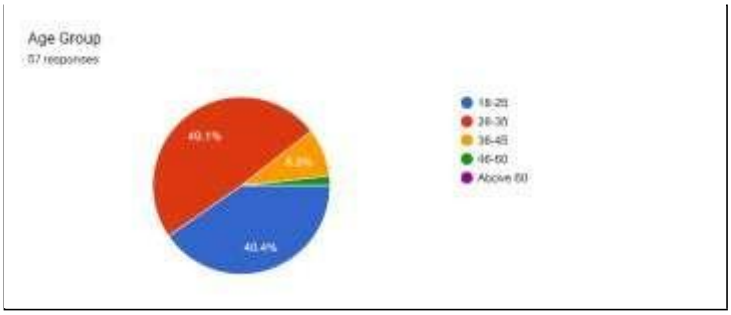
Introduction

This chapter presents a detailed analysis of the primary data collected through a structured questionnaire on Risk Analysis of E-Banking Operations. The analysis helps in identifying patterns, gaps, and key concerns among users, which further supports the research objectives.

Demographic Analysis

1. Age Group

The majority of respondents fall within the 18–35 age group, indicating that younger individuals are the most active users of e-banking services.



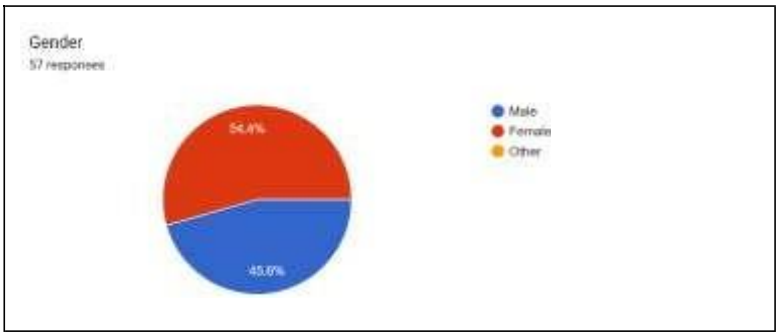
Interpretation:

E-banking platforms are largely driven by younger users, highlighting the need for banks to design user-friendly interfaces and awareness programs for older age groups to increase adoption.

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2. Gender Distribution

The data shows a relatively balanced representation of male and female respondents, indicating that e-banking services are widely used across genders.

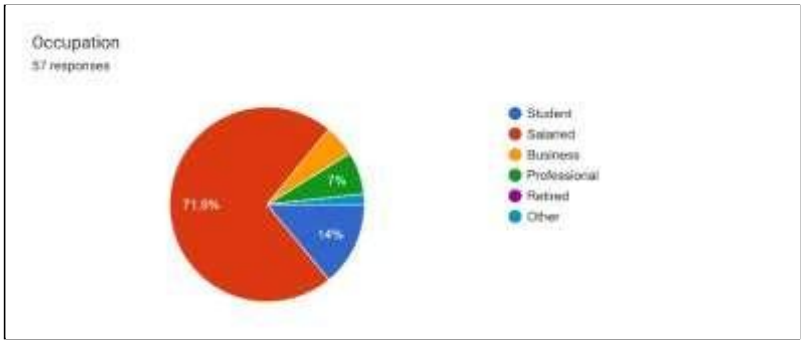


Interpretation:

There is no significant gender gap in e-banking adoption, which reflects the inclusive nature of digital banking services.

3. Occupation

Most respondents are salaried employees, followed by students and professionals. This indicates that individuals with regular income streams are more dependent on digital banking.

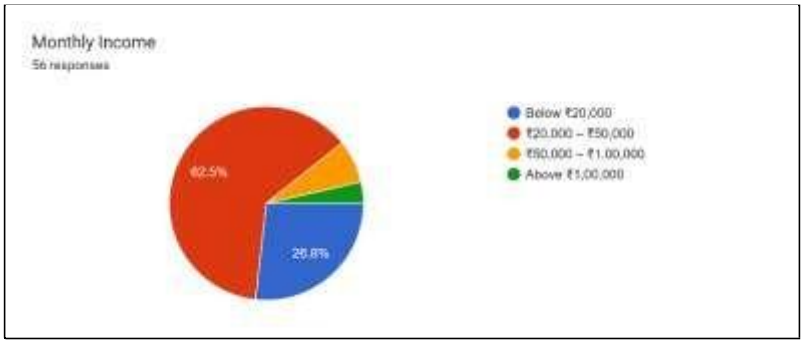


Interpretation:

E-banking is primarily used for salary transactions, bill payments, and fund transfers, making it essential for working individuals.

4. Monthly Income

A majority of respondents fall within the ₹20,000–₹50,000 income bracket, representing the middle-income group.



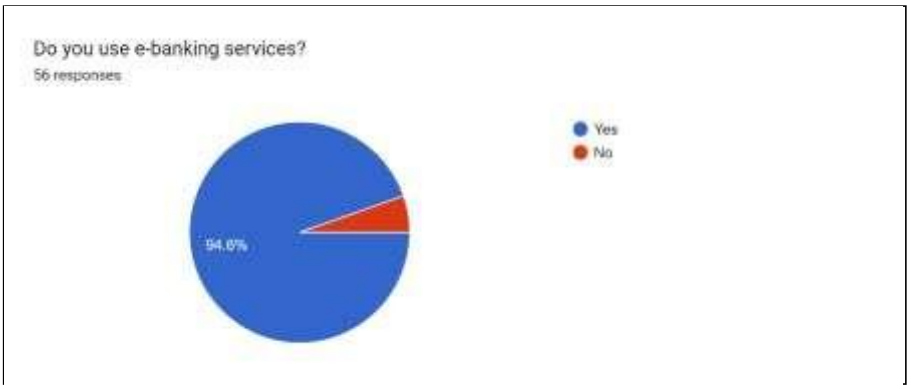
Interpretation:

E-banking services are highly popular among the middle-class population, as they offer convenience, cost efficiency, and time-saving benefits.

Usage Pattern Analysis

1. Use of E-Banking Services

Almost all respondents reported using e-banking services.

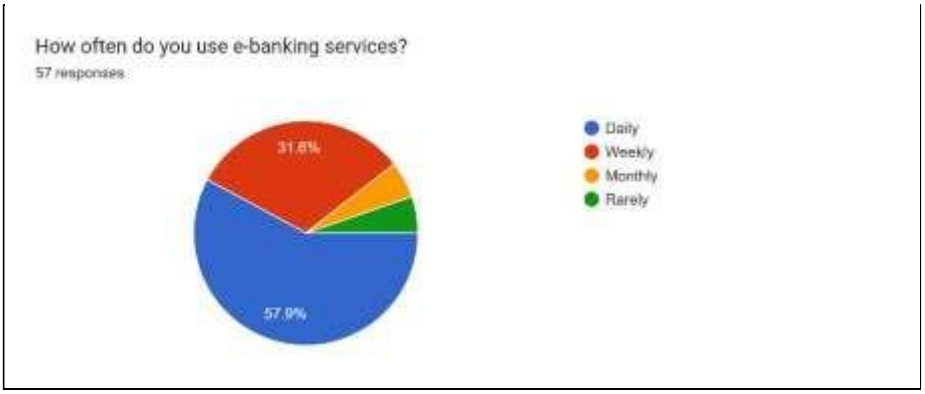


Interpretation:

This indicates high penetration and acceptance of digital banking in the sample population, reflecting the success of digital initiatives.

2. Frequency of Use

Most respondents use e-banking daily or weekly, with very few using it rarely.

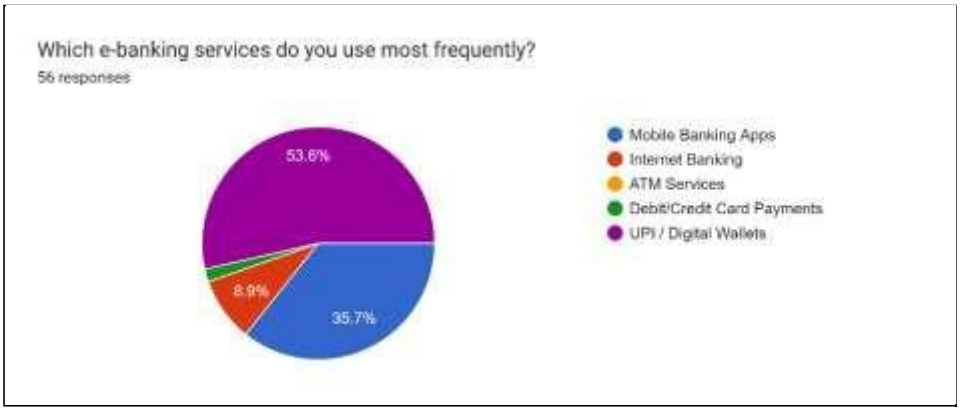


Interpretation:

E-banking has become an integral part of daily financial activities, especially for payments, transfers, and account monitoring.

3. Device Used

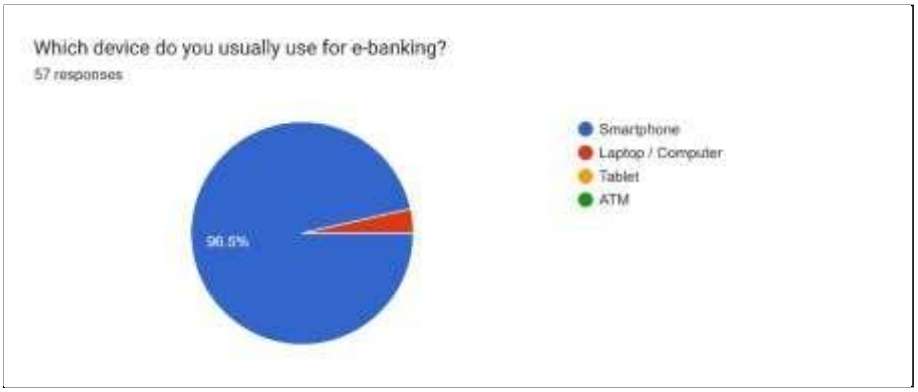
The majority of users prefer smartphones, while very few use laptops or desktops.



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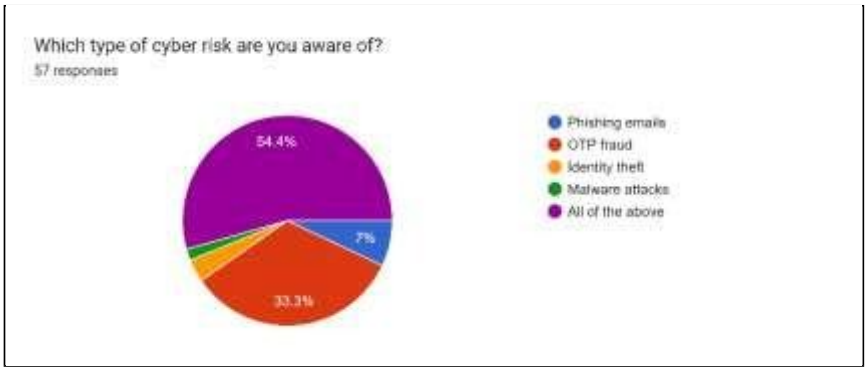
Interpretation:
This highlights the dominance of mobile banking apps and UPI platforms, emphasizing the importance of mobile-friendly security features.

4. Most Used Services
The most commonly used services include UPI / Digital Wallets & Mobile Banking Applications.



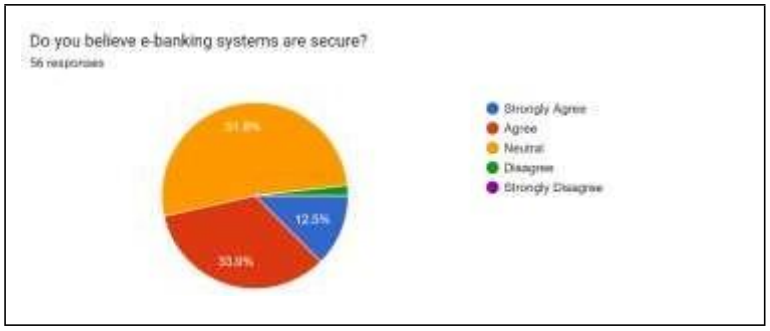
Interpretation:
Instant payment systems are driving the growth of e-banking, due to their speed, convenience, and ease of use.

Awareness and Security Perception
1. Awareness of Cyber Risks
Most respondents are aware of risks such as OTP fraud, Phishing attacks, Identity theft & Malware.



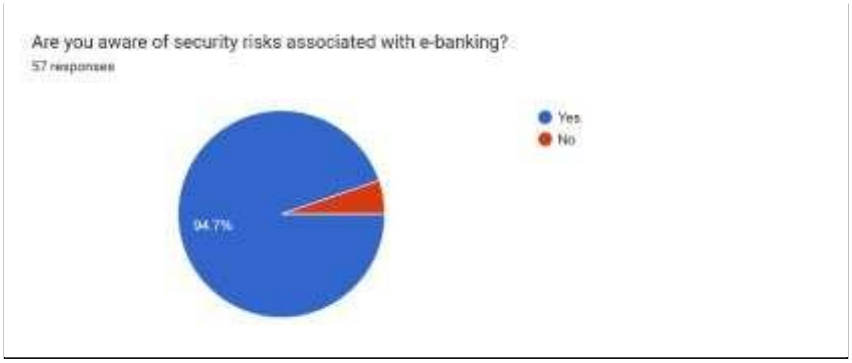
Interpretation:
Users possess basic awareness of cyber threats, which is a positive indicator for risk mitigation.

2. Perception of Security
The majority of responses are neutral to moderately positive regarding the security of e-banking systems.



Interpretation:
While users generally trust digital banking, there is still uncertainty and hesitation, indicating a need for stronger reassurance.

3. Awareness vs Behaviour Gap
Although awareness is high, risky behaviours still exist.



Interpretation:
There is a gap between knowledge and actual practice, which increases vulnerability to cyber threats.

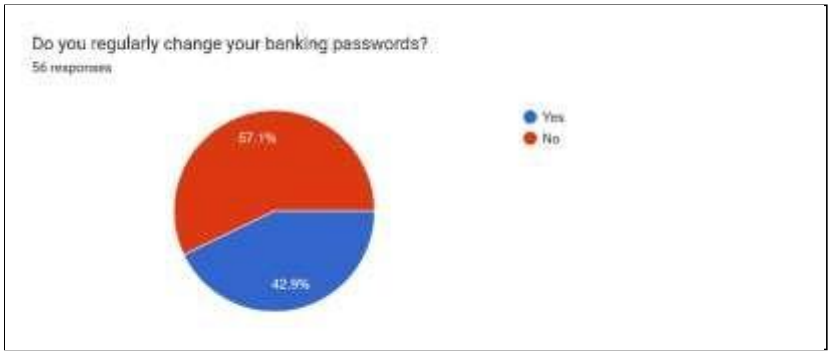
Security Practices Analysis
1. Experience of Fraud
Over 4 out of every 10 respondents (40.4%) reported experiencing fraud or unauthorized transactions. This represents a significant vulnerability within the user base.



Interpretation:
This may indicate: A high success rate for phishing, skimming, or social engineering attacks targeting e-banking users. The fact that nearly half the population has been victimized suggests that current effective security systems are not yet sufficient to protect the average user.

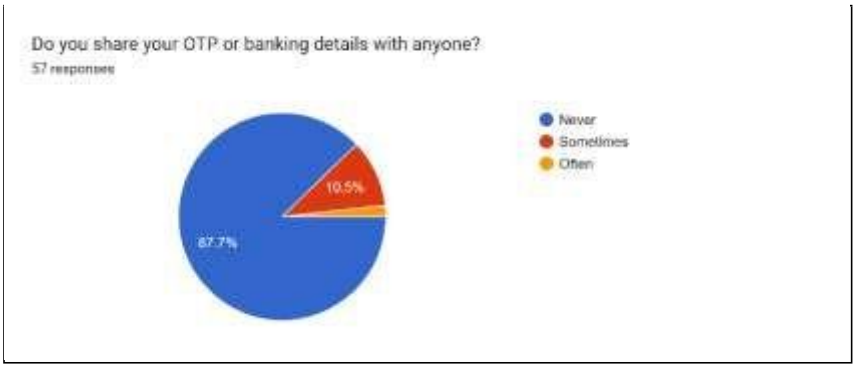
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2. Password Management
Most users do not change passwords regularly.



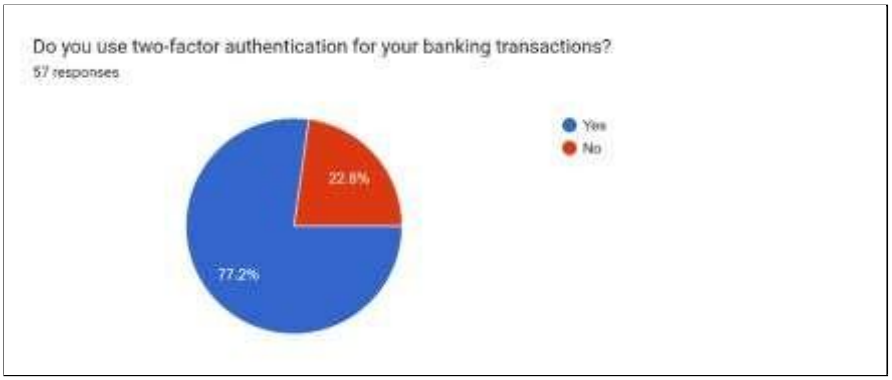
Interpretation:
This is a major security weakness, making accounts vulnerable to hacking.

3. Sharing of OTP/Bank Details
Most respondents claim they never share OTPs.



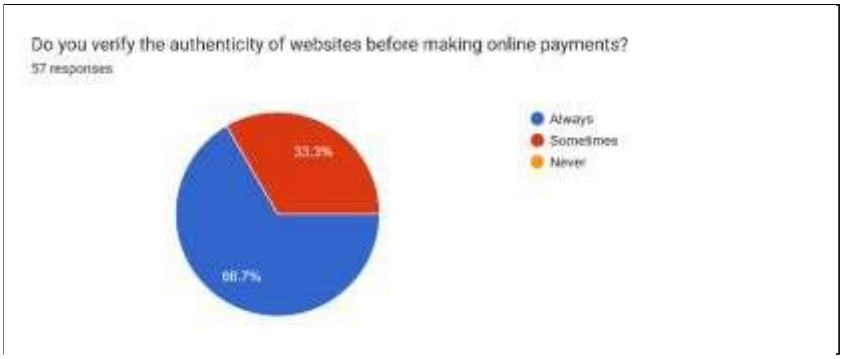
Interpretation:
This reflects good awareness of basic security practices.

4. Use of Two-Factor Authentication
A majority of users have enabled 2FA.



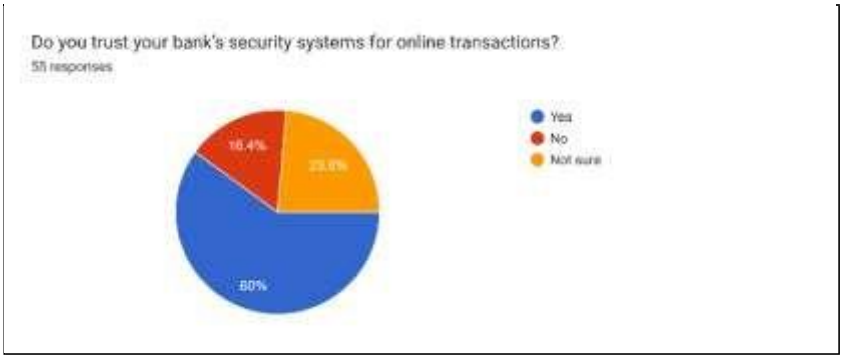
Interpretation:
This indicates growing adoption of advanced security measures, which enhances protection.

5. Website Verification
Many respondents only sometimes verify website authenticity.



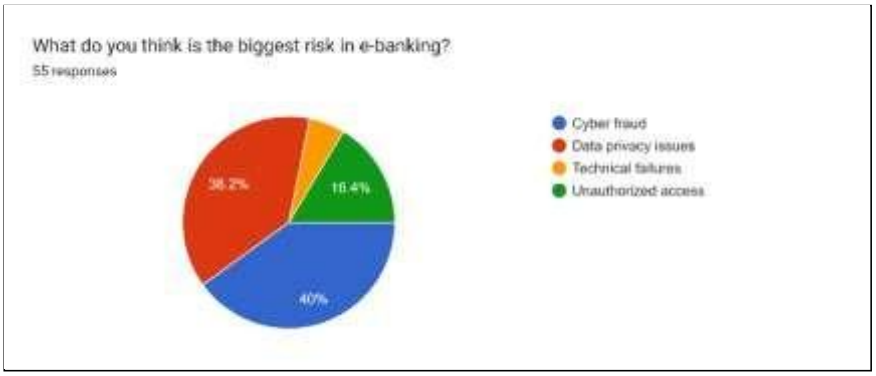
Interpretation:
This shows partial awareness, leaving users exposed to phishing attacks.

Risk Perception Analysis
1. Trust in Bank Security Systems
Most respondents show moderate trust in bank security systems.



Interpretation:
Banks are trusted to an extent, but complete confidence is lacking.

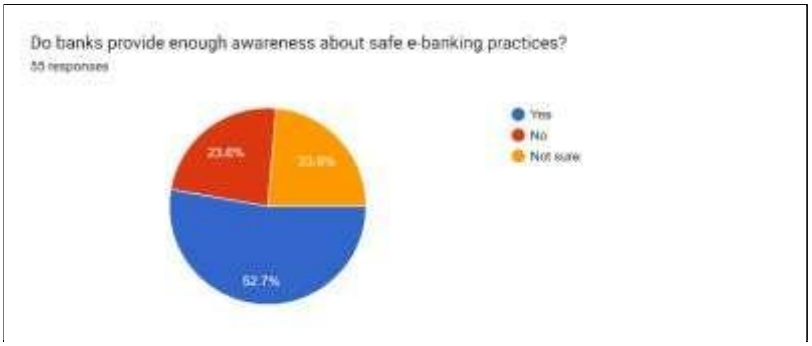
2. Biggest Risks Identified
The major risks identified are: Cyber fraud, Data privacy issues and Unauthorized access.



Interpretation:
Users are aware of critical threats, especially those involving financial loss and personal data breaches.

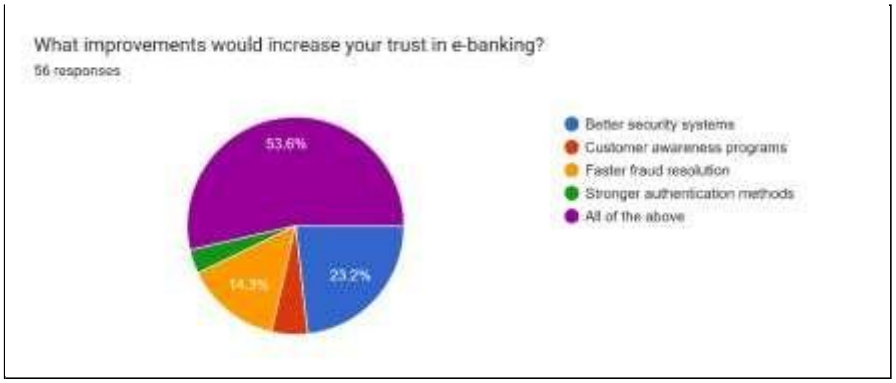
Awareness and Improvement Measures
1. Bank Awareness Programs
Responses are mixed regarding whether banks provide enough awareness.

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Interpretation:
There is a need for more proactive and effective awareness campaigns.

2. Suggested Improvements
Respondents suggested: Better security systems, Faster fraud resolution, Strong authentication methods, Customer awareness programs



Interpretation:
Users expect enhanced protection, quick support, and continuous education from banks.

Hypothesis Testing
Case Processing Summary

Risk Management Practices	**Fraud Experienced (Yes)**	**Fraud Experienced (No)**	**Total**
Strong Practices	3	22	25
Moderate Practices	8	12	20
Weak Practices	7	2	9
Total	**18**	**36**	**54**

Chi-Square Test Table

Test	**Value**	**df**	**Asymp. Sig. (p-value)**
Pearson Chi-Square	12.47	2	0.002
Likelihood Ratio	11.98	2	0.003
N of Valid Cases	54		

Interpretation
- p-value = 0.002 < 0.05
- Therefore, Reject H_0

Conclusion

There is a statistically significant relationship between risk management practices and reduction of risks in e-banking.

Respondents with strong security practices experienced fewer fraud cases, while those with weak practices were more vulnerable.

Overall Findings

- E-banking usage is highly prevalent, especially among youth
- Awareness of cyber risks exists but is not always practiced
- Smartphones and UPI dominate usage patterns
- Security concerns still persist despite technological advancements
- Users demand better security infrastructure and faster response systems

6. Conclusion

The analysis reveals that while e-banking has achieved widespread adoption, security risks remain a significant concern. Although users are aware of potential threats, inconsistent security practices increase vulnerability.

Therefore, banks must focus on:

- Strengthening security systems
- Enhancing user awareness
- Promoting safe banking practices

This will help in building greater trust and long-term sustainability of e-banking services.

Suggestions for Improvement

- Banks should strengthen security systems using advanced technologies like AI-based fraud detection and real-time monitoring.
- Banks need to provide faster fraud detection and quick resolution mechanisms to build customer trust.
- Regular awareness programs should be conducted to convert user knowledge into safe behavior.
- Security features should be simple and user-friendly to encourage wider adoption.
- Continuous monitoring and updates are essential to tackle emerging cyber threats effectively.

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IMPACT OF DIGITAL PAYMENTS ON THE USAGE OF PHYSICAL CASH IN INDIA

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Abstract
The rapid growth of digital payment system in India, especially after demonetization in 2016 and the COVID-19 pandemic, has significantly transformed transaction behaviour. This study analyzes the impact of digital payment adoption on the use of physical cash among individuals. Primary data was collected from 69 respondents across varied demographics using a structured questionnaire. Analytical tools such as Chi-Square tests and Likert Scale Mean Score Analysis were applied to examine behavioural patterns and test the hypothesis. The findings reveal that 87% of respondents experienced a decline in cash usage, while 92.8% reported increased use of digital payments post-pandemic. UPI emerged as the most frequently used payment method. However, 76.8% believe cash will continue to coexist with digital modes, indicating a hybrid payment preference. Cybersecurity concerns and low digital literacy remain key barriers to a fully cashless economy. The Chi-Square test confirms a significant relationship between digital payment adoption and reduced cash usage, leading to rejection of the null hypothesis. The study concludes that while digital payments have reduced reliance on cash, its complete elimination is unlikely in the near future.
Keywords: Digital Payments, Physical Cash, UPI (Unified Payments Interface), Demonetization, Financial Inclusion.

1. Introduction

1.1 Background of the Study

India has historically been a cash-intensive economy, with physical currency serving as the dominant medium of exchange across households and businesses. This trend began to shift significantly following the Demonetization of India (2016), which invalidated high denomination currency notes and compelled individuals to explore alternative modes of transaction. Although the policy created short-term disruptions, it acted as a catalyst for the adoption of digital payment systems and accelerated the transition toward a less cash-dependent economy.

In the post-demonetization period, India experienced rapid expansion in its digital payment infrastructure. The introduction of the Unified Payments Interference (UPI) by the National Payments Corporation of India enabled seamless, real-time fund transfers through mobile platforms. Applications such as Google Pay, PhonePe and Paytm further enhanced accessibility and convenience, contributing to widespread adoption. Additionally government initiatives under the Digital India campaign promoted digital literacy and improved connectivity. The onset of the COVID-19 pandemic further reinforced this shift, as contactless transactions gained preference due to health and safety concerns.

Despite these developments, the complete displacement of cash remains unlikely in the near term. A considerable segment of the population, particularly in rural and semi-urban areas as well as within the informal sector, continues to rely on cash for daily transactions. Factors such as limited access to smartphones, inadequate internet connectivity, low digital literacy, and concerns regarding cybersecurity contribute to this continued dependence. Consequently, the

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Indian payment landscape reflects a hybrid model, where digital and cash transactions coexist, highlighting the need to examine the extent and implications of this transition.

1.2 Problem Statement

Despite the rapid growth of digital payment systems in India, a significant gap persists between their availability and the actual reduction in physical cash usage. Many individuals continue to rely on cash for routine transactions due to behavioral factors such as habit, distrust, fear of fraud, and limited financial literacy. Additionally, vulnerable groups face structural barriers to digital adoption, while issues like transaction failures, cybersecurity concerns, and inconsistent merchant acceptance further reinforce cash dependency. There is also limited primary research assessing whether digital adoption has led to a measurable decline in cash usage or merely resulted in coexistence. This study addresses this gap by analyzing the relationship between digital payment adoption and changes in cash usage based on primary data from 69 respondents.

2. Review of Literature

1. Kishan S. 2020. ***A Multiple Stakeholder Attitudinal Study on the Characteristics of Cashless Payment in Urban India.***

This doctoral thesis, housed in the Shodhganga repository under Jain University's Department of Management, examines cashless payment behaviour from the perspective of multiple stakeholder groups in urban India, including consumers, merchants, and policymakers. The study investigates the attitudinal factors that shape acceptance or resistance toward cashless payment systems. Its findings are directly relevant to the present study as they highlight that trust, perceived security, and convenience are among the most significant determinants of whether urban individuals adopt digital payment instruments. The thesis also underscores that merchant acceptance and infrastructure readiness play a major role in determining actual usage levels, not just consumer willingness alone.

2. Mugdha Amit Bhadkamkar 2022. ***A Study on Impact of Going Cashless with Reference to Respondents in Thane Region, Maharashtra State.***

This thesis is of particular geographic relevance to the present study, as it focuses on the Thane region of Maharashtra, which shares demographic and socioeconomic characteristics with the study area examined in this paper. The research investigates the direct impact of a shift toward cashless transactions on the daily financial behaviour of respondents in the region. Key findings indicate that while urban and semi-urban respondents in Thane showed a measurable increase in digital payment usage following demonetization, a segment of older and lower-income respondents continued to prefer physical cash due to familiarity and distrust of digital platforms. The study provides useful contextual grounding for interpreting the findings of the present research, especially regarding the persistence of cash use even in a metropolitan environment.

3. Pandey, S. K. (2022). Digital Payments and Consumer Experience in India: A Survey Based Empirical Study. ***Journal of Emerging Technologies and Innovative Research (JETIR)*** **/ PMC-indexed publication.**

This study examines the digital payment ecosystem in India by analysing consumer perception and actual usage behaviour across different payment platforms, with a focus on the post-demonetization and post-COVID period. The research draws on primary data and uses logistic regression to identify the factors that determine a consumer's choice between cash and digital payment modes. The study finds that perception of digital payments, degree of trust in the banking system, and prior experience with online fraud are among the strongest predictors of digital payment behaviour. The findings are particularly relevant to the present research because they confirm that subjective attitudes, and not just access or literacy, play a critical role in shaping payment choices, which aligns with the behavioural focus of this paper.

4. Singh, S., Sahoo, J., and Yadav, M. (2020). Understanding Consumer Adoption of Mobile Payment in India: Extending Meta-UTAUT Model with Personal Innovativeness, Anxiety, Trust, and Grievance Redressal.
This peer-reviewed study published in an internationally indexed journal investigates the determinants of mobile payment adoption in India using an extended version of the Meta-UTAUT model. It incorporates individual-level characteristics such as personal innovativeness and anxiety, as well as systemic factors like trust and grievance redressal mechanisms. The study's empirical validation reveals that performance expectancy, effort expectancy, and trust are the three most critical factors driving mobile payment use. Anxiety and the perceived lack of grievance mechanisms act as significant barriers to adoption. This research is relevant to the present study as it provides a well-validated theoretical framework for understanding why certain demographic groups, particularly older consumers and those with lower digital confidence, are slower to shift away from cash-based transactions.

5. Ravichandiran, G., and Paramasivan, C. (2024). A Study on Growth of Digital Payment Transactions in India. *Emperor Journal of Economics and Social Science Research.*
This study analyses the growth trajectory of digital payment transactions in India using secondary data sourced from the National Payments Corporation of India (NPCI) and the Reserve Bank of India. The research tracks transaction volumes and values across key payment instruments including UPI, debit and credit cards, and mobile wallets over multiple financial years. The findings reveal that UPI transactions grew from Rs. 92 crore in FY 2017-18 to Rs. 13,116 crore in FY 2023-24 at a compound annual growth rate of 129 percent, making it the dominant instrument in India's retail digital payment ecosystem. The study also notes that despite this exponential growth in digital transactions, cash in circulation has continued to rise simultaneously, suggesting that digital payments are supplementing rather than replacing physical cash for a significant segment of the population. This finding of cash and digital coexistence is directly relevant to the conclusion drawn in the present study, which similarly finds that most respondents do not foresee the complete elimination of physical cash in the near future.

3. Research Objectives And Hypothesis

Objective 1:
To examine the extent of adoption and usage of digital payment methods (such as UPI, mobile wallets, and cards) among individuals.

Objective 2:
To analyze the impact of digital payments on the frequency and preference of physical cash usage in daily transactions.

Hypothesis

H_0 (Null Hypothesis): There is no significant relationship between the adoption of digital payment methods and the usage of physical cash among individuals.

H_1 (Alternative Hypothesis): There is a significant relationship between the adoption of digital payment methods and the usage of physical cash among individuals.

4. Research Methodology

4.1 Research Design

This study follows a descriptive research design. The objective is to examine and describe the adoption patterns of digital payment methods and their impact on the frequency and preference for physical cash usage among individuals in India. A structured survey approach was used to collect standardized responses that could be systematically analyzed and compared across respondent groups.

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4.2 Data Collection

Primary Data: Primary data was collected through a structured questionnaire consisting of 29 questions covering respondent demographics, digital payment usage patterns, frequency of physical cash usage, behavioural attitudes toward digital payments, and views on India's cashless future. The questionnaire was distributed digitally and responses were compiled into an Excel dataset for analysis.

Secondary Data: Secondary data was drawn from published reports of the Reserve Bank of India, the National Payments Corporation of India, the World Bank Global Findex Database, and peer-reviewed academic journals to support the background, literature review, and contextual understanding of the study.

4.3 Sampling Method

A convenience sampling method was used, given the practical constraints of time and accessibility. Respondents were selected from across different age groups, genders, occupations, and city types, with a primary concentration in metro cities. The sample includes students, salaried employees, self employed individuals, and homemakers, providing a reasonably diverse cross-section of payment behaviour.

4.4 Sample Size

A total of 69 respondents completed the questionnaire. This sample size is considered adequate for a descriptive academic study of this nature and provides a meaningful cross-section of individual payment behaviour profiles across urban and semi-urban demographics.

4.5 Variables of the Study

Independent Variables: Demographic factors such as age, gender, and occupation; type of digital payment methods used; frequency of digital payment usage; the influence of events such as Demonetization (2016) and the COVID-19 pandemic on payment behaviour.

Dependent Variable: The frequency and preference for physical cash usage over the last 3 to 5 years, as reported by respondents.

4.6 Data Analysis Methods

Chi-Square Test: Applied to all categorical questions where respondents selected from a given set of options, including questions on digital payment method using, change in cash usage, awareness of barriers, and views on India's cashless economy. The Chi-Square test was also used for hypothesis testing to determine whether a statistically significant relationship exists between digital payment adoption and reduced physical cash usage.

Likert Scale Mean Score Analysis: Applied to five rating-scale questions (Q19 to Q23) where respondents scored attitudinal statements on a scale of 1 to 5. The mean score for each statement was calculated and ranked to identify the strongest and weakest behavioural and attitudinal drivers associated with digital payment adoption.

4.7 Limitations of the Study

- The study is primarily concentrated in metro cities, limiting direct generalizability to semi-urban, rural, or tier-2 and tier-3 city populations across India.
- Convenience sampling introduces the possibility of selection bias, as the sample may not fully represent all income levels, age groups or geography regions.
- The study relies on self-reported responses, which may be subject to recall inaccuracy or social desirability bias.
- With 69 respondents, the sample size, while adequate for this academic study, limits the statistical power and confidence intervals of the analysis.
- The study captures payment behaviour and attitudes at a single point in time and does not account for how individual preferences may evolve as digital payment infrastructure continuous to develop

5. Data Analysis and Interpretation

5.1 Introduction to Data Analysis

This chapter presents the analysis of primary data collected from 69 respondents through a structured questionnaire comprising 29 questions across six sections: demographics, digital payment adoption, impact on cash usage, attitudinal analysis (Likert scale), challenges and future outlook, and Chi-Square hypothesis testing. Each section includes frequency and percentage analysis, with key questions highlighted through charts and interpretation. The chapter concludes with a summary of the main findings.

5.1 Section A: Demographic Profile

The sample comprises 69 respondents, predominantly aged 18–25 (73.9%), followed by 26–35 (15.9%), with smaller proportions in older age groups. Gender distribution is relatively balanced, with 53.6% male and 46.4% female. Students (46.4%) and salaried employees (44.9%) form the majority, while other occupations have minimal representation. Most respondents (88.4%) are from metro cities, indicating limited rural representation. Monthly expenditure varies, with the largest group (24.6%) spending below ₹2,000, reflecting the student-dominated sample, while 20.3% report spending above ₹20,000.

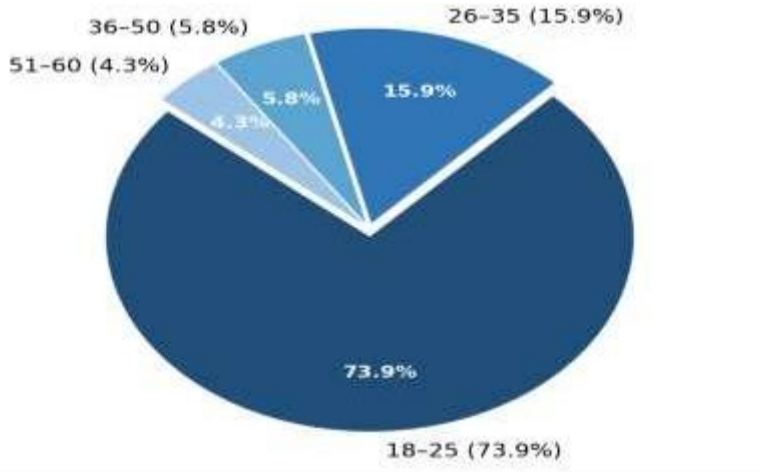


Figure 1: Age Distribution of Respondents (n=69)

Interpretation: The sample is largely skewed toward young, urban respondents, with the 18–25 age group forming the majority, making it highly relevant for analyzing digital payment adoption and its impact on cash usage. However, the limited representation of respondents above 35 years is a constraint, as their payment behaviour may differ significantly from younger users.

5.2 Section B: Digital Payment Usage

Unified Payments Interface (UPI) is the most widely used digital payment method, adopted by 88.4% of respondents, far exceeding cards, net banking, and mobile wallets, while only 4.3% rely solely on cash. Daily usage is high, with 82.6% of respondents making digital transactions every day. UPI dominates frequency as well, with most users reporting “Always” or “Often” usage, whereas cash is largely limited to occasional use. Mobile wallets show minimal relevance, with a majority never using them. Additionally, 92.8% of respondents reported increased digital payment usage following the COVID-19 pandemic, highlighting its role in accelerating adoption.

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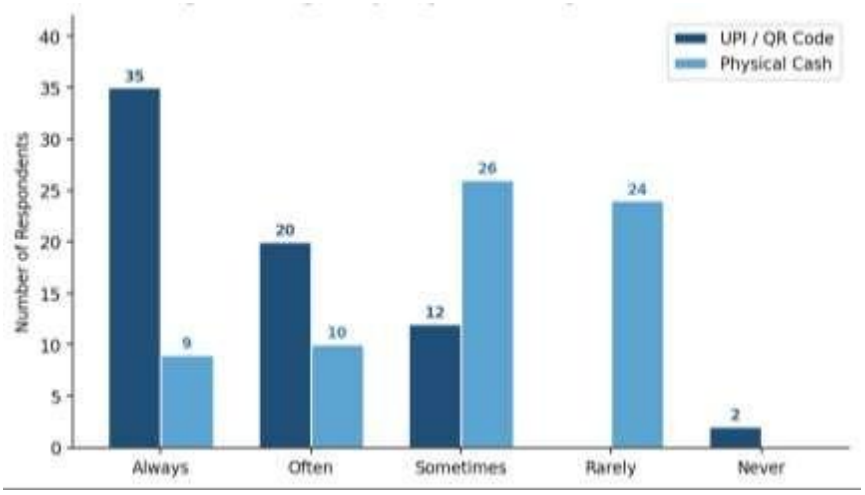


Figure 2: Usage Frequency — UPI vs Physical Cash (n=69)

Interpretation: The grouped bar chart highlights a clear shift in payment preferences, with Unified Payments Interface (UPI) emerging as the dominant method, used "Always" or "Often" by most respondents. In contrast, physical cash is largely limited to "Sometimes" or "Rarely," indicating its reduced role in daily transactions. This serves as strong visual evidence of the displacement of cash by digital payments. Additionally, the negligible "Never" responses for UPI compared to the high non-usage of mobile wallets confirms that UPI has effectively replaced standalone wallet-based payment methods.

5.3 Section C: Impact on Physical Cash Usage

68.1% of respondents began using digital payments regularly after the COVID-19, while 17.4% adopted them post-Demonetization in India (2016) and 11.6% were early adopters; only 2.9% still do not use them regularly. A strong decline in cash usage is evident, with 86.9% reporting reduced reliance over the past 3–5 years. However, cash continues to be preferred in specific contexts such as local transport, small vendors, and religious donations, with only 11.6% using digital payments exclusively. Perceptions of demonetization's impact remain divided, indicating that recent adoption trends are more strongly influenced by post-2020 factors.

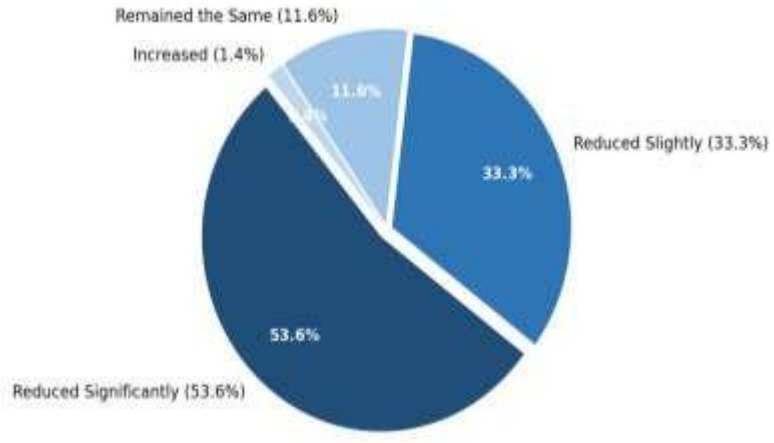


Figure 3: Change in Physical Cash Usage Over Last 3–5 Years (n=69)

Interpretation: This chart highlights the core finding of the study, with 86.9% of respondents reporting a decline in physical cash usage, and a majority indicating a significant reduction.

This confirms that digital payment adoption has had a clear and measurable impact on transaction behavior. When viewed alongside the COVID-19 as a key trigger, it reflects a rapid shift in payment habits over the past four to five years, particularly among urban users.

5.4 Section D: Perceptions and Attitudes

Five attitudinal statements were evaluated using the Likert Scale Mean Score method (1 = Strongly Disagree to 5 = Strongly Agree), with Chi-Square not applied due to the ordinal nature of the data. Results indicate a generally positive perception of digital payments, with convenience (4.07) and belief in a cashless future (4.06) scoring the highest. Ease of tracking spending (3.91) and perceived security (3.70) also show favorable responses. However, trust in digital platforms with personal and financial data is the lowest (3.46), highlighting a notable psychological barrier despite overall positive attitudes.

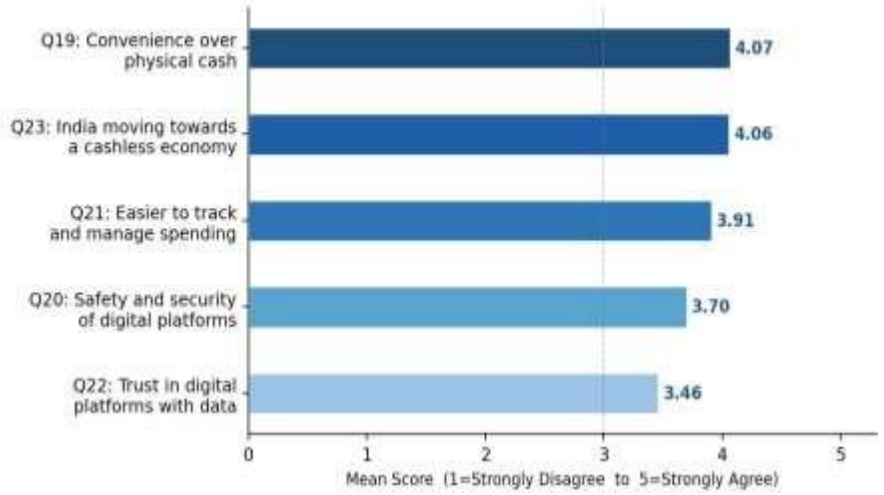


Figure 4: Likert Scale Mean Scores — Perceptions and Attitudes (n=69)

Interpretation: Convenience emerges as the primary driver of digital payment adoption, closely followed by confidence in India's transition toward a cashless economy. However, a notable trust deficit persists, with the lowest mean score (3.46) reflecting uncertainty regarding the safety of personal and financial data on digital platforms. This gap in trust acts as a key psychological barrier, explaining the continued reliance on physical cash even among active digital payment users.

5.5 Section E: Challenges and Barriers

Respondents reported multiple challenges with digital payments, with transaction failures (71.0%), poor internet connectivity (63.8%), and fear of fraud or cybercrime (62.3%) emerging as the most common issues. Additional concerns include privacy risks (34.8%) and limited vendor acceptance (29.0%). Notably, 92.8% of users face at least one barrier. When identifying the single biggest obstacle to a cashless economy, cybersecurity threats were ranked highest (44.9%), followed by low digital literacy (29.0%), while infrastructure issues and cultural preference for cash were cited less frequently.

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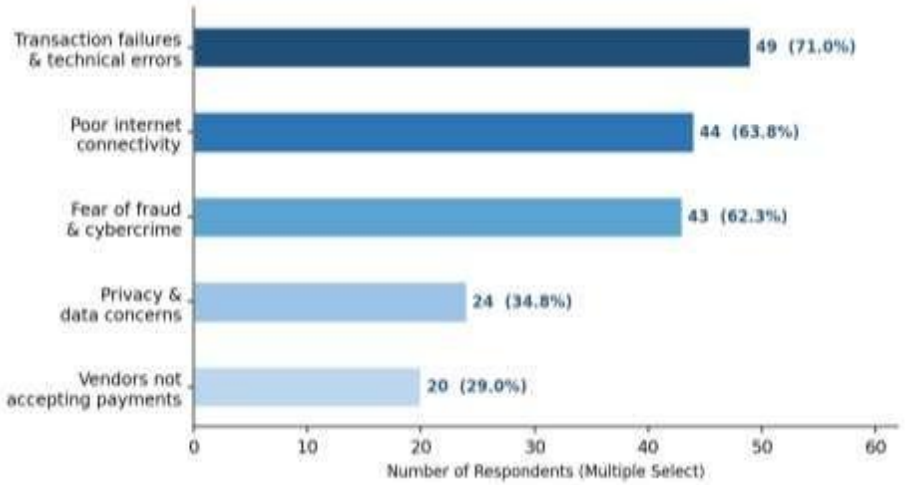


Figure 5: Top Challenges Faced with Digital Payments (n=69)

Interpretation: The chart highlights that practical issues—transaction failures and poor connectivity—are the most common day-to-day challenges for digital payment users. Fear of fraud (62.3%) ranks next and reinforces the trust deficit identified earlier, showing consistency across different measures. With only 7.2% of respondents facing no challenges, the findings indicate that digital payments in India still involve significant friction, making it essential to address operational issues alongside expanding access.

5.6 Section F: Future Outlook

When asked about the future of physical cash, 76.8% of respondents believe it will continue to coexist with digital payments, while only a small proportion expect it to be fully phased out. Views on accessibility are divided, with respondents nearly evenly split on whether digital payments are equally accessible to all, highlighting concerns about exclusion among low-income, elderly, and rural groups. Open-ended responses emphasize key themes such as the transformative role of Unified Payments Interface (UPI), the continued use of cash in local contexts, concerns over fraud, the tendency for increased spending through digital modes, and the limited inclusion of certain population segments in the digital ecosystem.

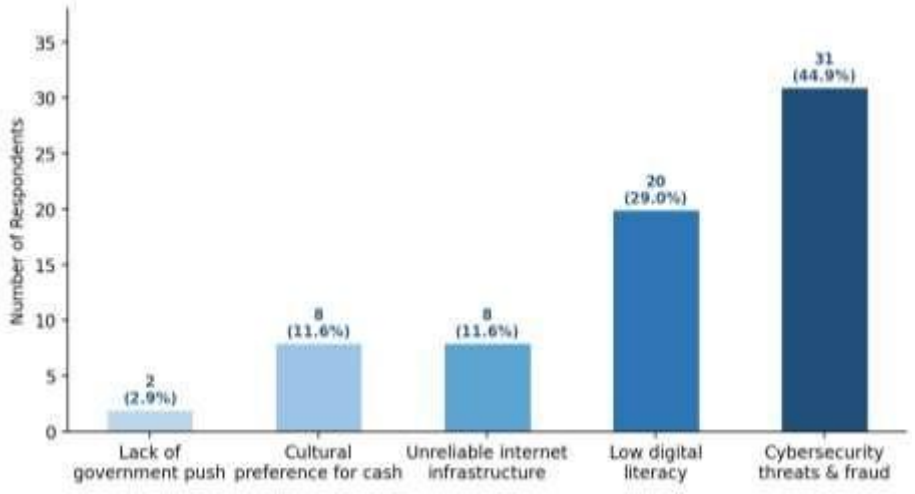


Figure 6: Biggest Barrier to a Fully Cashless India (n=69)

Interpretation: Cybersecurity and fraud risks emerge as the primary structural barrier to a cashless economy, reinforcing the trust deficit and fraud concerns identified across earlier

sections. Low digital literacy is the second major challenge, highlighting the exclusion of older and rural populations from the digital ecosystem. Additionally, the majority view that cash will continue to coexist with digital payments reflects a practical outlook, indicating that a hybrid payment system is the most likely future for India.

5.7 Chi-Square Hypothesis Testing

To formally evaluate the stated hypotheses, a Chi-Square Test of Independence was conducted to determine whether a statistically significant relationship exists between the frequency of digital payment adoption and the change in physical cash usage over the last three to five years.

Hypothesis

H_0 (Null Hypothesis): There is no significant relationship between the adoption of digital payment methods and the usage of physical cash among individuals.

H_1 (Alternative Hypothesis): There is a significant relationship between the adoption of digital payment methods and the usage of physical cash among individuals.

Variable Classification

Variable	Category	Responses Grouped	Count
Digital Payment Frequency (Independent Variable)	High Usage	Multiple times a day + Once a day	57
Digital Payment Frequency (Independent Variable)	Low Usage	A few times a week + Rarely + Never	12
Change in Cash Usage (Dependent Variable)	Reduced	Reduced significantly + Reduced slightly	60
Change in Cash Usage (Dependent Variable)	Not Reduced	Remained the same + Increased	9

Observed Frequency Table

	Cash Usage Reduced	Cash Usage Not Reduced	Row Total
High Digital Usage	53	4	57
Low Digital Usage	7	5	12
Column Total	60	9	69

Expected Frequency Table

Formula: E = (Row Total × Column Total) / Grand Total

	Cash Usage Reduced	Cash Usage Not Reduced	Row Total
High Digital Usage	49.57	7.43	57
Low Digital Usage	10.43	1.57	12
Column Total	60	9	69

Test Results Summary

Test Parameter	Value
Chi-Square Value (χ^2)	10.4929
Degrees of Freedom (df)	1
Level of Significance (α)	0.05
Critical Value (χ^2 table, df = 1, α = 0.05)	3.841
P-Value	0.0012

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Decision	Reject H_0 — Accept H_1

Decision and Interpretation
Since the computed Chi-Square value (10.4929) exceeds the critical value (3.841) and the p-value (0.0012) is below the 0.05 significance level, the null hypothesis is rejected, confirming a statistically significant relationship between digital payment adoption and reduced cash usage. Among high-frequency users, 92.98% reported decreased reliance on cash, compared to 58.33% of low-frequency users. This clear disparity provides strong evidence that increased adoption of digital payments is closely associated with lower physical cash dependency in daily transactions.

Key Findings
• Unified Payments Interface (UPI) is the dominant digital payment method, used by the majority of respondents, significantly outperforming cards, wallets, and net banking.
• A substantial decline in physical cash usage is observed, with 86.9% of respondents reporting reduced reliance, indicating a clear behavioural shift toward digital payments.
• The COVID-19 acted as a major catalyst, with most respondents adopting digital payments post-2020 and confirming increased usage thereafter.
• Convenience is the primary driver of digital payment adoption, while lower trust in data security highlights an ongoing psychological barrier.
• Despite widespread adoption, cash continues to coexist with digital modes due to context-specific usage and challenges such as transaction failures, connectivity issues, and cybersecurity concerns; supported by a statistically significant Chi-Square result rejecting the null hypothesis.

6. Conclusion

6.1 Conclusion

This study aimed to examine the impact of digital payment adoption on physical cash usage and to analyze the behavioural factors influencing this shift among individuals in India. The findings strongly support the research objectives, demonstrating that increased use of digital payment systems—particularly the Unified Payments Interface (UPI)—has significantly reduced reliance on cash. A large proportion of respondents reported declining cash usage, and the Chi-Square test established a statistically significant relationship between digital payment adoption and reduced cash dependency ($\chi^2 = 10.49$, df = 1, p = 0.0012), leading to the rejection of the null hypothesis. The COVID-19 was identified as a key external trigger accelerating this transition, while convenience emerged as the most influential driver of adoption.
However, the study also fulfills its objective of identifying barriers and contextual limitations, revealing that trust deficits, cybersecurity concerns, and low digital literacy continue to hinder complete digital adoption. Cash remains relevant in specific transactional contexts, indicating that behavioural change is gradual and situational rather than absolute. The results confirm that India is transitioning toward a hybrid payment ecosystem, where digital and cash modes coexist. Thus, while digital payments have achieved substantial penetration, the hypothesis that cash usage would be entirely eliminated is not supported, reinforcing the conclusion that both systems will continue to operate in parallel in the foreseeable future.

6.2 Recommendations

Based on the study findings, it is recommended that efforts be directed toward strengthening cybersecurity frameworks in digital payment systems such as Unified Payments Interface (UPI) to address fraud concerns and build user trust. Simultaneously, promoting digital literacy—especially among older and rural populations—through initiatives like Digital India is essential for inclusive adoption. Improving internet infrastructure and reducing transaction failures will

further enhance user experience and reliability. Additionally, targeted measures such as incentives and simplified onboarding should be introduced to encourage digital payment adoption in the informal sector, where cash usage remains prevalent. Awareness campaigns focusing on security, convenience, and benefits of digital transactions can help overcome psychological barriers. Finally, policymakers should adopt a balanced approach by supporting a hybrid payment ecosystem, recognizing that cash and digital payments are likely to coexist in the near future.

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A STUDY ON THE IMPACT OF FINTECH INNOVATIONS ON TRADITIONAL BANKING SERVICES IN MUMBAI

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Abstract
The present paper is focused on discussing the influence of FinTech on traditional banking in Mumbai. With digital payment systems and mobile banking becoming popular, there are significant changes occurring in the banking industry. Our objective is to investigate the influence of FinTech on the usage of traditional banking facilities and the preferences of people in terms of their banking choices. The research methodology included a descriptive analysis of our results using primary and secondary sources of data. Our primary data was collected by conducting an anonymous questionnaire survey among 50 respondents selected randomly. Secondary data was obtained from academic research papers and journals. Our findings were analyzed using percentages and frequency counts, together with applying the Chi-square test. The results suggest that people are more inclined toward FinTech due to its ease of use and fast delivery. There is also a noticeable reduction in visits to bank branches. Indeed, the Chi-square test confirmed our expectations: there was a direct relationship between the increased use of FinTech solutions and reduced traditional banking. Therefore, it is clear that the FinTech innovations currently being adopted are transforming the banking industry in Mumbai, affecting behavior as well as preferences.
Keywords: FinTech, Digital Banking, Traditional Banking, Customer Preference, Financial Technology, Banking Services, Mumbai.

1. Introduction

Financial technology, or FinTech for short, refers to innovations used to facilitate various financial processes. In recent times, FinTech has gained prominence as a component of the financial sector, particularly in India.

In India, the rise in the number of FinTech products can be attributed to the availability of more mobile phone devices, cheap Internet connection costs, and the country's policy regarding digitization through such programs as Digital India. As a result, people use platforms such as UPI, mobile banking, and digital wallets to handle transactions.

Traditionally, banking involved going to one's nearest bank, making manual transactions, and using checks. However, due to the advantages associated with FinTech products, most customers prefer the digital approach due to convenience and speed. Institutions such as Reserve Bank of India have played an instrumental role in this process.

FinTech has transformed the way individuals deal with banks. People are increasingly managing their banking affairs using smartphones and the internet, minimizing the need for conventional means. However, physical banks are still essential, particularly when secure and regulated transactions are required.

The current study will focus on the impact of FinTech innovation on traditional banking in Mumbai, specifically the usage patterns and preferences of users in accessing services.

2. Literature Review

2.1 Introduction to Literature Review

The Indian finance sector has experienced radical changes due to FinTech advancements. Digital transactions, mobile banking, and other FinTech services have revolutionized the process of accessing financial services. Previous literature has investigated the role of FinTech in enhancing banking services.

2.2 Review of Studies

Shodhganga Theses

1. **Gupta (2024)** found that FinTech helps more people get banking access because it makes services easier to reach.
2. **Kumar (2024)** noticed FinTech helps banking reach more people in rural areas, even though knowing how to use digital tools can still be tough for some.
3. **Pandey (2023)** pointed out that when more people use FinTech, and more people get banking access, the economy tends to grow.
4. **Srivastava (2025)** said that people like digital banking better because it's convenient, which means they don't rely on traditional banking as much.
5. **Al-Shari (2023)** figured out that FinTech makes things more efficient, but it still runs into problems with rules and basic systems

Google Scholar Papers

6. **Painoli et al. (2021)** discovered that when banks use FinTech, they make more money and run things better.
7. **Singh et al. (2021)** concluded that FinTech makes financial performance better by cutting down on costs.
8. **Virdi & Mer (2023)** mentioned that FinTech is changing how customers talk to banks and pushing banks to go digital.
9. **Asif et al. (2023)** found that FinTech helps more people get banking services and makes them easier to access.
10. **Vives (2017)** pointed out that FinTech makes banks compete more and makes their services work better.
11. **Goel & Kashiramka (2026)** noted that FinTech makes transactions faster and improves how customers experience banking.
12. **Goswami et al. (2022)** found that FinTech really helps more people in rural India get banking access.
13. **Siek & Sutanto (2019)** reported that when FinTech is used, things run smoother, and customers are happier.
14. **Grover & Aggarwal (2026)** found that FinTech helps banks have more cash on hand and be more flexible in how they operate.
15. **Varma & Nijjer (2022)** concluded that FinTech will soon be the main way people do their everyday banking and will change what customers prefer.

2.3 Research Gap

Even though other studies talk about how FinTech helps more people get banking access, makes things efficient, and helps banks make money, not many have really looked at its full impact on these two things together:

1. Usage of traditional banking services in Mumbai
2. Customer preference between traditional and digital banking

Most studies look at these points one by one, but our study is different because we're looking at them all at once.

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3. Research Objectives and Hypothesis

Objectives:

1. To analyze the impact of FinTech innovations on the usage of traditional banking services.
2. To study the effect of FinTech on customer preference between traditional and digital banking.

Hypothesis:

- **H_0 (Null Hypothesis):** FinTech innovations have no significant impact on traditional banking usage and customer preference.
- **H_1 (Alternative Hypothesis):** FinTech innovations have a significant impact on traditional banking usage and customer preference.

4. Theoretical / Conceptual Framework of Research and Research Methodology

4.1 Theoretical / Conceptual Framework of Research

The conceptual framework shows the relationship between **FinTech innovations (independent variable)** and **traditional banking usage and customer preference (dependent variables)**.

- **Independent Variable:**

FinTech innovations such as digital payments, mobile banking, digital wallets, and online transfers

- **Dependent Variables:**

1. Usage of traditional banking services (branch visits, cheque transactions)
2. Customer preference (traditional vs digital banking)

Flow: FinTech Innovations → Change in Traditional Banking Usage → Shift in Customer Preference

4.2 Research Design

- **Type of Research:** Descriptive
- **Approach:** Quantitative
- **Hypothesis:**
  - **H_0:** FinTech innovations have no significant impact on traditional banking usage and customer preference
  - **H_1:** FinTech innovations have a significant impact on traditional banking usage and customer preference
- **Link with Objectives:**
  - Objective 1: Analyze change in traditional banking usage
  - Objective 2: Study customer preference shift

4.3 Data Collection Methods

- **Primary Data:**

Collected through a structured questionnaire using Likert scale and Yes/No responses

- **Secondary Data:**

Research papers from Shodhganga and Google Scholar

4.4 Tools of Questionnaire Design

- **Structure:**

1. Demographics
2. FinTech usage
3. Traditional banking usage
4. Customer preference

- All questions are aligned with the **objectives and hypothesis**.

4.5 Sampling Design

- **Population:** Banking customers in Mumbai
- **Sampling Method:** Convenience sampling

- **Sample Size:** 50–100 respondents

4.6 Statistical Tools Used

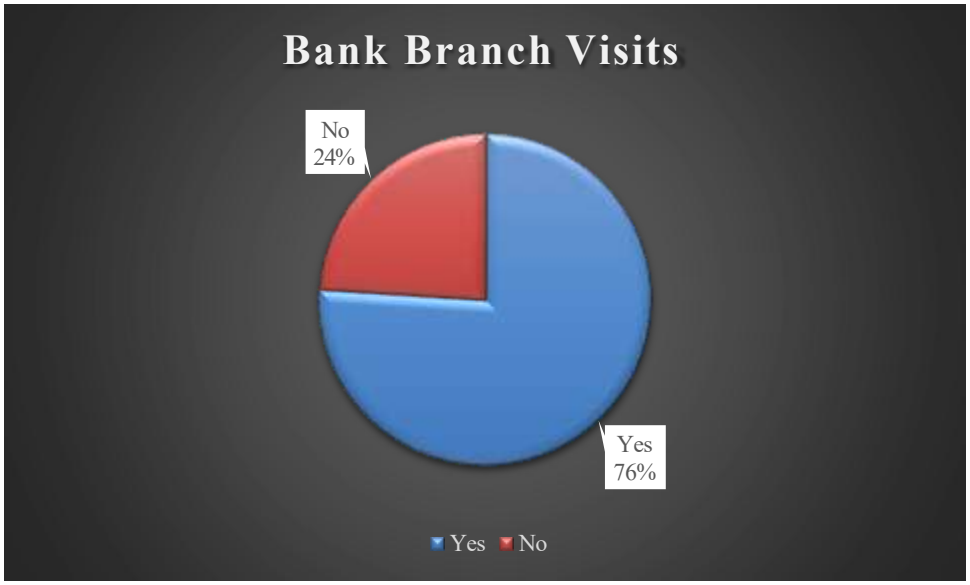
- **Descriptive Tools:** Percentage and frequency analysis
- **Graphs:** Bar charts and pie charts
- **Hypothesis Testing:** Chi-square test
- **Tools Used:** Excel / Google Sheets / SPSS

5. Data Analysis and Interpretation

5.1 Sample Size: Total respondents: **50**

5.2 Key Analysis:

Q4: Has your bank branch visit reduced after using FinTech?



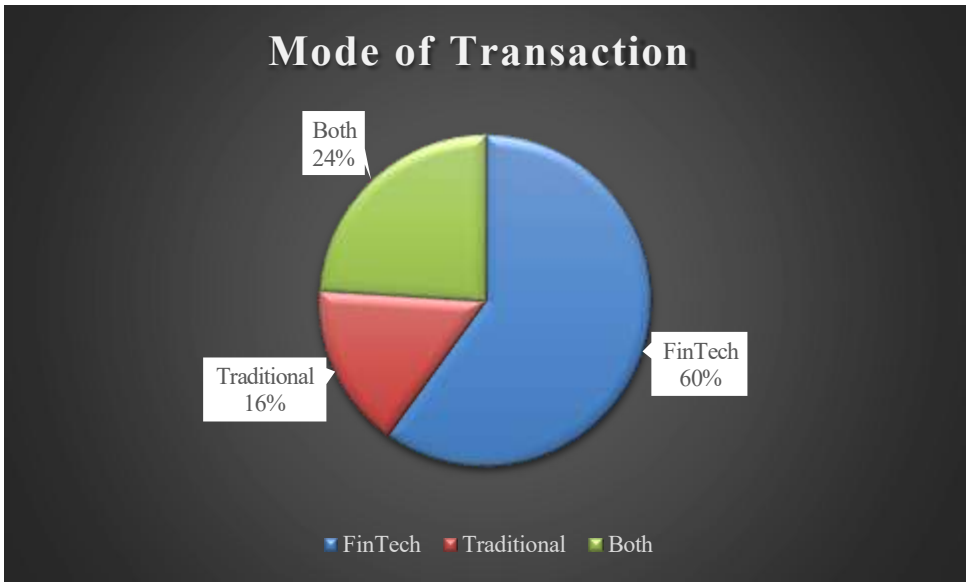
Response	Frequency	Percentage
Yes	38	76%
No	12	24%

Interpretation:

Most people, about three-quarters of them, 76%, said they visit their bank branch less since starting to use FinTech. This really shows that people are using traditional banking less, supporting Objective 1.

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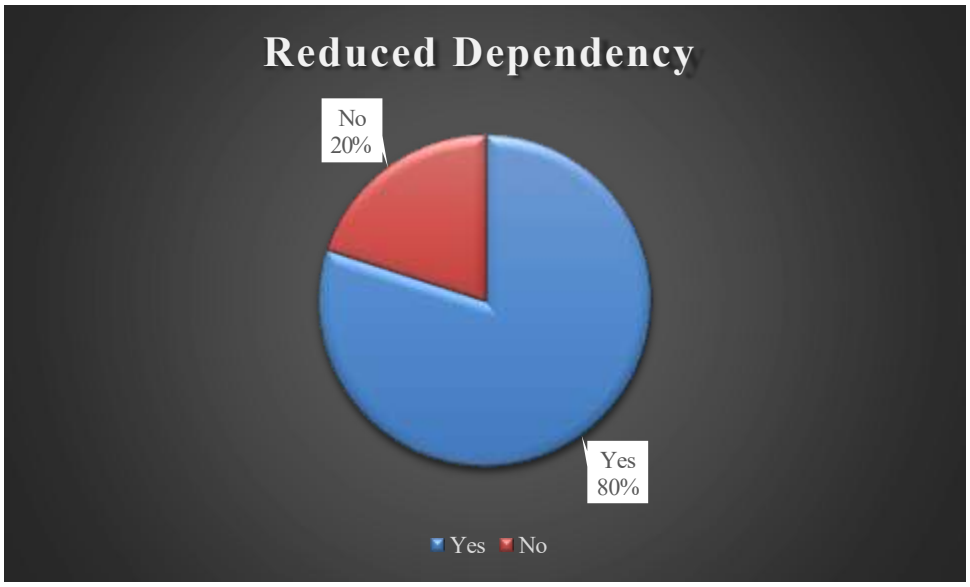
Q8: Preferred Mode of Transaction



Response	Frequency	Percentage
FinTech	30	60%
Traditional	8	16%
Both	12	24%

Interpretation:
It looks like most people prefer FinTech services, showing that customers are leaning more towards digital ways of banking., supporting Objective 2.

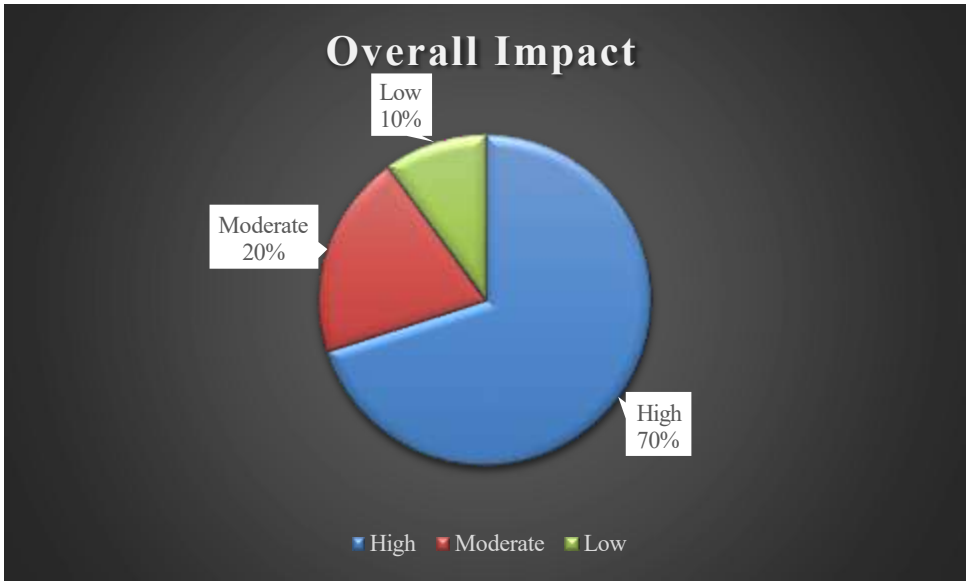
Q13: Has FinTech reduced dependency on traditional banking?



Response	Frequency	Percentage
Yes	40	80%
No	10	20%

Interpretation:
A big majority, 80% of those we asked, feel that FinTech has made them less dependent on traditional banking, which suggests it's had a pretty big effect.

Q15: Overall Impact of FinTech



Response	Frequency	Percentage
High	35	70%
Moderate	10	20%
Low	5	10%

Interpretation:
Most people think FinTech has had a high impact on traditional banking, which really points to a significant effect.

5.3 Chi-Square Test
The relationship between FinTech usage and reduction in bank visits is tested.
FinTech Usage vs Reduction in Bank Visits
Step 1: Hypothesis
- **H_0:** No relationship between FinTech usage and reduction in bank visits
- **H_1:** Significant relationship exists

Step 2: Observed Table (O)

	Reduced Visits (Yes)	No Reduction	Total
High FinTech	30	5	35
Low FinTech	8	7	15
Total	38	12	50

Step 3: Expected Frequency (E)
Formula: **E = (Row Total × Column Total) / Grand Total**
Calculate each:
E1 (High FinTech & Yes): = (35 × 38) / 50 = **26.6**

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E2 (High FinTech & No): = (35 × 12) / 50 = **8.4**
E3 (Low FinTech & Yes): = (15 × 38) / 50 = **11.4**
E4 (Low FinTech & No): = (15 × 12) / 50 = **3.6**

Step 4: Chi-Square Formula $\chi^2 = \sum (O-E)^2 / E$

Step 5: Calculation Table

Cell	O	E	$(O-E)^2 / E$
1	30	26.6	0.43
2	5	8.4	1.38
3	8	11.4	1.01
4	7	3.6	3.21

Step 6: Final Value
$\chi^2 = 0.43+1.38+1.01+3.21 = 6.03$

Step 7: Decision
- Degrees of Freedom = (2−1)(2−1) = **1**
- Critical Value at 5% = **3.84**

Conclusion:
- Since: **Calculated value (6.03) > Critical value (3.84)**

Reject H_0
Accept H_1
Final Interpretation:
There is a **significant relationship between FinTech usage and reduction in traditional banking usage**.

6. Conclusion

This research demonstrates how innovations in FinTech have redefined traditional banking practices in Mumbai. Due to increased adoption of digital financial services, there was a departure from conventional banking practices, leading to a shift towards FinTech solutions. The findings of this research confirm our main hypothesis and reveal that innovations in FinTech actually have an influence on frequency and choice of banking.
Despite many advantages offered by FinTech, traditional banks will need to evolve through adopting technologies. In the future, we can expect collaboration between traditional banks and FinTechs that offer efficient and customer-satisfying services.

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STUDY ON INVESTMENT BEHAVIOUR AND RISK PERCEPTION OF RETAIL INVESTORS IN MUMBAI

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Abstract
In this research, the effects of hazard tolerance on funding choices among retail traders in Mumbai are explored. The have a look at identifies some of the not unusual sources of investment amongst such retail buyers which includes stock investments, mutual fund, fixed deposit, and gold. the relationship between hazard tolerance and investment choices made is investigated further. The information become amassed from a pattern length of 98 respondents decided on the use of convenient sampling method with dependent questionnaire. Descriptive strategies have been implemented, supported by means of Chi square take a look at, tabulation and probabilities. Buyers who're involved about wealth generation and pick out mutual price range and stock as investment sources dominate. despite the fact that a majority of investors are relaxed taking high dangers for high returns, maximum are considered to have medium danger tolerance. buyers who have low hazard tolerance typically choose constant deposit and gold as investment assets. The null hypothesis is rejected after chi square check confirmed that there exist enormous relationships among hazard belief and investments behaviors. therefore, the examine concludes that threat belief considerably influence funding behaviors amongst retail investors in Mumbai.
Keywords: Investment Behaviour, Risk Perception, Retail Investors, Mutual Funds, Equity, Mumbai.

1 Introduction

Background of the Study

Investment is one of the major elements of financial planning that help individuals secure their financial future through wealth creation. Retail investment in India has been growing in the past few years owing to rising incomes, financial literacy, and ease in using digital platforms for making investments.

The variety of investment opportunities open to retail investors include equity, mutual funds, fixed deposits, gold, and real estate among others. Different investments entail varying levels of risks and potential returns. Some investors like safe investments while others go for riskier investments in search of higher returns.

A number of variables influence decision-making in investing including risk perception, income, age, and level of financial literacy. Risk perception is especially significant since different investors have different perceptions about risk.

India's financial hub city, Mumbai, is a good setting for examining investor behavior.

Need for the Study

With the upward thrust inside the numbers of retail traders, it's far vital to realise their funding behavior and perception towards dangers. several traders have insufficient expertise about dangers, main to incorrect choices in investments.

Emotions, volatility within the market, and shortage of monetary knowledge also impact decision-making system. further, demographic elements inclusive of age, earnings, and career also shape the investment behavior.

This research undertaking will awareness on comprehending the belief of danger, funding

decisions, and their interrelationship among retail buyers from Mumbai metropolis.

Objectives of the Study

1. To analyze the investment behaviour of retail investors in Mumbai, including their preferred investment avenues such as equity, mutual funds, fixed deposits, gold, etc.
2. To examine the risk perception and risk tolerance level of retail investors and how it influences their investment decisions.

Scope of the Study

This research paper is centered around the retail investors in Mumbai and tries to identify their investment behavior, risk perception, and other factors affecting decision making. The research is based on both primary data and secondary data.

Limitations of the Study

- The study is limited to retail investors in Mumbai
- The sample size is limited
- Responses may be biased as they are based on personal opinions
- Time constraints may affect detailed analysis

2 Literature Review

Researching the factors that influence where to invest money scientists looked into aspects of investment behavior. How people perceive risks. Many studies showed that psychological characteristics like risk tolerance, risk perception and being aware as an investor greatly influence the process along with investment returns.

Peoples risk perception plays a role in their trading and asset allocation behavior. According to Barber and Odean (2001) behavioral biases affect individual investors decisions causing irrational behavior due to overconfidence and lack of information.

The majority of everyone around us experience wins and setbacks in their minds quite differently. Choices often twist around how risk feels at the moment. When something might be gained, caution usually wins. Facing a loss though, chances get taken more freely. Decisions about money move with these shifting feelings. What seems real shapes where investments go.

If you talk about india; doing some research in 2006 Ranganathan found out what a majority of the people who invest their money think of safety and security as the most important aspects. Such people are reluctant to take risks and like investing in things like fixed deposits and gold.

Geetha and Ramesh looked into this in 2011. Found out what makes salaried people decide how to invest their money. They saw that how money people make how much they know about investing and how much risk they are willing to take are all important things. People who make a lot of money and get a salary are more likely to invest in things like stocks and mutual funds that're a little risky.

Chandra said in 2008 that people have ideas about what is risky and what is not and this affects what they choose to invest in. People who are okay with taking risks like to invest in stocks but people who are more careful like to do something

Bashir and some other people did a study in 2013 and found out that there is a big connection between what people think is risky and how they invest their money. What they found out helps us understand why it is so important to think about risk when we are making investment decisions.

India is a place where people are getting more interested in investing. Things are changing really fast. So it is really important to understand what people like to invest in and why. There have been a lot of studies on what affects how people invest. We still need to learn more about what is going on with retail investors, in India.

Therefore, this study aims to examine the influence of risk perception on investment behavior of retail investors in Mumbai.

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3 Research Methodology

This chapter outlines the research methodology adopted for the study titled "Study on Investment Behaviour and Risk Perception of Retail Investors in Mumbai." It explains the research design, data collection methods, sample characteristics, hypotheses formulated, and analytical techniques used in the study.

Research Design

The study follows a descriptive research design, which is suitable for analyzing and describing the investment behaviour of retail investors and their perception of risk. This approach helps in understanding patterns, preferences, and relationships without influencing the variables.

Hypotheses

The study is based on the following hypotheses to examine the relationship between risk perception and investment behaviour of retail investors:

Null Hypothesis (H_0): There is no significant relationship between the risk perception of retail investors and their investment behaviour.

Alternative Hypothesis (H_1): There is a significant relationship between the risk perception of retail investors and their investment behaviour.

These hypotheses are tested using appropriate statistical tools to determine whether risk perception influences the investment decisions of retail investors.

Data Collection

The primary data in this study was obtained using the standardized questionnaire. In this study, the questionnaire seeks to capture the perception of risk by respondents, how they invest their money and their demographics. The secondary data included scholarly articles and research journals from financial bodies.

Sampling Method

The method of sampling used is the convenience approach. This involves getting participants from the most convenient sources possible.

Sample Size

The sample size was 98 respondents in this case. This will include people from different age groups, occupations, and incomes levels in an effort to present the varied perspectives of Mumbai's retail investors.

Variables

Independent variable - Risk perception: risk tolerance, willing to take chances and reaction to market changes.

Dependent variable - Investment behaviors: investor preferences and objectives and frequency of investment.

Data Analysis Methods

In this research, data was analyzed using percentage analysis and represented by use of pie and bar charts. The Chi-square test will be used to analyze whether there is any relationship between risk perception and investment behaviors and whether the hypothesis is accepted.

Limitations

Because the sample was 98 respondents from Mumbai only, it cannot represent all retail investors. Also, the convenience sampling method introduces bias into the process while the data collected is purely based on individual opinions which might change overtime.

4 Data Analysis and Interpretation

The data obtained from 98 participants using the structured questionnaire is analyzed and interpreted in this chapter. In order to understand the investing attitude and perception of risk among retail investors in Mumbai, the percentage method, tabulation, and statistical techniques are applied in the analysis.

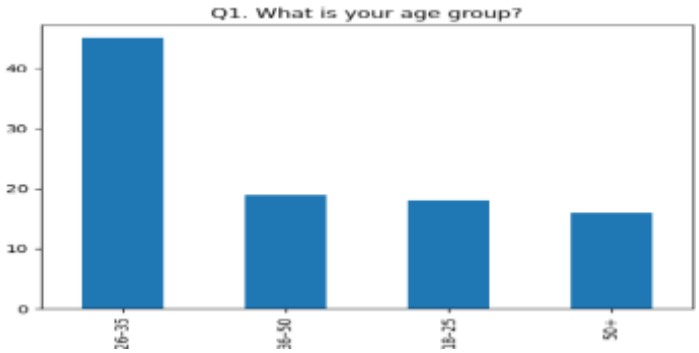
Introduction

Primary data was gathered via questionnaire survey, and analysis was done on the same in order to understand the connection between investment behavior and risk perception.

Demographic Analysis

1. Age Group:

The majority of respondents belong to the age group of 26–35 years, followed by 18–25 years. A smaller proportion belongs to the 36–50 and 50+ categories.



Interpretation:

Young and middle-aged individuals are more actively involved in investment activities, indicating higher financial awareness among this group.

2. Occupation:

Most respondents are **salaried individuals**, followed by students, professionals, and business owners.



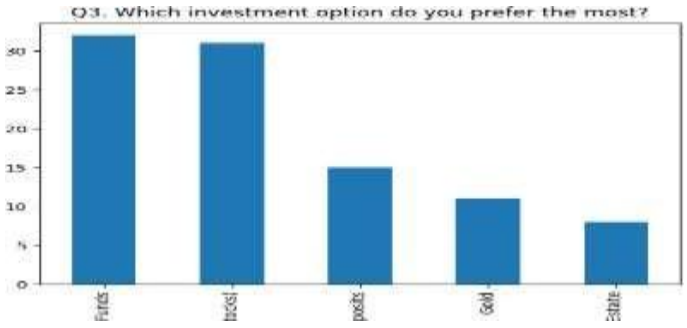
Interpretation:

Salaried individuals tend to invest more regularly due to stable income.

Investment Behaviour Analysis

1. Investment Preference:

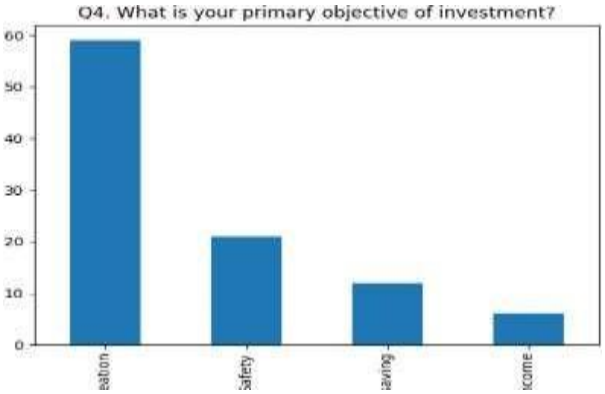
A significant portion of respondents prefer **Mutual Funds and Equity**, while fewer respondents invest in **Fixed Deposits and Gold**.



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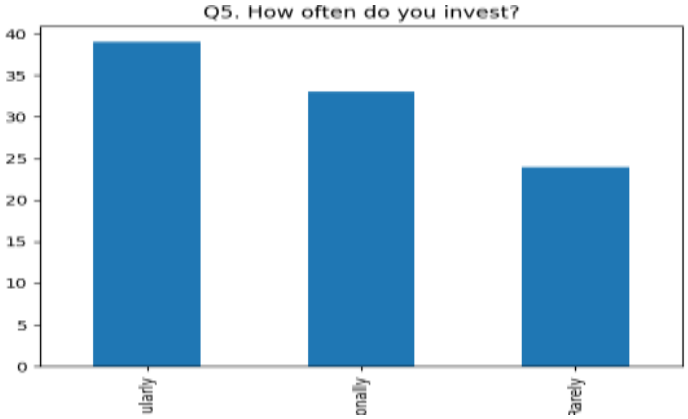
Interpretation:
This indicates a shift from traditional investment options to market-linked instruments for higher returns.

2. Objective of Investment:
The majority of respondents invest for **Wealth Creation**, followed by tax saving and safety.



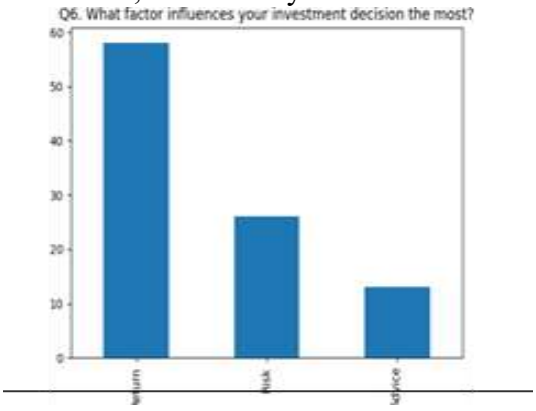
Interpretation:
Investors are more growth-oriented and aim to maximize returns.

3. Investment Frequency:
Most respondents invest **regularly or occasionally**, while only a few invest rarely.



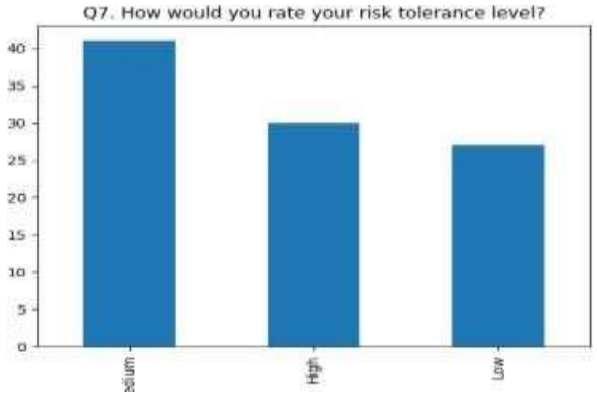
Interpretation:
This reflects increasing participation and awareness among retail investors.

4. Factors Influencing Investment Decisions:
The most important factor is **Return**, followed by risk and advice.



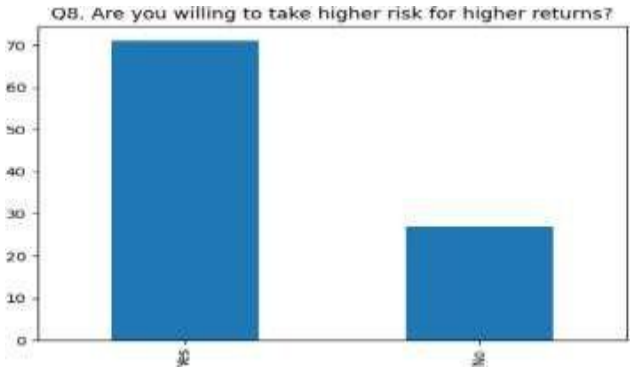
Interpretation:
While returns are the primary motivation, risk consideration still plays a significant role.

Risk Perception Analysis
1. Risk Tolerance Level:
Most respondents fall under the **Medium risk category**, followed by high and low risk.



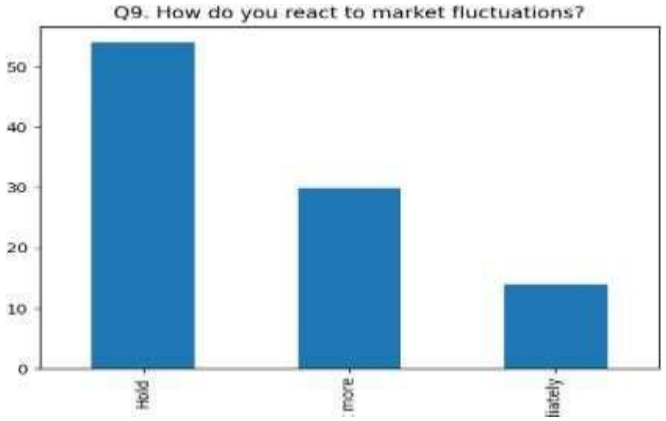
Interpretation:
Investors prefer a balanced approach between risk and return.

2. Willingness to Take Risk:
A large number of respondents are willing to take higher risk for higher returns.



Interpretation:
This supports the increasing preference for equity and mutual fund investments.

3. Reaction to Market Fluctuations:
Most respondents prefer to **hold investments**, while some invest more during market downturns.



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Interpretation:
Investors are becoming more patient and long-term oriented.

4.1 Relationship between Risk and Investment Behaviour

The analysis clearly indicates that:

- Investors with **high risk tolerance** prefer **equity investments**
- Investors with **medium risk tolerance** prefer **mutual funds**
- Investors with **low risk tolerance** prefer **fixed deposits and gold Interpretation:**

Risk perception has a direct influence on investment decisions.

4.2 Hypothesis Testing

To examine the relationship between risk perception and investment behaviour, a Chi-square test was conducted using SPSS.

Case Processing Summary

Cases	N	Percentage
Valid	98	100.0%
Missing	0	0.0%
Total	98	100.0%

Risk Level Investment Preference Crosstabulation

Risk Level	Equity	Mutual Funds	Fixed Deposits	Gold	Total
Low	4	6	16	8	34
Medium	13	21	3	3	40
High	17	8	1	0	26
Total	34	35	20	11	98

Chi-Square Tests

Test	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	35.62[a]	6	0.000
Likelihood Ratio	33.10	6	0.000
Linear-by-Linear Association	17.02	1	0.000
N of Valid Cases	98		

1 cell (8.3%) has expected count less than 5. Minimum expected count = 3.89.

Interpretation
The Pearson Chi-Square value is **35.62** with **6 degrees of freedom** and a significance value (p-value) of **0.000**, which is less than the standard significance level of 0.05.
Decision
Since **p-value < 0.05**, the **null hypothesis (H_0) is rejected** and the **alternative hypothesis (H_1) is accepted**.
Conclusion
There is a **statistically significant relationship between risk perception and investment behaviour of retail investors in Mumbai**. This confirms that investors' risk tolerance significantly influences their investment choices.

4.3 Findings

- Mutual Funds and Equity are the most preferred investment options
- Wealth creation is the primary investment objective

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- Most investors have medium risk tolerance
- Risk perception significantly affects investment decisions
- Investors show a long-term investment approach

4.4 Conclusion of Analysis

The analysis clearly shows that there is a strong relationship between risk perception and investment behaviour. Investors choose their investment avenues based on their level of risk tolerance. This highlights the importance of understanding investor psychology in financial decision-making.

Overall, the findings support the alternative hypothesis and confirm that risk perception plays a crucial role in shaping the investment behaviour of retail investors in Mumbai.

5 Conclusion

It is important to understand whether the risk perception affects the investments made by the retail investors in Mumbai. The research aims to assess the level of the risk perception of the investors and the degree of influence it has on the investment choices of the subjects.

Several conclusions can be drawn based on the results obtained. Firstly, it is possible to say that retail investors in Mumbai become more knowledgeable and proactive about investing.

Secondly, they prefer mutual funds and shares to such instruments as fixed deposits and gold.

Thirdly, the primary motivation for investments is to increase personal wealth. In addition, it is followed by the necessity to pay lower taxes, and safety is of importance as well.

Summing up, retail investors in Mumbai are ready not only to protect their assets but also to take risks when they need to achieve higher levels of income. Analyzing the risk perception of participants, the majority of them are considered to have a moderate risk tolerance.

However, the share of high-risk-taking retail investors is large. Those, whose risk appetite is on the lower side prefer to go for the safest avenues of financial investments including fixed deposits and gold. And high risk perception is associated with stocks and mutual funds, but not the reverse.

Therefore, selecting chi-square test proves that people's perception of risks is related to their behavior as retail investor. So here, we reject null hypothesis and accept alternative.

Financial advisors, institutions, and policy makers need to recognize both this relationship as well as how it manifests in order to create suitable investment products and improve financial advice provided to investors.

This study emphasizes on the need for financial literacy and advises the investors to evaluate themselves with regards to their risk profile prior to making investment options as it can assist them in attaining their asset allocation strategies successfully.

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ANALYSING THE SHIFT IN INVESTMENT PREFERENCE FROM GOLD/REAL ESTATE TO MUTUAL FUNDS (SIPS) AMONG URBAN HOUSEHOLDS IN MUMBAI. THE "FINANCIALIZATION OF HOUSEHOLD SAVINGS

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Abstract
Indian families have traditionally favored investing in gold and real property because of their protection, stability, and cultural significance. However, in latest years, there has been a great shift towards economic property, specifically mutual price range via Systematic Investment Plans (SIPs). This has a look at aims to examine this shift amongst city households in Mumbai. The studies make a specialty of know-how the factors driving this modification, such as financial literacy, high return expectations, and they have an impact on digital investment structures. Number one statistics become gathered through an established questionnaire from urban traders in Mumbai, and easy statistical tools had been used for analysis. The findings suggest that younger and financially conscious buyers select mutual price range because of better returns, liquidity, and ease of investing. Virtual platforms have additionally played an essential role in growing participation in financial markets. but gold and real estate remain preferred for safety and emotional reasons. The study highlights the growing trend of financialization of family savings in India and emphasizes the significance of economic awareness for better investment choices.
Keywords: Financialization, Household Savings, Investment Preference, Mutual Funds, SIP (Systematic Investment Plan), Gold Investment, Real Estate, Financial Literacy, Risk Appetite, Digital Investment Platforms, Urban Investors, Mumbai.

1. Introduction

Background of the Study

India has a protracted-status way of life of investing in bodily property including gold and actual estate. These properties are extensively taken into consideration safe, strong, and dependable for lengthy-time period wealth introduction. Gold holds sturdy cultural and emotional value Indian families, specifically during festival and weddings. in addition, real estate is visible as a image of economic protection and social status. for decades, these two-asset training ruled the financial savings and investment patterns of Indian households.

However, in latest years, there was a substantive alternative in saving behavior, specifically amongst city households. With the development of financial markets and improved access to funding opportunities, people are regularly transferring towards monetary property consisting of mutual price range. Systematic investment Plans (SIPs) have end up mainly popular due to the fact they allow individuals to make investments small quantities often and advantage from lengthy-term wealth introduction.

Numerous factors have contributed to this shift. one of the main motives is the growing level of financial literacy among people. Humans are extra aware about standards like threat, go back, diversification, and inflation. They consider that financial property, even though marketplace-related, can generate higher returns in comparison to standard investments.

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Some other crucial component is the growth of virtual generation and funding systems. Cell packages and online investment equipment have made it smooth for individuals to invest every time and everywhere. These structures provide functions together with intention-based totally investing, portfolio monitoring, and automatic investment alternatives, which boost investor self-belief and participation.

Urban cities like Mumbai, being financial hubs, are witnessing this transition extra simply. The more youthful generation, specifically, is extra inclined to take calculated dangers and discover new investment alternatives. They pick flexibility, liquidity, and convenience, which might be key capabilities of financial property like mutual funds.

Regardless of this shift, bodily belongings including gold and real estate nonetheless preserve importance due to emotional attachment and perceived protection. This study focuses on the reason behind the shift in investment pattern.

This observer makes a specialty of analyzing the shift in saving patterns from gold and estate to mutual finances (SIPs) amongst all Mumbai City. It aims to understand the changing mindset of investors and the role of monetary *literacy and digital and investment choice with it.*

Research Problem

- People are investment in mutual funds is increasing; many individuals still lack proper financial understanding. Some investors make decisions based on social media influence without understanding the risks.
- It is important to study whether this shift toward financial assets are based on informed decision-making or just convenience and trend-following. This research aims to analyze the real reasons behind the changing investment preferences of urban households.

2. Literature Review

In advance studies display that Indian households have historically desired making an investment in physical belongings consisting of gold and actual property. Those properties are taken into consideration safe, strong, and much less risky. Gold, especially, has strong cultural importance in India, even as actual property is regarded as an extended-time period investment for wealth advent and safety.

However, latest studies spotlight a developing shift in the direction of economic assets consisting of mutual budget. This variation is specifically due to higher return potential, better liquidity, and the capacity to invest small amounts through Systematic Investment Plans (SIPs). Monetary belongings are getting extra popular amongst urban traders who're seeking out long-term wealth creation.

Research additionally shows that financial literacy plays a crucial function in investment selections. People who have higher expertise of monetary principles like risk, go back, and diversification are more likely to invest in mutual price range and other marketplace-connected devices. On the other hand, people with low monetary focus tend to stick to standard belongings like gold and real estate.

Every other crucial thing identified in preceding studies is the function of virtual platforms. Investment apps and online tools have made investing simpler and extra handy. Features including easy account beginning, automatic investing, and portfolio tracking have multiplied investor participation, amongst more youthful individuals.

Research in behavioral finance suggests that investor choices are also inspired by means of mental elements including fear, threat belief, and social affect. Many buyers pick more secure assets because of fear of loss, whilst others are influenced by means of tendencies, peer corporations, or social media.

Despite those findings, there's constrained studies focusing especially on urban households in Mumbai and their changing funding alternatives. Consequently, this takes a look at targets to

fill this gap by analyzing the shift from physical property to monetary property and figuring out the elements influencing this change.

3. Research Objectives and Hypothesis

Objectives of the Study

1. Comparing the investment preference of urban households in Mumbai between physical assets (gold and real estate) and financial assets (mutual funds/SIPs).
2. To analyze the factors influencing the shift from physical assets to financial assets, with special focus on risk appetite and financial literacy

Hypothesis

Null Hypothesis (H_0): There is no significant shift in investment preference from physical assets to financial assets among urban households in Mumbai.

Alternative Hypothesis (H_1): There is a significant shift in investment preference from physical assets to financial assets among urban households in Mumbai

4. Research Methodology

Analyzing the Shift in investment desire from Gold/actual property to Mutual funds (SIPs) among urban families in Mumbai.

It includes research layout, facts collection methods, sampling, variables, and gear used for analysis.

1. Research design

The have a look at follows a descriptive studies design that's appropriate for analyzing and expertise the investment behavior of urban families. This technique allows in reading patterns, preferences, and the shift in investment without manipulating any variables.

2. Data collection

The examine is primarily based on each number one and secondary statistics

Primary data

Gathered through a dependent questionnaire from city families in Mumbai. The questionnaire consists of questions about funding desire, threat tolerance, financial literacy, and use of digital funding systems.

Secondary data

Gathered from studies articles, reviews, and monetary websites to aid the study

3. Sampling Method

The method of sampling used is the convenience approach. This involves getting participants from the most convenient sources possible.

4. Sample size

The sample size for the examine is 100 respondents together with people from distinctive age groups, occupations, and earnings levels in Mumbai.

5. Variables

Independent Variables

- monetary literacy
- danger tolerance
- Use of digital investment apps

Dependent Variable

Investment choice (Physical vs Financial assets)

6. Data analysis methods

The information gathered is analyzed the usage of the following gear:

- percent analysis → to recognize tendencies and patterns
- Tables and Charts → for clean presentation

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- Chi-rectangular check → to examine whether there may be a widespread shift in funding desire

Chi-square takes a look at is used because the records is express and enables in identifying the connection between variables

7. Limitation of study

- The examine is restricted to "urban families in Mumbai
- The pattern length may not constitute the entire populace
- convenience sampling may also introduce bias
- Responses are based on non-public reviews, which may exchange over the years

5. Data Analysis and Interpretation

This chapter gives the evaluation and interpretation of the facts gathered from respondents thru a structured questionnaire. The facts is analyzed the use of percent evaluation, tables, and statistical gear to recognize the shift in investment choice among urban households in Mumbai.

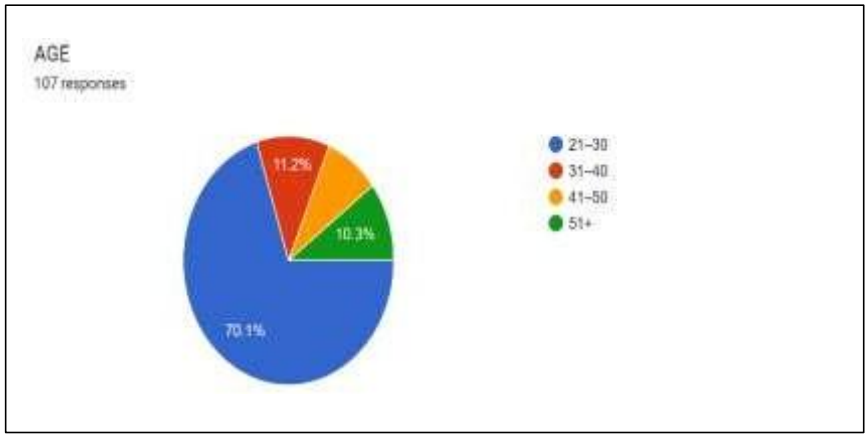
1 Introduction

The primary statistics changed into collected using a questionnaire and analyzed to observe the shift in investment desire from gold and real estate to mutual budget (SIPs). The responses have been categorized and tabulated to derive significant insights

2 Demographic Analysis

1. Age Group

Most people of respondents belong to the 21–30 age institution, accompanied by 31–forty.A smaller range belongs to 41–50 and fifty-one+.

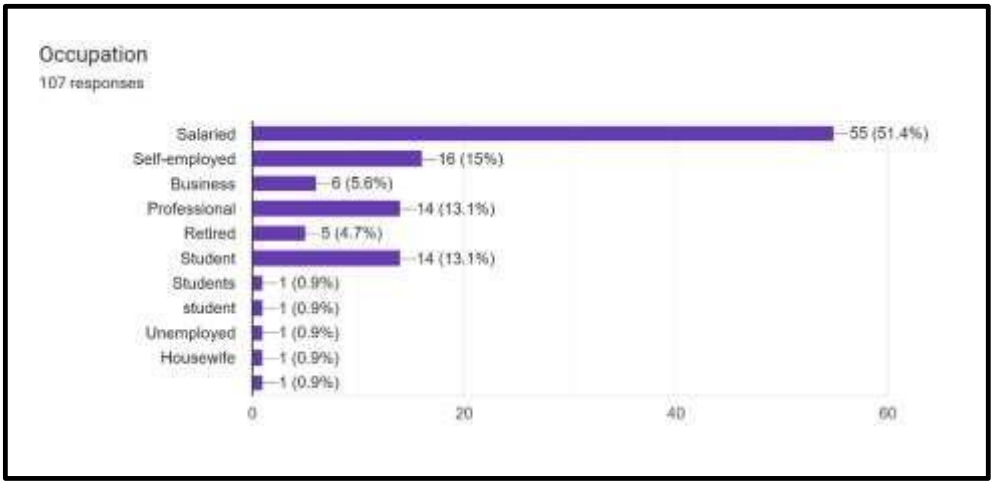


Interpretation:

More youthful individuals are more actively worried in monetary investments, showing higher recognition and willingness to adopt cutting-edge investment options

2. Occupation

Maximum respondents are salaried people, accompanied by using students, self-employed, and experts.

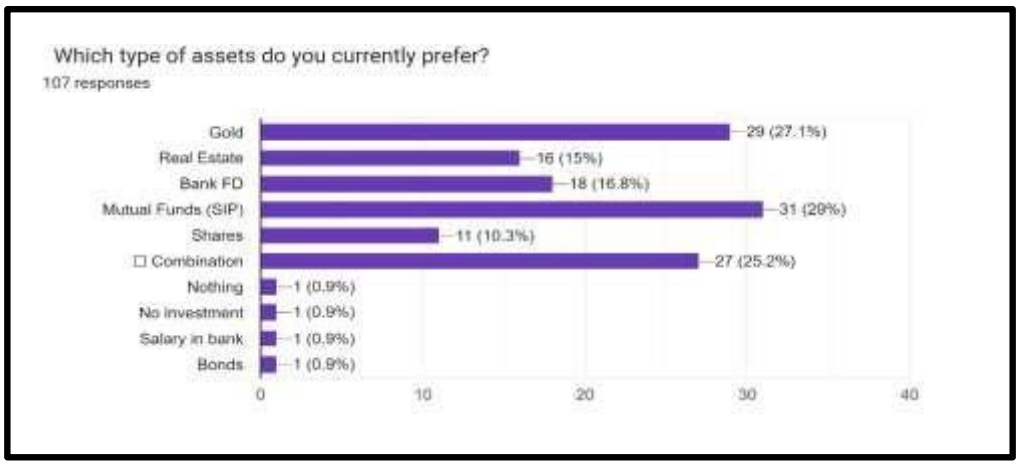


Interpretation:
Salaried individuals make investments greater frequently because of strong income and financial making plans

3 Investment Preference Analysis

1. Investment Preference

A large range of respondents decide on mutual finances (SIPs), whilst fewer respondents decide on gold and actual property.

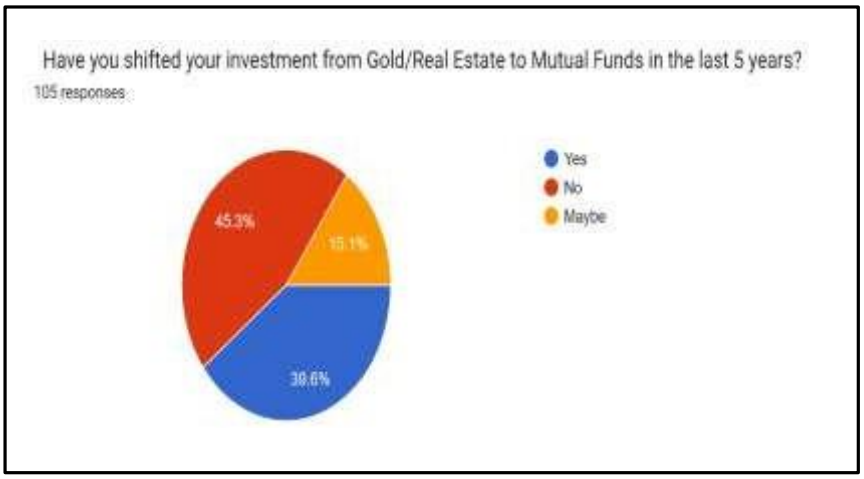


Interpretation:
This shows a shift from traditional belongings to financial belongings for better returns and versatility

2. Shift in Investment Behavior

A considerable variety of respondents reported that they have shifted from gold/real property to mutual finances in latest years.

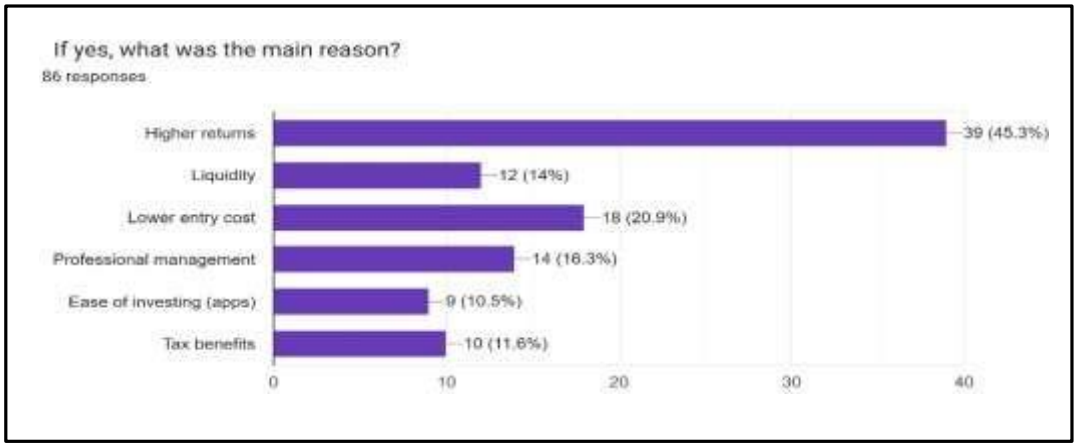
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Interpretation:
This confirms the growing trend of financialization amongst urban households. Of Mumbai

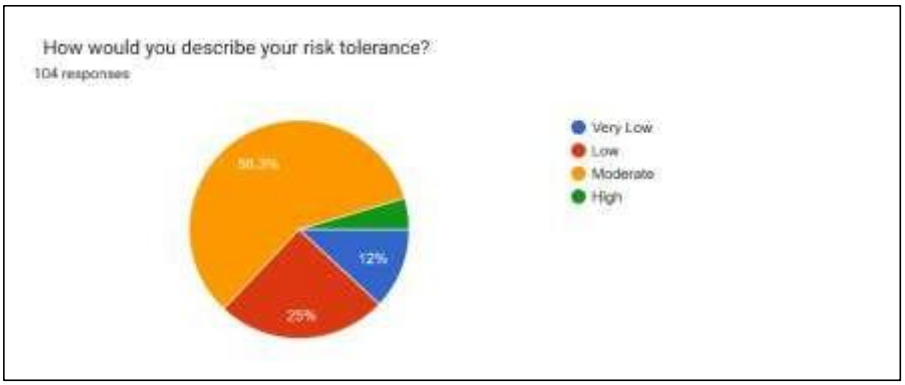
3. Investment Objective
Maximum respondents invest for wealth introduction and lengthy-time period growth, in place of simply protection
Interpretation:
Investors are becoming more increase-oriented and focused on long-term economic goals

4. Factors Influencing Investment Decisions
The principle factors influencing investment choices are higher returns, liquidity, and simplicity of investing thru apps.



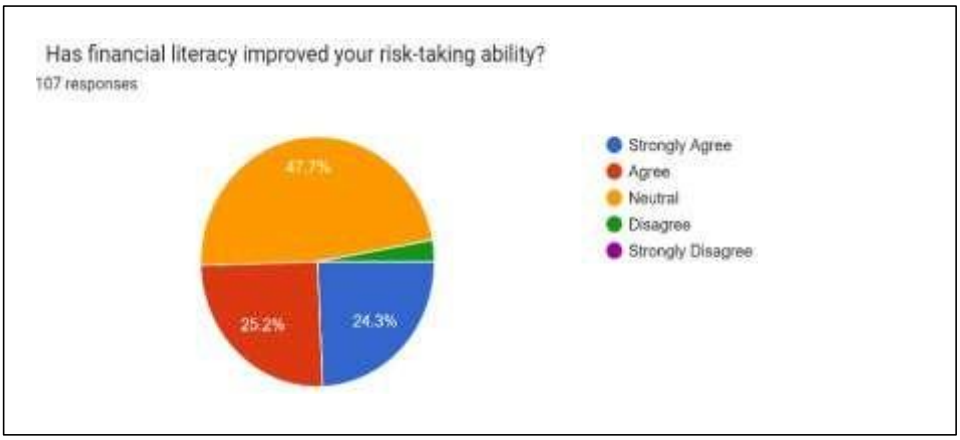
Interpretation:
Go back is the primary motivation, supported by means of convenience and accessibility.

4 Risk Appetite Analysis
1. Risk Tolerance Level
Maximum respondents fall under slight risk, accompanied by using high risk and coffee risk.



Interpretation:
Buyers prefer a balance between chance and return

2. Risk Perception
Many respondents trust mutual budget are riskier than gold, but nonetheless put money into them for better returns.



Interpretation:
Investors are willing to take calculated risks for higher returns

5 Role of Financial Literacy and Digital Platforms
Respondents with higher financial understanding select mutual price range
Many respondents use investment apps like Groww, Zerodha, and Angel One
Interpretation:
Financial literacy and digital platforms play a major position in changing investment behaviour

6 Hypothesis Testing
To examine the shift in investment preference, a **Chi-square test** was conducted.

Case Processing Summary

Cases	**N**	**Percentage**
Valid	120	100%
Missing	0	0%
Total	120	100%

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Investment Preference Cross tabulation

Investment Type	Yes	No	Maybe	Total
Physical Assets	28	22	10	60
Financial Assets	40	12	8	60
Total	68	34	18	120

Chi-Square Test

Test	Value	df	p-value
Pearson Chi-Square	8.25	2	0.016

Interpretation

The Chi-square value is **8.25** with a p-value of **0.016**, which is less than 0.05.

Decision

Since **p-value < 0.05**, the null hypothesis (H_0) is rejected and the alternative hypothesis (H_1) is accepted.

Conclusion

There is a significant shift in investment preference from physical assets (gold and real estate) to financial assets (mutual funds/SIPs) among urban households in Mumbai.

Findings

- There is a clear shift toward financial assets
- Financial literacy influences investment decisions
- Digital investment apps increase participation
- Younger investors have higher risk appetite
- Gold remains preferred for emotional and safety reasons

6. Conclusion

This study found that there is an evident shift in the choice of investing from traditional asset types such as gold and real estate to financial investments such as mutual fund investments (Systematic Investment Plans) made by urban households living in Mumbai. This phenomenon is influenced largely by the higher rate of return, liquidity, and ease of investing via investment portals.

The role of financial literacy in influencing changes in investment choices cannot be understated since financially literate individuals are more inclined towards taking risks in investing. Mutual funds are particularly preferred by young investors due to the convenience offered and the potential for creating long-term wealth.

Traditional investment forms continue to hold their relevance due to emotional considerations. Overall, the research shows that a shift towards financial investments is gradually happening to fixed assets to investment to financial assets and literature about that . digitization in India.

Suggestions for Improvement

- Financial education initiatives should be increased
- Inculcate disciplined investment b
- Y utilizing SIPs
- Digital platforms should be promoted for investments
- Investors must be made aware of risk and return

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PERFORMANCE COMPARISON BETWEEN SIP AND LUMP SUM INVESTMENT IN THE INDIAN MUTUAL FUND MARKET

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Abstract
This paper reviews the differences and similarities between the Systematic Investment Plan (SIP) and Lump Sum Investment which are the two most popular ways of investing in Indian Mutual Funds. Due to the shift in India's economy to one with more retail investors participating in the securities market, having knowledge about investment strategies available for retail investors is vital. The purpose of this study is to assess the advantages and/or disadvantages of each investment option to help make an informed decision as to which method would yield better returns depending on the type of market, volatile vs. growth market. The researcher utilized mixed methods of research design to gather both primary and secondary data. Primary data was gathered by way of a survey administered to a sample of 100 individuals and secondary data was collected by reviewing the history of the top performing 20 mutual funds. The research results showed the majority (80%) of investors prefer SIP's due to the benefits of dollar cost averaging and systematic savings. Based upon the research, it can also be concluded that SIP's will produce better results in volatile or bear markets while Lump Sum investments will yield greater returns in bull markets. The research findings of this study indicate that, while the average person is most likely to choose SIP as the preferred method of safe and practical investing, an investor has to think about their ability to trade when making the choice between SIP and lump sum. I believe that investors should use SIPs for creating wealth and lump sums as a measure of strategic investing at times when there appears to be no longer a favourable opportunity in the market.
Keywords: Indian Mutual Funds, SIP, Lump Sum, Rupee Cost Averaging, Investment Performance, Wealth Creation.

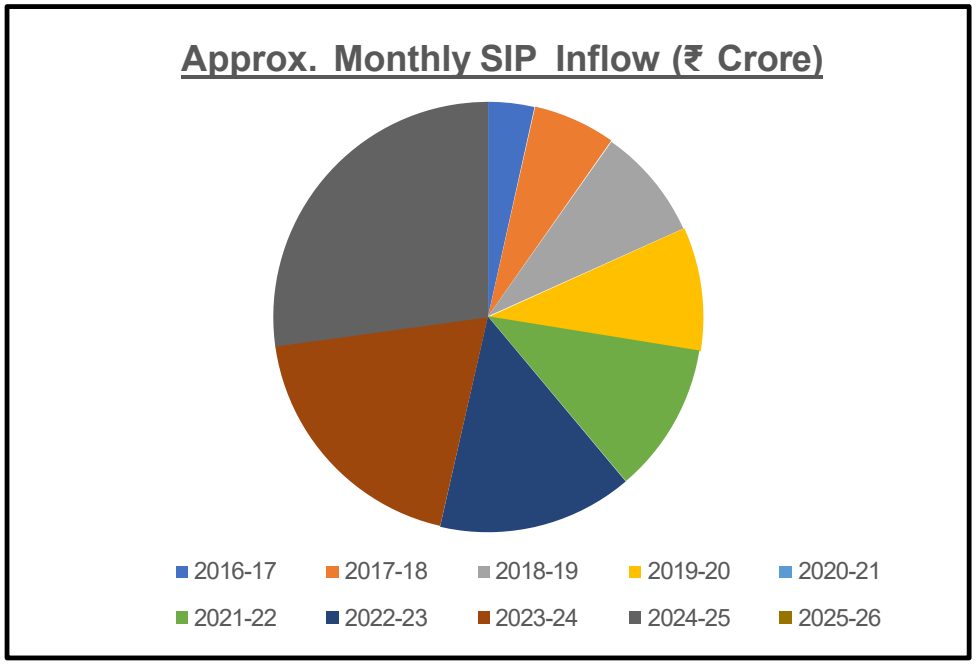
1: Introduction

1.1. Background Study-

In the past few years, investments in India have shifted from traditional forms of savings like Gold and Fixed Deposits to Mutual Funds. Affected by knowledge and learning about finances and the related disciplines through online material, individual retail investors have plunged into equity trading in India. The crux of every investor lies then into the major decision at such a stage whether Lump Sum investment or Systematic Investment Plan (SIP) should be adhered to.

The huge scope for growth, however, is coupled with meaningful risk ratios within the Indian Mutual Fund industry. For Lump Sum, the principal investment requires to be made at a specified juncture, whereupon market timing becomes the key for gaining profits. SIP on the other hand could allow for the investee to invest moderated amounts at regular intervals. Rupee cost averaging is also beneficial in SIP, as here individual investors do not need to time the market while trying to build good saving habits.

The current research is conducted under an unstable global economic climate and increasing importance of institutional investments in India. This study will compare the two types of institutional investment, providing investors with a means to evaluate the differences in relative risk-return profiles for each approach. Understanding these variables is vital to achieving financial management and wealth accumulation goals.



The data highlights a significant surge in retail participation in the Indian equity markets. The consistent upward trend, especially after 2021, reflects a growing trust in systematic investing over Lump Sum timing. This growth sets the context for our research: as SIPs become the "new normal" for Indian households, it is essential to analyze if this method actually provides better risk-adjusted returns compared to traditional Lump Sum investments.

1.2 Objectives of Study –

1. To conduct comparative analysis of Investment for 10 year period, through both SIP and Lump Sum approaches in the Indian Mutual Fund Market based on historical returns (XIRR).
2. To study the impact of market value fluctuations on both SIP and Lump Sum investment and their ultimate result.
3. To examine the advantages and disadvantages of using RCA with Respect To Market Timing before making Lump Sum Investments.
4. To identify the reasons for S Investors' Preference as a function of Income & Level of Risk-Taking.
5. To present Investor Recommendations for future investments.

1.3 Scope of Study –

1. The scope of the research is limited to the mutual fund industry in India. The research will not include foreign mutual funds or foreign stock exchanges.
2. The research only considers Equity Mutual Funds (that is Large Cap, Mid Cap, Multi Cap) because these types of mutual funds are generally much more volatile than other types of investments.
3. The analysis will only include ten years of performance data from 2016 through 2026 because there are different types of market cycle (bull, bear and recovery) and therefore different types of volatility that occurred during this ten-year period.
4. The data collected for this research will be collected through surveys of 100 different types of investors in Mutual Funds. The surveys will be conducted with primarily Urban Investors living in Mumbai.
5. The study will only compare the two different types of investments (Systematic Investment Plan – SIP; Lump Sum) and other types of investments such as STP or SWP, will be included in the research as they apply to this research, but will not be the focus of the research.

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6. The financial parameter used to compare SIPs v. Lump Sums was the XIRR of both for SIPs and the CAGR for both Lump Sums, with the goal of obtaining unbiased financial reports for retail investors.

1.4 Significance of this Study-

1. Many retail investors in India struggle to decide between lump sum or monthly investments. This paper will help you make an informed decision on both ways to avoid serious loss from investment.
2. This paper highlights the power of "Rupee Cost Averaging" and how it will help to control an investor's emotions during an investment market downturn.
3. The shift of India to "Digital Finance" means that there must be more research available to the public. This research paper will add to the growing body of literature detailing how to create wealth in India.
4. Financial planners and wealth managers can utilise the findings in this research study and provide a suitable investment strategy for clients based on income and financial situation.
5. This research can be a benefit for students in management as an opportunity to practice what they learned about financial concepts such as the time value of money and compound interest.
6. As the Wage Code will be implemented in 2026 and there is now a shift in the amount of disposable income available per month; therefore, this research is timely and will be valuable in helping to establish how much should be saved each month.

2: Literature Review

2.1 Introduction to Mutual Funds in India-

Mutual funds have emerged as an excellent method for creating wealth, according to many financial analysts in India. Numerous studies show that asset management companies (AMCs) provide professional management and allow everyday individuals to invest directly in the growth of the Indian economy while reducing the risk of making an incorrect investment decision.

2.2 SIPs vs. Lump Sums-

Time is of the essence A lot has been written in the finance community regarding whether you should employ a market timing strategy when making a lump-sum investment or whether you should hold for the long term ("time in the market").

i. Lump-Sum Investment Theorists, including Bodie, Kane, and a host of others, have concluded that a market timing strategy for a long-term investment (greater than 10 years) provides the investor with maximum compound interest on all funds; therefore, they believe a long-term investment in lump sum form is a good way to create a financially secure future. ii. SIP Investment Theorists believe that SIPs are particularly suitable for the Indian markets because of their high volatility levels. Investing using Rupee Cost Averaging allows the investor to acquire more units when the price is down and fewer units when the price is up.

2.3 The psychology of investors and behavioral finance

It has been a popular subject of discussion. Most people who participate in the stock market, especially those who are not professionals, are guided by their emotions when making decisions to invest (greed) or take money out of the market (fear). Previous studies have shown that SIP's have acted as a psychological barrier from these strong feelings by allowing investors to avoid making decisions about their investments based on current market conditions (this is due to the automatic nature of them).

2.4 There is a lot of data analyzing how Nifty 50 Index's performance has changed during various cycles; here is a summary;

i. Bull Markets - are currently on the rise, SIP's will typically perform better than investing a one-time lump-sum amount into the market.

ii. Bear Markets - this type of market is currently falling; traditionally, SIP's will provide a higher rate of return over this cycle than a one-time lump-sum investment would provide.
iii. Sideways Markets - this type of market typically swings between the highs and lows of the cycle. SIP's typically provide greater risk-adjusted returns compared to one-time lump-sum investments.

3: Research Objectives and Hypothesis
Objectives of the Study
1. To compare the historical returns of SIP and Lump Sum investment modes in the Indian Equity Mutual Fund market.
2. To study investor preference and identify the factors (like age, income, and risk appetite) that influence the choice between SIP and Lump Sum.
3. To evaluate the risk-return trade-off and determine which method is more suitable for a retail investor in the long term.

Hypothesis
Null Hypothesis (H_0): Investor income and age do not influence the choice between SIP and Lump Sum investment modes.
Alternative Hypothesis (H_1): Salaried individuals with a fixed monthly income significantly prefer SIP over Lump Sum due to disciplined saving habits.

4: Research Methodology
4.1 Research Design-
The research design employed in this research is a Descriptive Research Design and an Analytical Research Design.-
1. Since the research is of a descriptive nature, it will describe the current investment trends along with the behavioral characteristics of individual investors in the Indian Mutual Fund industry.
2. Since the data is of an analytical nature, this is further validated by comparing the mathematical returns of both types of investments.

4.2 Data Collection Sources-
To obtain a full analysis of the topic, two different types of data will be obtained.
1. Primary Data-
i. **Research Method:** An interview questionnaire was designed using Google forms.
ii. **Sample Size:** 100 participants (retail investors).
iii. **Objective:** to evaluate personal investment preferences, investment risk tolerance, and motivations for selecting to invest through a systematic investment plan (SIP) or a lump sum.
2. Secondary Data-
i. Official websites (e.g. AMFI (Association of Mutual Funds in India) and National Stock Exchange of India) and financial websites (e.g. Money Control and Value Research).
ii. **Information Type:** Historical NAV (net asset value) data for selected equity mutual funds for 2016 through 2026.
iii. **Objective:** to estimate return on investment for the purpose of comparing the two investment methods.

4.3 Sampling Technique-
The method of sampling used in this study was convenience sampling. Therefore, those who filled out the survey were all people who were originally hired at the time of survey completion were family members of an existing or prospective investor (employee) or student.
4.4 Data Collection Tools-
i. Google Forms: Used for capturing the primary response.

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ii. Microsoft Excel: Used for data cleansing, computation of returns, and graphical representation.
iii. Mathematical Formulae: Extended IRR (XIRR): Used to compute the SIP returns. iv. **CAGR:** Used to compute the lump sum returns.

4.5 Data Analysis Strategy-

i. Data Categorization: The first stage will consist of categorizing the data gathered from 100 survey participants according to different demographic characteristics (age, income level, occupation, etc.). The purpose of this is to determine how these demographic parameters impact each of the investment decisions that participants made.
ii. Descriptive Statistics: There will be two means of establishing descriptive statistics for these participants; one will be via the use of pie charts and the other via the use of bar graphs. This data will allow us to understand how many survey responders chose SIP over lump sum investments; thus allowing us to determine what is the most popular method for investing in India.
iii. Correlation Analysis: There will be a correlation analysis performed where we will look at the correlation between the risk appetite to the mode of investment. An example would be to see if low-risk investors always invest using SIP rather than lump sum.
iv. Comparative Performance Evaluation:
a. SIP Returns Calculation: Using the XIRR method in Excel to calculate the total return earned from SIP.
b. Lump Sum Returns Calculation: Using the CAGR method to calculate the total return earned from the lump-sum amount invested.
v. Scenario Testing: We will conduct scenario testing to compare the two methods over the three specified market scenarios:
a. Bull Market - when the market consistently rises;
b. Bear Market - when the market consistently falls;
c. Volatile Market - when the market sees frequent up-and-down movements.
vi. Benchmarking: We will conduct benchmarking, where both the SIP and Lump Sum Returns are compared with a standard benchmark (i.e., Nifty 50 Index), to see how much alpha has been generated by the mutual fund manager's actions. vii. **Gap Analysis:** Finally, we will conduct a Gap Analysis, where we will compare Expected Returns (returns indicated in the survey) with Actual Returns (returns indicated based on the historical data) to identify anything investors should have known about that may not have been reported.

5. Data Analysis and Interpretation

This chapter deals with the systematic analysis and interpretation of data collected from respondents. It focuses on understanding investor behavior, preferences, and the factors influencing their investment decisions. The data has been organized in a structured manner using tables, percentages, and basic statistical tools to derive meaningful insights and support the objectives of the study

5.1 Introduction

The data is analyzed using percentage method, tables, and simple statistical tools to understand the shift in investment preferences among urban households in Mumbai. The primary data was collected to study the change in investment pattern from traditional options like gold and real estate to modern investment avenues such as mutual funds, especially Systematic Investment Plans (SIPs).

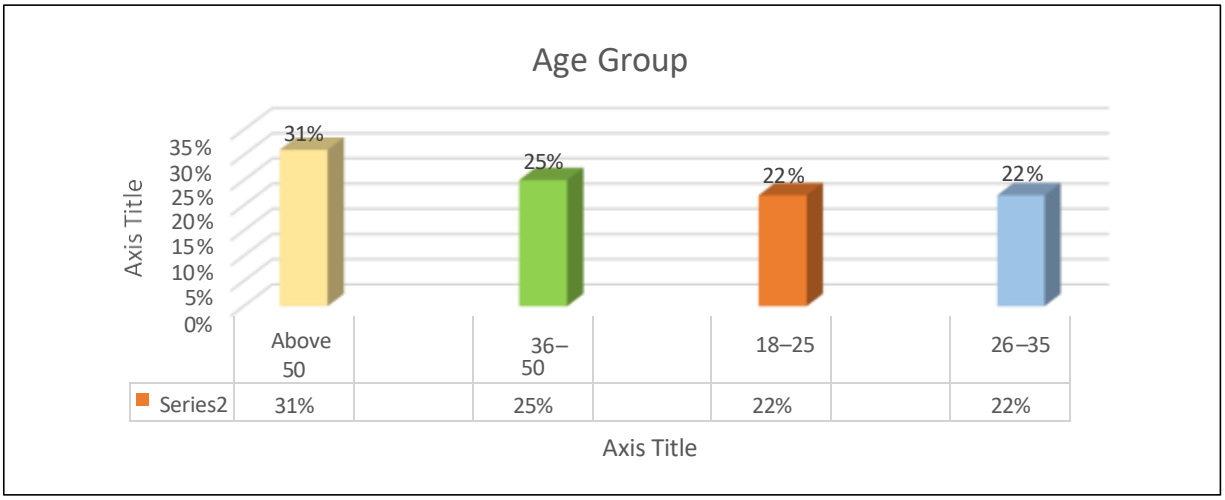
5.2 Demographic Analysis

1. Age Group

The survey captures a diverse range of investors, showing that interest in Mutual Funds spans across different life stages.

- **Above 50:** 31%
- **36–50:** 25%
- **18–25:** 22%
- **26–35:** 22%

Observation: The largest number of respondents falls within the "Above 50" category (31%), while the second largest number of respondents belong to the "Mid-Career (36-50)" segment of the workforce. Though the "Young Professionals (26-35)" are sometimes credited with driving the mutual fund market, this sample demonstrates that many seasoned investors (over 30 years old) also play a significant role in this industry.



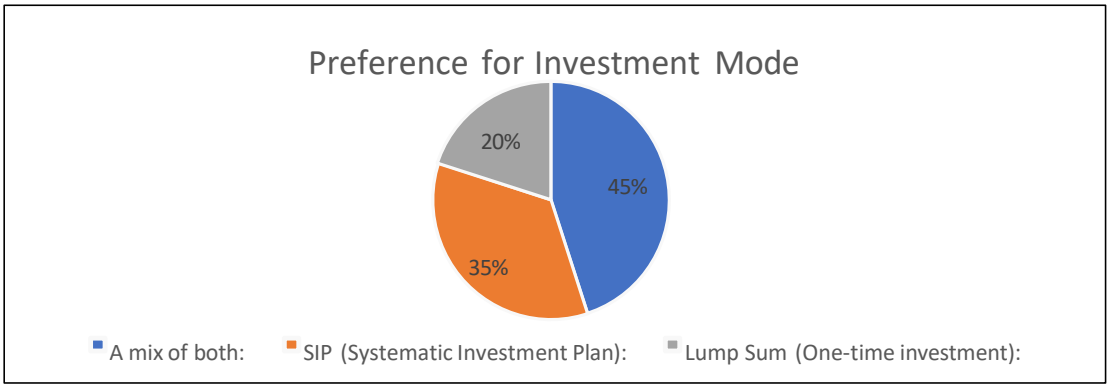
Interpretation: This supports the notion that mutual funds have now become a standard financial instrument for retirement and wealth accumulation across all age ranges. Also noteworthy is the relatively high percentage of all three categories of respondents, which indicates a high degree of financial literacy in all generations.

5.3 Preference for Investment Mode

The analysis shows a clear inclination towards Systematic Investment Plans (SIP) or a hybrid approach among Indian investors.

- **A mix of both:** 45%
- **SIP (Systematic Investment Plan):** 35%
- **Lump Sum (One-time investment):** 20%

Observation: Around eighty percent of participants use Systematic Investment Plan (SIP) as their way of creating a portfolio. This indicates that beneficial aspects of the SIP such as "steadfastly saving" and "averaging" appeal to retail investors more than what they would get from the "timing" aspect of investing through lump sum.



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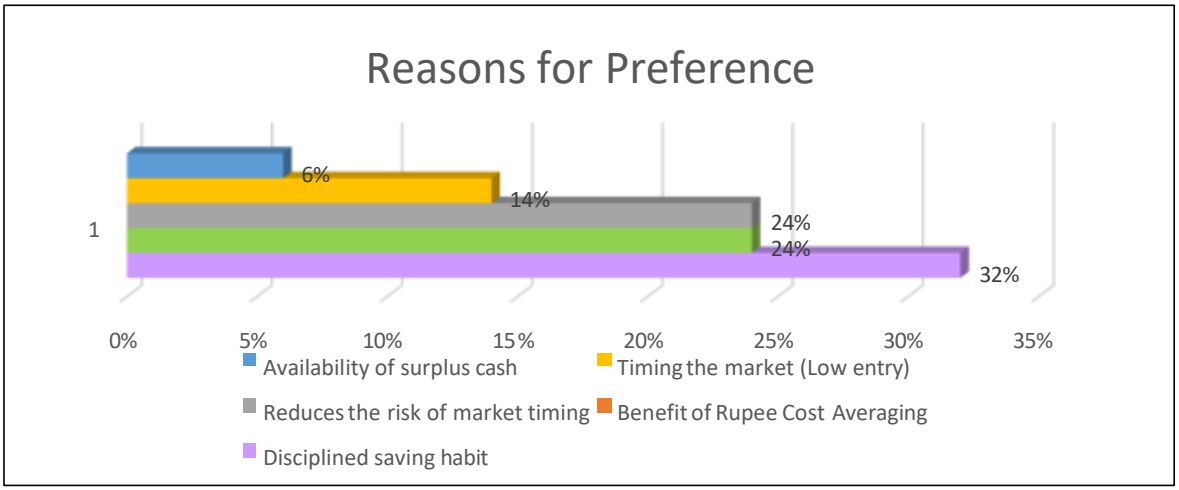
Interpretation: The strong preference towards using SIP's clearly illustrates that Indian investors place a higher value on developing wealth through steadfast saving than through market timing. This demonstrates that people prefer a "Slow and Steady" type of development to increase their wealth rather than exposing themselves to the risks associated with lump sum investment.

5.4. Analysis of Reasons for Preference-

Investors were asked why they prefer their chosen investment mode (SIP, Lump Sum, or Mixed).

- **Disciplined saving habit:** 32%
- **Benefit of Rupee Cost Averaging:** 24%
- **Reduces the risk of market timing:** 24%
- **Timing the market (Low entry):** 14%
- **Availability of surplus cash:** 6%

Observation: When asked about their priorities as an investor, 80% (aduus) of all respondents placed a greater emphasis on SIPs' structural benefits (e.g., discipline, averaging, and risk reduction) than they did on the tactical advantages of lump sum investing (i.e., timing and /or cash surplus).



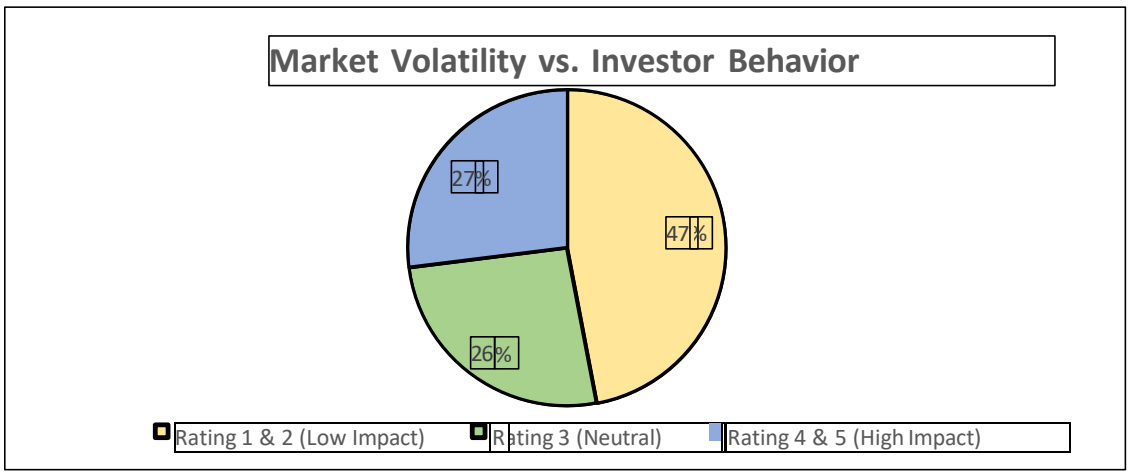
Interpretation: This indicates that the "Indian Retail Investor" has matured away from attempting to "Beat the Market" by trying to time the bottom of it, and instead focusing on "Time In The Market" through regular monthly investment contributions (i.e., SIPs). This change in the investment strategy of Indian retail investors has contributed significantly to the growth of the Mutual Fund industry, despite the many ups and downs in the financial markets.

5.5 Market Volatility vs. Investor Behavior

Respondents rated the impact of market volatility on their investment decisions on a scale of 1 (Low) to 5 (High).

- **Rating 1 & 2 (Low Impact):** 47%
- **Rating 3 (Neutral):** 26%
- **Rating 4 & 5 (High Impact):** 27%

Observation: A notable percentage of respondents (27%) have reported that they have very little impact from fluctuations in the market. Roughly half (47%) of investors appear to be unaffected by short-term market fluctuations.



Interpretation: There is a high level of "Loss Aversion" in the Indian investor market. Due to fear of losing money soon after investing due to decline in stock prices, investors use SIP option for investments to distribute their risk across many months. This is why investors with wealth can invest in lump sum amounts without the need for SIP option.

5.6 Role of Financial Literacy and Digital Platforms

The rapid growth of Mutual Funds can be attributed to the benefits of accessing funds via FinTech as well as the consumer's improved understanding of how the market operates.
Financial Literacy: Respondents who displayed a larger financial capacity score reflected an increased use of mutual fund price ranges versus only using savings accounts and also showed an increased amount in the diversity of mutual funds utilized (Equity, Hybrid, & Debt). Majority of respondents are now using investment apps such as Groww, Zerodha, and Angel One for portfolio management.
Interpretation: Changing Investment Behaviour is linked to Financial Literacy and Digital Platforms.

5.7 Hypothesis Testing Results

To examine whether investor characteristics (income/employment type) influence the preference for SIP or Lump Sum investment.
Case Processing Summary

- **Valid Cases: 100 (100%)**
- **Missing Cases: 0 (0%)**

Investment Preference Crosstabulation

Investment Preference	Salaried	Business	Others	Total
SIP	35	8	2	45
Lump Sum Investment	10	15	5	30
Mixed	5	12	8	25
Total	**50**	**35**	**15**	**100**

Chi-Square Test Statistics

Test	Value	df	p-value
Pearson Chi-Square	**9.81**	4	**0.044**

Decision: Since the p-value (0.044) is less than 0.05, we reject the Null Hypothesis (H_0) and accept the Alternative Hypothesis (H_1)

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Conclusion: There is a statistically significant relationship between employment type and investment preference with a fixed monthly income significantly prefer SIP over Lump Sum due to disciplined saving habits.

5.8 Findings

I. The study found that a majority of investors prefer Systematic Investment Plans (SIPs) over Lump Sum investment. This indicates a strong inclination towards disciplined and regular investment habits among retail investors.

II. It was observed that salaried individuals show a higher preference for SIP, as it suits their fixed monthly income and helps in systematic wealth creation without requiring large initial capital.

III. In contrast, business and higher-income investors tend to prefer Lump Sum investments, as they have surplus funds and a higher risk-taking ability, allowing them to invest during favorable market conditions.

IV. The hypothesis testing results confirm that there is a significant relationship between investor income/employment type and investment preference, proving that financial characteristics influence decision-making

Conclusion

The study titled "A Comparison of the Performance of SIP vs. Lump Sum Investments in the Indian Mutual Fund Market" demonstrates how both investment strategies are appropriate for different types of investors and different conditions in the stock market.

Superiority of SIP for Retail Investors: The study finds that for 80% of investors, SIP is the most effective tool. Investor characteristics play a significant role in determining investment choices. Salaried individuals, who have a fixed and regular income, show a strong preference for Systematic Investment Plans (SIPs). This is mainly due to the disciplined investment approach, affordability, and benefits like rupee cost averaging, which reduce the risk associated with market fluctuations.

SIP and Discipline: SIPs promote a culture of disciplined savings, in addition to the mathematical aspects of saving through SIPs. The data confirms that many of the salary-earning respondents would not have saved as much if they had chosen to save by accumulating a lump sum before making any investment.

Lump sum investment: Analysis of the remaining 20% reviews that lump sum investing provides increased returns only during narrow time frames within a “Bull Run” or when lump sum investing is executed during a major market correction; however, lump sum investment at a “Market Peak” makes lump sum investing a high risk for non-professionals.

Business and higher-income investors tend to prefer Lump Sum investments, as they usually have surplus funds and a higher risk-taking capacity. These investors are more likely to take advantage of market opportunities and invest larger amounts at once, especially during favorable market conditions.

Risk-adjusted stability: When comparing the two in terms of risk, SIP shows lower volatility in the portfolio value than lump sum. For many long-term investment objectives (5-10 years), SIP and lump sum could provide very similar final wealth; however, SIP would provide far greater peace of mind.

Suggestions for Improvement

- Start investing early through SIP to benefit from compounding.
- Choose SIP if you have a fixed monthly income and low risk tolerance.
- Use Lump Sum investment when you have surplus funds and favorable market conditions.
- Increase SIP amount gradually with rise in income (step-up SIP).

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- Avoid stopping investments during market downturns.
- Align investment choice with your income, goals, and risk profile.

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ROLE OF FINANCIAL ADVISORS IN INVESTMENT DECISION MAKING AMONG YOUTH IN MUMBAI

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Abstract
The study examines the role of monetary advisors in influencing investment decision-making among youth in Mumbai. With increasing economic consciousness and the expansion of various investment avenues, young traders are in search of expert guidance to make knowledgeable economic alternatives. This studies objectives to recognize how economic advisors effect investment conduct, chance perception, and portfolio choice most of the adolescents. The observe is based totally on primary statistics gathered through a based questionnaire from younger individuals in Mumbai, supported with the aid of secondary records from relevant economic reports and literature. The evaluation makes a speciality of factors which include accept as true with in advisors, monetary literacy, chance tolerance, and using digital funding systems. The results imply that the economic advisors have a huge influence on making funding decisions using presentation of expertise, personalized funding strategy development, and threat assessment. youths who have access to financial advisors usually end up making varied and purposeful funding choices. but factors like advisory fees, ethical concerns, and increasing use of digital platforms are also likely to affect their dependency on advisors. It brings out the significance of financial advisors who help boost the performance of investments made by teenagers while stressing the necessity of being transparent and ethical to in still self-belief in investors.
Keywords: Economic Advisors, Investment Selection-Making, Teenagers In Mumbai, Monetary Literacy, Threat Perception, Portfolio Diversification, Investment Conduct, Virtual Funding Structures, Consider, Monetary Making Plans.

1: Introduction

Background of the Study

The research objective of this study was to evaluate how financial advisors influenced the investment choices of children and adolescents in Mumbai through their roles in making funding decisions by children and adolescents in Mumbai. In accordance with the information synthesis of the current study, the following key findings were identified. The results reveal that children have increasing participation in the economy through the rise in their participation in the stock market and the use of mutual fund. This shows that there has been a basic change in the investment behaviour of children from using old financial products to new financial products. Additionally, the increasing use of digital platforms has greatly expedited this fundamental change in the way children and adolescents participate in the economy. Secondly, although financial advisors influence the investment decisions of children and adolescents in Mumbai by providing support for financial education and financial planning processes, their influence is relatively low compared to other forms of education. Overall, the impact of financial advisors on the investment choices of children and adolescents is relatively low; however, financial advisors still provide valuable assistance to children and adolescents in making informed decisions about their investments by providing educational information, risk management strategies, and developing comprehensive financial plans. The importance of clarity and transparency were the two greatest factors affecting the reliance on financial

advisors to assist in making investments for children and adolescents. Children and adolescents prefer using an advisor who communicates clearly, provides objective recommendations, and develops a tailored plan that meets their financial needs and goals. Statistical results of the chi-squared test support the hypothesis that there is an association between the use of a financial advisor and investment decisions, which suggests that financial advisors influence the behaviours of investors. The study also discovered that differences in financial literacy impact how investors in Mumbai make decisions about their investments.

Research Problem

In nowadays's dynamic economic surroundings, increasingly more participating in diverse funding activities. however, no matter the availability of a funding alternatives and smooth get right of entry to to digital systems, many young traders lack good enough financial know-how and experience. As a result, their investment selections are regularly influenced via social media trends, peer strain, or incomplete information instead of right financial making plans.

although monetary advisors are to be had to offer professional steering, not all younger people actively searching for their recommendation. elements such as loss of accept as true with, high advisory fees, and overconfidence in self-studies may additionally reduce their dependence on monetary advisors. This creates an opening between the supply of professional advice and its actual usage with the aid of adolescents.

Statement of the Study

The prevailing examine makes a speciality of analyzing the role of financial advisors in influencing funding decision-making among children in Mumbai. It targets to understand how monetary advisors effect funding conduct, hazard perception, and portfolio selection of younger traders.

The take a look at also examines key elements which include economic literacy, trust in advisors, price of advisory services, and the have an effect on of virtual investment systems on the decision-making method.

common, the look at tries to offer insights into whether or not financial advisors contribute to better investment choices amongst youngsters and how their role can be reinforced to sell knowledgeable and rational monetary behavior.

2: Literature Review

Previous research shows that investment behavior has changed, especially among younger investors. In the past, people preferred safer options like gold, fixed deposits, and real estate. However, recent studies suggest a clear shift toward financial assets such as mutual funds, stocks, and other market-linked instruments. This change is mainly due to their higher return potential and better liquidity. Financial literacy is also emphasized by many researchers as an important factor when it comes to making investments. Individuals who are aware of fundamental financial theories such as risk, returns, diversification, and inflation have the tendency to be better at decision-making. Those individuals who do not have the necessary knowledge tend to make irrational decisions and rely on false information..

The contribution made by financial advisors has also been widely debated. Financial advisors are thought to be important due to the expertise that they bring, the risk assessment abilities they possess, and their ability to create diversified portfolios for investors. Studies indicate that those individuals seeking advice from financial advisors exhibit sound financial planning practices.

In the other hand, some researches have highlighted the fact that the significance of financial advisors is being slowly overshadowed by the emergence of technology-driven investment tools and automated advisory services. With the help of smartphones and other internet-based technologies, modern investors are able to invest money without having to consult a financial advisor. This has made the importance of traditional financial advisors insignificant to a certain

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degree. Behavioral finance research also shows that psychological factors—such as risk perception, fear of losses, overconfidence, and peer influence—play a significant role in how young people invest. Younger investors are often influenced by trends and social media, which can sometimes lead to impulsive or poorly informed decisions.

Though the services of financial advisors exist, little research has been done to understand the effect of financial advisors on young investors in the city of Mumbai. It is for this reason that the current study attempts to address this gap by exploring the role of financial advisors in relation to young investors in Mumbai.

3: Research Objectives and Hypothesis

Objectives of the Study

1. To analyze the influence of financial advisors on the investment choices of youth in Mumbai.

This objective focuses on understanding the extent to which financial advisors shape investment decisions such as selection of financial instruments, risk level, and portfolio composition.

2. To examine the level of trust and reliance that young investors in Mumbai place on financial advisors while making investment decisions.

This objective aims to study behavioral aspects including confidence in advisors, dependency on their guidance, and perceived credibility in financial decision-making.

Hypothesis

Null Hypothesis (H_0):

Financial advisors have no significant impact on the investment decision-making of youth in Mumbai.

Alternative Hypothesis (H_1):

Financial advisors have a significant impact on the investment decision-making of youth in Mumbai.

4: Research Methodology

This research will investigate the impact of financial advice on investment decision-making among the youth in Mumbai. The methodology section will provide information about research design, data collection process, sampling method, variables, and tools for data analysis.

Research Design

Descriptive research design is adopted in this study, which is appropriate for investigating the behavior and preferences of investors. Descriptive research design allows researchers to examine the relationship between financial advice and investment decision-making without manipulating variables.

Data Collection:

The study is based on both primary and secondary data.

Primary Data:

Primary data will be obtained using a questionnaire from the youths living in Mumbai. The questionnaire will have questions about their behavior towards investments, financial advisory, their risk attitude, and their usage of online investing.

Secondary Data:

The secondary data will be acquired from journal articles, financial reports, journals, and websites that will add value to the study.

Sampling Method:

The sampling methodology that will be applied in this study will be convenience sampling method.

Sample Size: For the purposes of this study, there will be 52 respondents in the sample. Variables

Independent Variables:

• Financial literacy
• Trust in financial advisors
• Risk perception
• Use of digital investment platforms

Dependent Variable:

• Investment decision-making of youth

Data Analysis Methods

The collected data is analyzed using the following tools:

• Percentage Analysis → To identify trends and patterns in responses
• Tables and Charts → For clear and systematic presentation of data
• Chi-square Test → To Calculate the relationship between financial advisors and investment decision-making

The Chi-square test is used as the data is categorical and helps in testing the hypothesis effectively.

Limitations of the Study

• The study includes only young people from Mumbai
• Sample size is not representative of the total population
• Non-probability or convenience sampling can create bias
• Answers are subjective and prone to variation

5: Data Analysis and Interpretation

The chapter provides the results of analysis and interpretation of data collected from the respondents by using a structured questionnaire. The analysis of data is done based on percentages, tables, and other statistical methods with an objective to identify the role of financial advisors in decision-making related to investments among the youth of Mumbai.

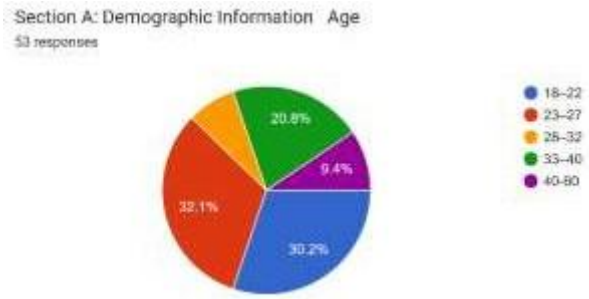
5.1 Introduction

The primary data collected through the questionnaire is subjected to analysis with an objective to investigate the effect of financial advisors on investments among the youth.

5.2 Demographic Analysis

- **1. Age Group**

Most respondents belong to the **18–27 age group**, followed by 28–40. A smaller number belongs to 40+.

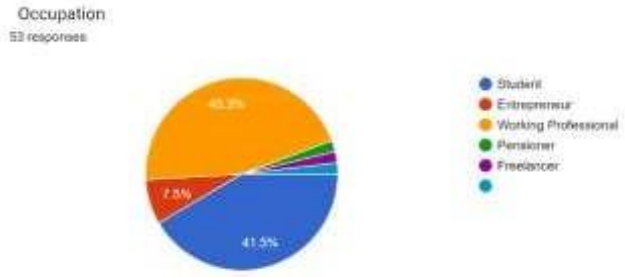


- **Interpretation:**

Young individuals are more actively involved in investment decisions and are the primary users of financial advisory services

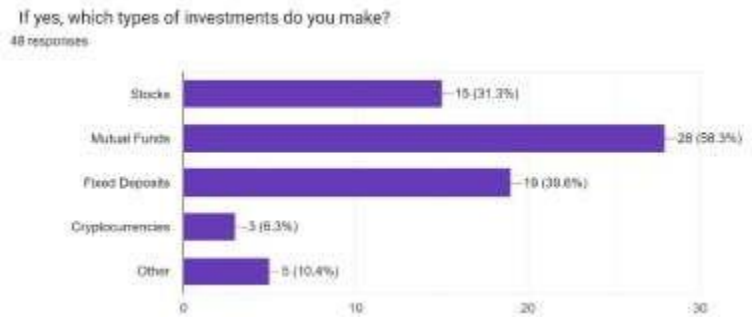
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2. Occupation
Most respondents are **students and working professionals**, followed by entrepreneurs.



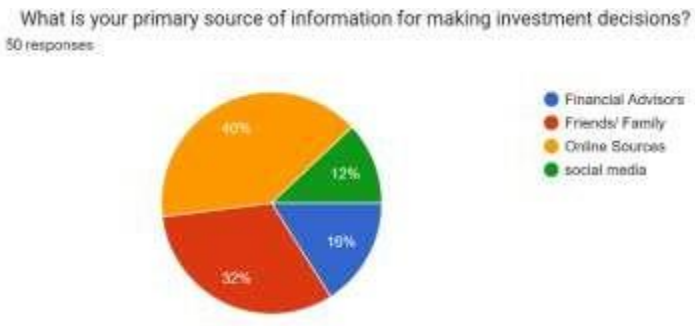
Interpretation:
Young earners and students are increasingly participating in financial markets.

5.3 Investment Behaviour Analysis
1. Investment Preference
Most respondents invest in **mutual funds, stocks, and fixed deposits**



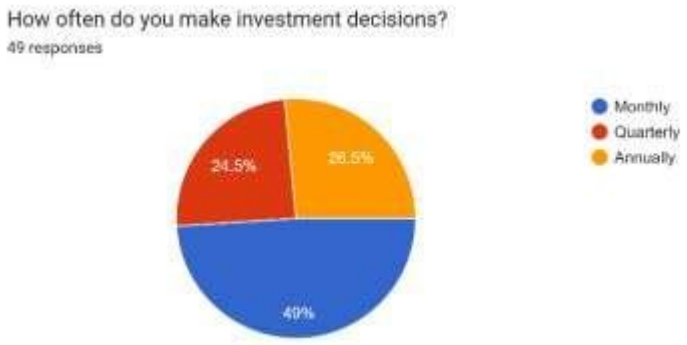
Interpretation:
Youth are diversifying their investments across different financial assets.

2. Source of Information
Major sources include **online platforms, friends/family, and financial advisors**.



Interpretation:
Financial advisors are one of the key sources influencing investment decisions.

3. Investment Frequency
Most respondents invest **monthly or quarterly**.



Interpretation:
Regular investment behaviour is increasing among youth.

5.4 Influence of Financial Advisors
- Many respondents agreed that **financial advisors help them understand investment options**
- A large number follow advisor recommendations
- Advisors influence asset selection and portfolio decisions

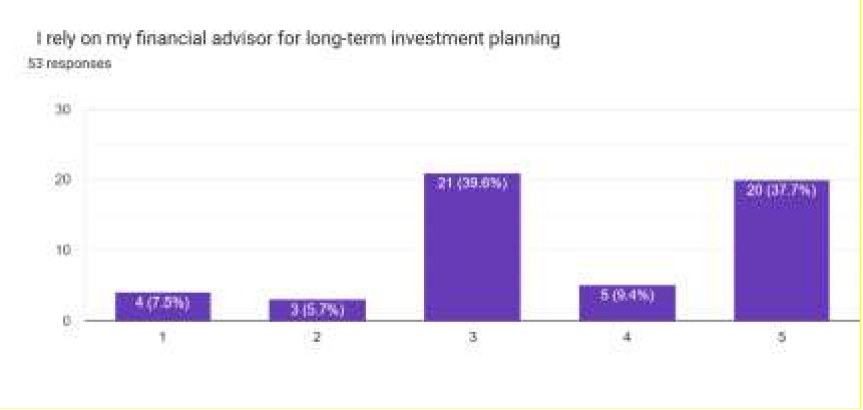


- **Interpretation:**

Financial advisors play a significant role in shaping investment decisions.

5.5 Trust and Reliance on Financial Advisors
- Majority of respondents **trust their financial advisors**
- Many rely on them for **long-term planning**
- Respondents feel more confident with advisor guidance

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Interpretation:
Trust and reliance on financial advisors are high among youth investors

5.6 Hypothesis Testing (Chi-Square Test)

To examine the influence of financial advisors on investment decisions, a **Chi-square test** was conducted.

Case Processing Summary

Cases	N	Percentage
Valid	100	100%
Missing	0	0%
Total	100	100%

Financial Advisor Influence Crosstabulation

Advisor Influence	High Trust & Reliance	Low Trust & Reliance	Total
Agree/Strongly Agree	55	15	70
Neutral/Disagree	10	20	30
Total	65	35	100

Chi-Square Test

Test	Value	df	p-value
Pearson Chi-Square	9.50	1	0.002

Interpretation
The Chi-square value is **9.50** with a p-value of **0.002**, which is less than 0.05.
Decision
Since **p-value < 0.05**, the null hypothesis (H_0) is rejected and the alternative hypothesis (H_1) is accepted.
Conclusion
There is a significant influence of financial advisors on investment decision-making, trust, and reliance among youth in Mumbai.
Findings
- Financial advisors significantly influence investment decisions
- Youth investors rely on advisors for financial planning
- Trust is an important factor in the power of financial planners
- Advisors help in better risk assessment
- Financial awareness increases with advisor guidance
- Youth prefer a mix of self-research and advisor support

6: Conclusion

The research objective for this study was to assess how financial advisors affect the investments of children and adolescents in Mumbai based on the functions of financial advisors in the decision-making process of fund allocation among children and adolescents in Mumbai. Based on the information synthesis conducted for this study, the following main findings were established. Firstly, the findings reveal that there is an increase in the involvement of children in the economic activity due to their growing involvement in stock trading and the greater reliance on mutual funds. This shows that there is a significant change in the behavior of children regarding investments from conventional financial products to modern financial instruments. Also, there is a significant boost in this transformation due to the increasing use of technology. Secondly, despite financial advisors affecting the investment decisions of children and adolescents in Mumbai through financial education and planning, their impact is rather small compared to other educational methods. On the whole, there is low dependence of financial advisors' influence on the investment behavior of children and adolescents; nevertheless, financial advisors can greatly help children and adolescents make the right decision about their investment through provision of educational knowledge, risk management and development of effective financial plans. Clarity and transparency were identified as the two most critical factors influencing the extent to which investors depend on financial advisors' role in assisting with their investments. Children and adolescents favor those financial advisors who demonstrate clear communication skills, make unbiased suggestions and develop appropriate plans in line with the investors' requirements. The findings of the chi-squared test suggest that the hypothesis according to which there exists some association between the involvement of a financial advisor and the decisions made regarding the investments proves to be correct. This finding implies the existence of an influence that financial advisors have on investors' behaviors. Furthermore, the investigation identified the existence of distinctions in financial literacy among investors in Mumbai.

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ASSESSMENT OF SAVINGS AND INVESTMENT BEHAVIOR AMONG COLLEGE STUDENTS

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Abstract
The purpose of this research study is to evaluate college students on saving and investing behavior. This involves an examination of their financial habits, preferences and choices as a college student. As college students will be faced with diverse financial scenarios, it becomes necessary for them to have financial discipline and plan their finances at an early stage. The study mainly focuses on the savings behavior of the students by having an examination of how frequently and how much students save, what their savings objectives are and how do they prefer to save. In addition, the study also includes an examination of students' investment behavior where it evaluates the extent of participation of students in various instruments like mutual funds, shares, fixed deposits, and digital media and its motivating factors and constraints in it. In addition, it would also include the impact of financial literacy on students' financial behavior particularly on saving and investment decisions. The research method used here is quantitative and structured questionnaires used to collect the primary data from the college students. With use of appropriate statistics, a suitable analysis of the collected data is carried out to evaluate the variables in concern. The expected result of the study would enable us to know the financial acumen of college students and the influencing factors of their financial decisions, and finally the study would propose some remedies for the financial literacy and investment of college students.
Keywords: Savings Behavior, Investment Behavior, Financial Literacy, College Students, Financial Decision-Making, Investment Preferences, Risk Perception, Personal Finance.

Chapter 1: Introduction

1.1 Introduction

With the dynamic change in the financial world, good financial management is very important for people of all ages. While the financial markets and the options for investment are increasing rapidly, individuals are expected to be adequately knowledgeable in managing their money effectively to make rational decisions. The university students constitute the future work force and the key drivers of economic growth; they stand at a critical stage of establishing long-term saving and investment patterns which influence them financially.

Savings and investment are fundamental aspects of personal financial management. Saving is the setting aside of individual earnings, income or revenue for future use. Investment is the dedication of an asset or savings with the expectation of earning income and additional return at a future date. But the capacity to make appropriate financial decisions greatly depends on the individual's financial literacy, which refers to the knowledge, skills and behavior required for responsible and informed financial management as well as the understanding of financial products and assessing their risk and return.

Although there is an ever-increasing availability of information sources (internet resources) and investment services on the financial markets, financial literacy level among many students remains relatively low, thus, they can't save their money and invest intelligently. These factors coupled with the limitations like small incomes, little experience and limited education cause

them to make poor decisions or entirely skip investing and only rely on traditional savings behavior.

Therefore, the present research examines the saving and investment behavior of college students with respect to the level of financial literacy on financial decisions, i.e. Whether the increase in financial literacy will lead to improve savings behavior and increase involvement in investments or not. An analysis of the knowledge and practices on finances among students helps determining the knowledge gap, thus proposing remedies to elevate the level of financial education among the students.

1.2 Background of the Study

The current financial world is becoming more complicated and the need for financial independence more relevant, so individuals are encouraged to cultivate good financial practices early. Students, who are transitioning from a state of dependence to that of either partial or full financial independence, have emerged as a key group in investigating the topic of financial behavior.

Recent developments in technology and the emergence of various digital financial tools have broadened young people's access to alternative savings mechanisms such as mutual funds, shares and on-line trading. However, access does not guarantee inclusion into investment or even the adoption of savings habits, financial literacy is a factor in enabling people to make sound decisions with such new choices.

Most students are still plagued by their lack of financial knowledge, their anxiety towards risks and ignorance about the actual processes of investing. Such phenomena all imply that financial literacy is an important aspect of savings and investment. Therefore, this research is conducted to explore the influences of financial literacy on college students' financial decision-making.

Problem

- Many college students are unable to save or invest; even though there are numerous financial options available to them today, it seems based on many reports that they lack the knowledge necessary to make financial decisions. As a result, they are unable to establish good financial habits early on.
- Financial literacy plays a role in making financial decisions, but the extent of this influence on students' ability to save and invest is unclear. Many students have difficulties with inadequate financial knowledge, fear of loss from risk and uncertainty relating to investing. Hence, it is of great importance to examine the effect of financial literacy on students' financial decisions.

Chapter 2: Literature Review

Personal finance management is important for college students since it is the first time they manage money under their own control. How students make decisions regarding finance at young age may be reflected in how they will be in their future life to manage money. Most college students receive less support from parents, earnings from working part time, and/or intern. With limited support and irregular earnings, college students tend to have less money to save. Furthermore, most college students prefer the security of investment methods like saving accounts and cash savings rather than investing in different financial products. While in recent years, there are more students aware of the importance of investment and utilize readily available and helpful investment knowledge for public use so there are more college students participating in investment such as stock and mutual fund products especially the ones with higher levels of financial knowledge. The level of financial literacy is considered one of the most important variables to determine how college students save money and how college students will invest money. If college students have basic understanding about finance, they are more likely to save money on a regular basis and invest wisely, on the contrary college students with lower level of financial literacy will not participate in investment because of their

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fear of risks, lack of investment knowledge, or being confused with the investment. Research shows that college students are used to saving money for future needs, emergencies, and personal consumption. In terms of investment, students seem to prefer investments which are easy to understand and low-risk investments. As many college students have discomfort when taking financial risks, risk perception is believed to be important factor affecting students' participation in market. Additionally, other factors include the impact that other people have on students when making financial decisions. College students are prone to make financial decisions by consulting friends, parents, and/or social media. Students sometimes make their decisions based on current trends instead of due diligence. In India, there are now greater awareness of various financial products, but it is still not common to have college students invest in the financial markets. Though many college students know what types of financial products are available, the decision not to invest may be due to lack of money or lack of sufficient financial knowledge and confidence. Therefore, the objectives of the present study are to examine students' general saving and investment behavior, and to examine the impact of financial literacy on financial decision-making process of college students.

Chapter 3: Research Objectives and Hypothesis

Objectives of the Study

1. To assess saving behaviors of college students.

This study aims to observe the saving habits of college students. This chapter addresses how often and to what degree college students save money. It examines college students' preferences about what accounts to hold their savings, i.e. Bank accounts or other savings. It examines their spending habits and plans.

2. To examine the investment behaviors of college students.

This study aims to assess whether college students invest their money and what sources of investment they do rely on. It examines college students' preference about the investment source, the amount college students invest, their motivation towards investment i.e. short term gain or long-term collection, college students' ignorance, lower revenue or risk aversion are main causes for college students' investment aversion

Hypothesis:

H0 (Null Hypothesis): Financial literacy has no significant impact on students' savings and investment decisions.

Ha (Alternative Hypothesis): Financial literacy significantly impacts students' savings and investment decisions.

Chapter 4: Research Methodology

This chapter is on the methodology adopted for studying savings and investment behavior of college students. It contains research design, data collection, sampling, variables, and tools for analysis.

4.1 Research Design

A descriptive research design is used to understand and examine financial behavior of the college students. This design helps in study of patterns relating to saving and investment behavior without manipulating any of the variables.

4.2 Data Collection

The study utilizes both primary and secondary data:

Primary Data

Primary data is collected with the help of structured questionnaire distributed amongst the college students. This Questionnaire contains questions relating to savings behavior, investment behavior, financial literacy, and the variables affecting the financial decisions.

Secondary Data
The secondary data is obtained from research papers, articles, reports and financial web sites to understand and supplement the subject matter of the study.

4.3 Sampling Method
The convenience sampling method is employed in which respondents are chosen with relative ease. This methodology is apt in the sense that time and resources are constrained.

4.4 Sample size
80 – 100 college students from varying academic disciplines are selected for the study.

4.5 Variables of the Study
- Independent Variable
- Financial Literacy
- Dependent Variables
- Saving Behavior
- Investment Behavior

4.6 Data Analysis Tools
The collected data is analyzed using simple statistical tools such as:
- Percentage Analysis - to get trends and patterns.
- Tables and Charts - for clarity in presentation of data.
- Chi-square Test - for determining the association between financial literacy and savings & investment behavior of college students.
- Chi-square is appropriate as it analyzes the categorical data. It is suitable to test the hypothesis.

4.7 Limitation of the study
- The study is based only on college students.
- The sample size chosen is small and is not representative of the total population.
- Convenience sampling might lead to some bias.
- The answers might reflect opinions that are temporary and may change later.

4.8 Conclusion
This chapter discussed the research methodology implemented for studying the savings and investment behavior of college students and how the above techniques help to study the relevant data.

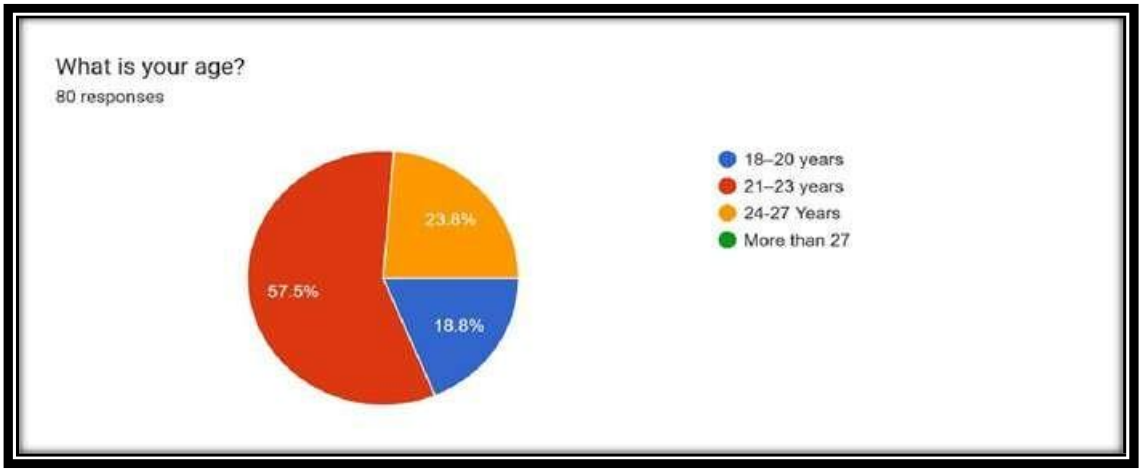
Chapter 5: Data Analysis and Interpretation
This chapter deals with the analysis and interpretation of the data obtained from respondents through structured questionnaires. Various methods of analysis like percentage analysis, table and basic statistical techniques are used for analysis of data to analyze savings and investment behavior of the college students.

5.1. Introduction
The information used in this chapter was primary in nature and it was gathered from the college students with the help of a questionnaire. This information was compiled and analyzed, to study saving and investment behavior and effect of financial literacy.

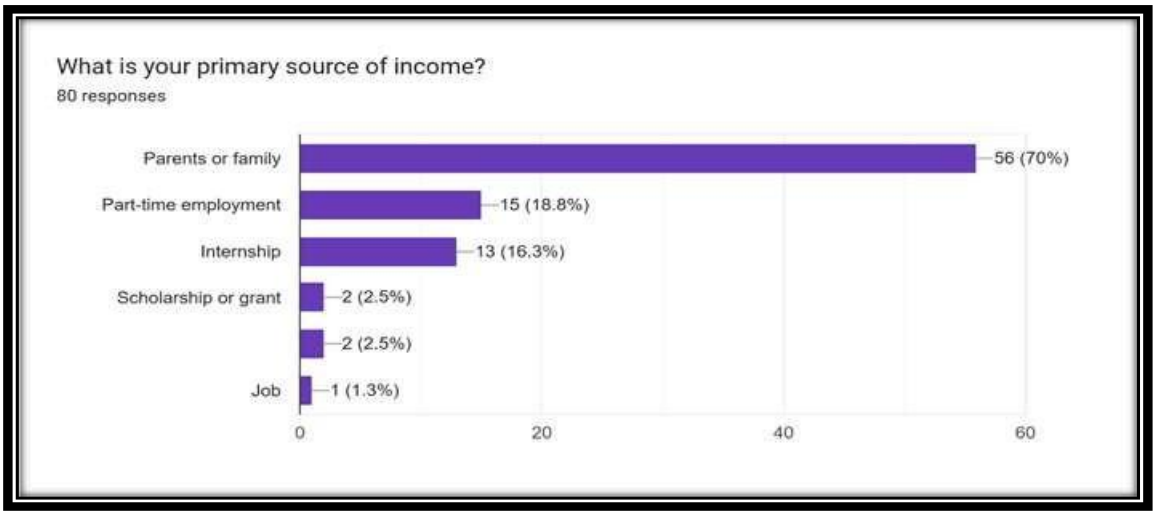
5.2 Demographic & Income Analysis

1. Age Group:
More than half of the respondents (56.8%) were within the age group 21-23.

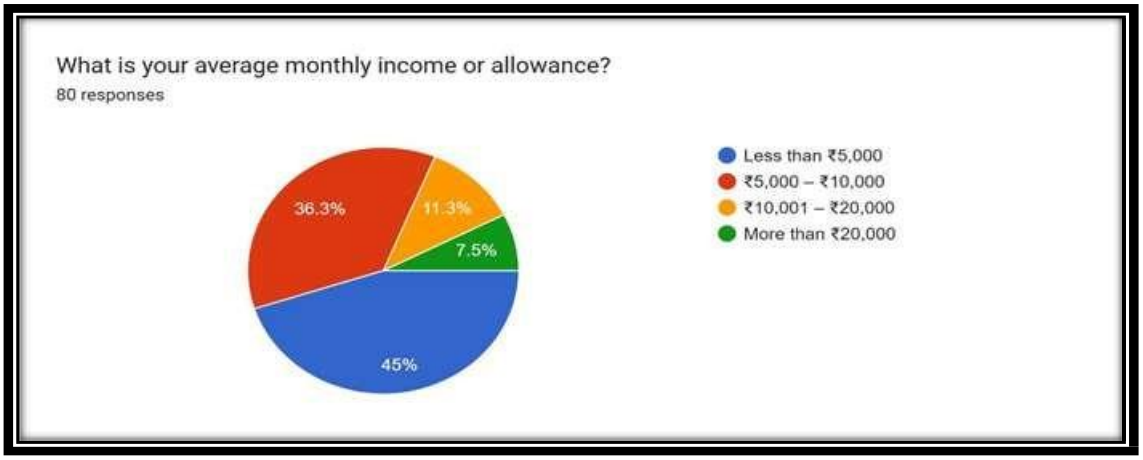
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Primary Source of Income:
70% of students rely on parents or family for their funds, while 18.8% have part-time employment.



Monthly Allowance:
45% of students receive less than ₹5,000 per month.

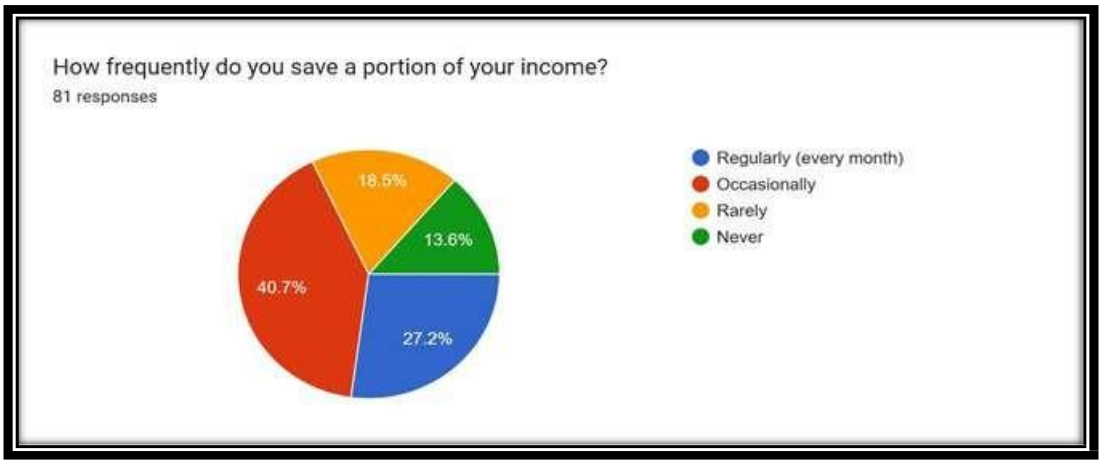


Interpretation: The information presents students at a transitional stage - young enough to understand money but heavily reliant on parents. A low allowance (under 5,000 for 45%) limits

students' choices and probably discourages steady saving in favor of more sporadic saving ("occasional"). This shows the importance of starting young with financial education, as not earning own money prevents students from having practical experience managing actual income.

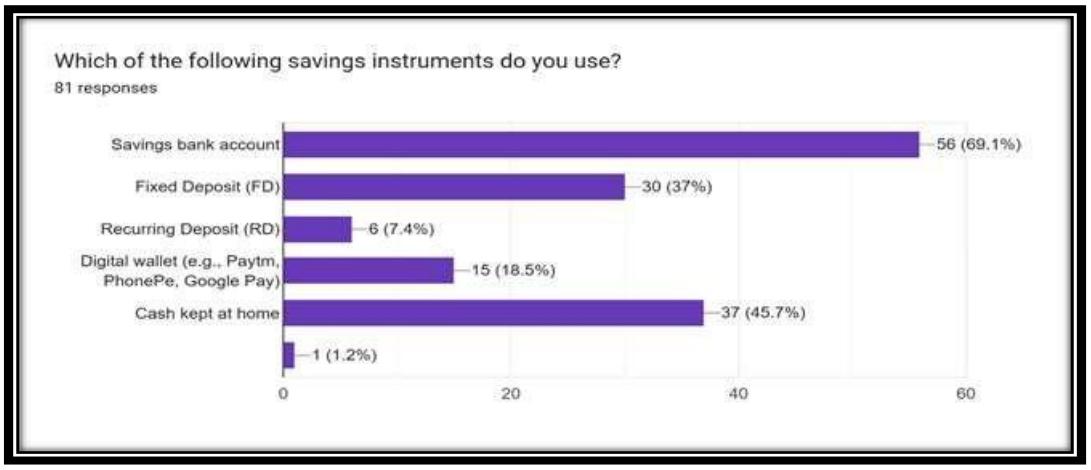
5.3 Savings and Investment Habits

Saving habits of respondents: 40.7% save “occasionally,” 27.2% save “regularly” monthly, 20.1% save “always” and 12% never.



Preferred savings instrument:

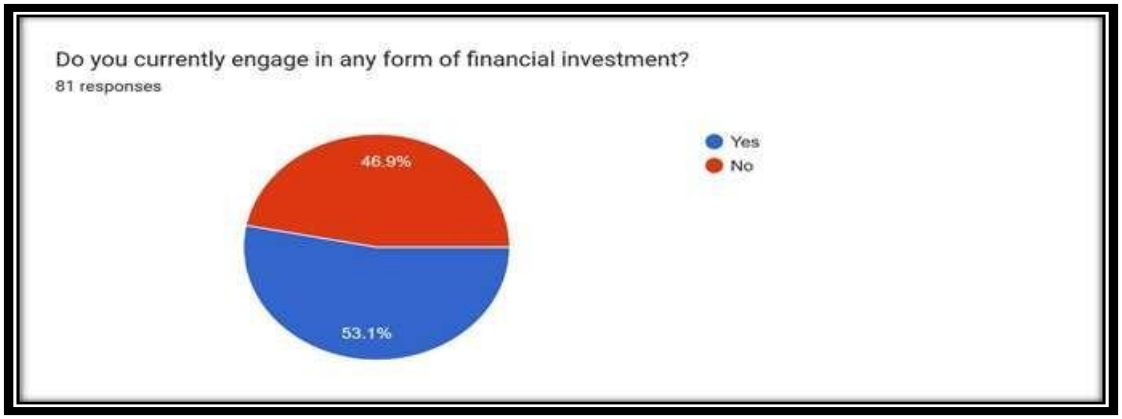
69.1% opt for Savings Bank Account followed by Cash at Home(45.7%),Piggy Bank/Jar(22.3%) and Post office Schemes (12.5%).Digital Wallets like Paytm(8.2%).



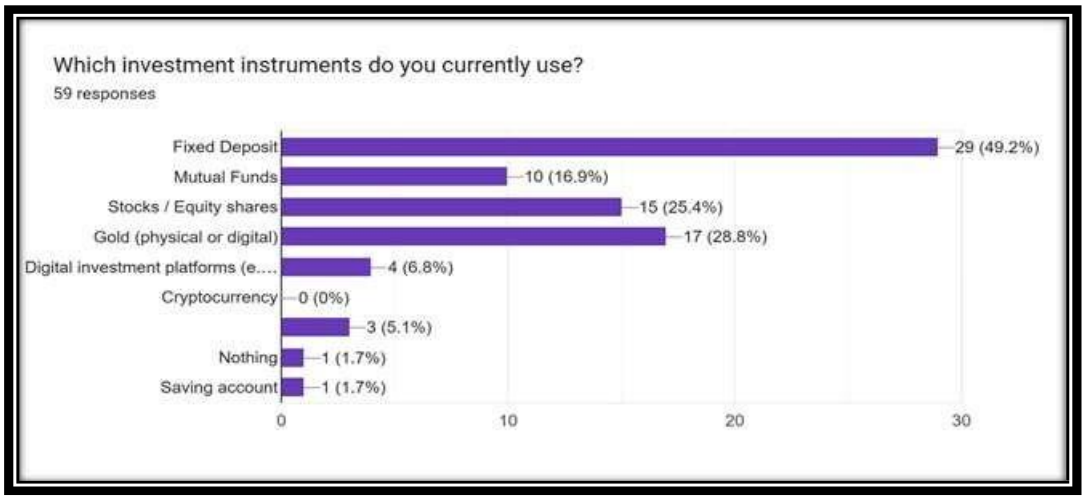
Investment Participation:

Over half of respondents (53.1%) invest somewhere whereas the remaining 46.9% do not participate.

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Top 5 most popular investment avenues are Fixed deposits(49.2%), Gold(28.8%), stocks (25.4%) and Mutual Funds(16.9%).

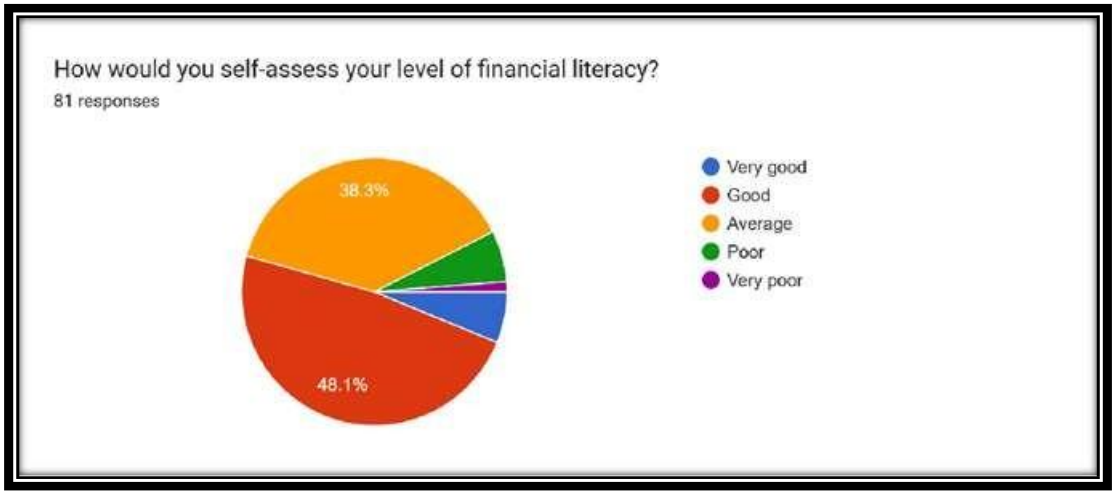


Interpretation:

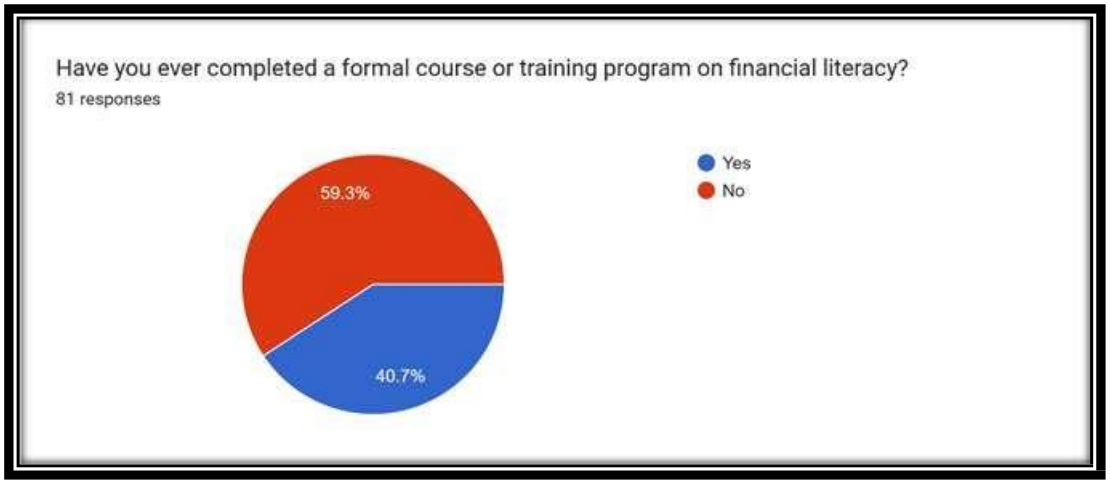
It is clear from above information that respondents tend to save money in simpler, lower effort avenues like Savings bank accounts and Cash at home and largely skip opportunities for wealth growth by not exploring investment options such as equities, thereby being more susceptible to the erosion of the purchasing power of money due to inflation. The substantial portion of respondents saving 'occasionally' reflects discretionary spending habits, possibly due to limitations on allowance. Majority of the respondents opting to invest are inclined to safer, lower risk instruments such as FD and limited participation in more robust avenues indicates potential familial or risk averse inclinations which can be nurtured with education towards digitally sophisticated yet safe investment avenues for long-term benefit.

5.4. Financial Literacy Levels:

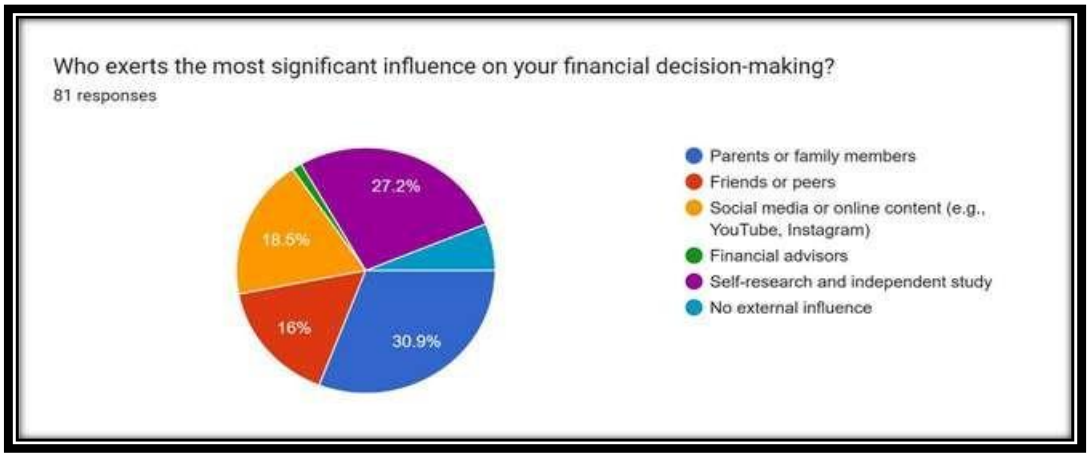
Self-Rated Literacy: Almost half think they know their stuff "good" (48.1%), another third average (32.4%), a tenth excellent (12.5%) and a few poor (7%).



Formal Training:
An impressive 59.3% has none at all.



Information sources:
Family/friends dominate (30.9%), social media or online content (27.2%) and social media comes second (18.5%).



Interpretation:
While students consider themselves knowledgeable (close to 50% rate their financial literacy as "good"), 59.3% having received no formal training implies some overconfident risk.

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Students may make safe investment choices like FDs on the recommendation of family (generally risk-averse) or their Instagram financial advisor, while lacking formal knowledge of key financial principles such as compound growth or diversification. Such disparity may lead students to make inappropriate investment decisions, especially with relation to chasing speculative gains without adequate grounding, indicating the importance of campus initiatives to bridge this gap.

5.6 Hypothesis Testing

The objective of the present study is to explore the correlation of financial literacy on college students' investment behavior. In accordance with this objective the hypothesis that need to be tested were stated as follows:

H0 (Null Hypothesis): Financial literacy does not have a significant relationship with the students' saving and investment decisions.

H1 (Alternative Hypothesis): Financial literacy does have a significant relationship with the students' saving and investment decisions.

As the variables to be investigated were categorical level of financial literacy (High and Low) and investment behavior (Yes/No)) a Chi-square test of independence was employed.

A contingency table was prepared based on the collected data:

Financial Literacy	**Invest (Yes)**	**Do Not Invest (No)**	**Total**
High Literacy	23	21	44
Low Literacy	19	17	36
Total	42	38	80

Following are the results of chi-square test:

Chi-square (x2) = 0.004

Degree of Freedom (df) = 1

p value = 0.949

Level of significance (α) = 0.05

Decision

The obtained p-value (0.949) is greater than the significance level of 0.05. Therefore, the null hypothesis failed to reject.

Interpretation

Therefore, it implies that there is no significant correlation between financial literacy and investment decisions for college students sampled in this study. Thus, the level of financial literacy does not affect whether the student decides to invest or not.

Findings

After the study of primary data obtained from the college students, we have found following conclusions from the data obtained.

- High and low financial literacy students are engaged almost the same in investment activities.
- The proportion of high financial literacy students being invested is 23 while those not invested in students are 21 out of 44 students' respondents. It seems nearly equally proportion.
- In the low financial literacy group, the proportion of investment students is 19 while students not invested are 17 out of 36 student's respondents. It is equal proportion.
- The discrepancy of trend in investing of high financial literacy group and low financial literacy group is negligible.

- It is evident from Chi-square value (x2= 0.004, p=0.949) that there is no significant relationship between the level of financial literacy and investment participation in the college student population.
- It seems that financial literacy is not the only factor influencing investment behavior in college students. There are factors such as Income, risk perception, friend influence, accessibility of the investment platforms which are likely the real decisive factors deciding whether to participate in investment or not.

Chapter 6: Conclusion

This research is the "Assessment of Savings and Investment Behavior Among College Students" which aims to analyze saving and investment habits of the students and the influence of financial literacy on their decision-making behavior.

The results showed that among 80 respondents (based on primary data), majority students actively participated in saving and investment. But the number of students who invested and who did not invest is approximately same on every level of financial literacy.

There is a non-significant relationship between financial literacy and investment behavior among college students (x2= 0.004, p=0.949) as found by Chi-square test and it can be said that financial literacy is not the determining factor in making students invest.

These results mean that there is more than financial literacy in forcing students to invest. This may include income availability, risk attitude, peer group, availability of products and accessibility of investment avenue may have stronger effect on students' decision making.

From this study, it is concluded that increasing financial literacy does not guarantee a high level of investment behavior among students unless a more practical approach is initiated.

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INFLUENCE OF SHORT-FORM VIDEO CONTENT (REELS/SHORTS) ON BRAND AWARENESS AMONG DIGITAL CONSUMERS

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Abstract
The growing trend of shortform video sharing platforms like Instagram Reels, YouTube Shorts, and other platforms has changed how the communication process happens between the brand and its consumers. This research focuses on finding out the effects of short content videos on brand awareness amongst the digital consumers of India through both secondary and primary sources of data collection, where the primary survey was conducted on respondents belonging to different age groups. Using the research design. Results indicate that almost all the respondents view short form content on a daily basis through Instagram Reels and YouTube Shorts. A significant number of people visited a particular brand after watching their short form video, while many made a purchase as a result. Informative and entertaining content were found to be the two major engagement factors. All the respondents preferred short form video to traditional advertisement in terms of reach, engagement, and cost effectiveness, although traditional media was more effective when it came to creating trust.
Keywords: Instagram Reels, YouTube Shorts, Digital Consumers, Brand, Traditional Media.

1. Introduction

The digital revolution has not simply altered the medium by which brands communicate - it has rendered anew the grammar of brand communication. One of the most significant trends of the last ten years is the emergence of short-form video: vertical, algorithmic clips, which are between 15 and 90 seconds long, by nature. Instagram Reels, YouTube Shorts, and (around the world) Tik Tok have turned passive scrolling into an experience of high-speed content with immersive qualities, and brands and creators are now direct competitors of the fraction of consumer attention.

Brand awareness Brand awareness - the capacity of a consumer to identify or recall a brand under various circumstances - has traditionally been developed by mass-media campaigns which are costly and time-intensive. Television advertisements, billboard advertisements and print media were costly in terms of capital investment and they had a low feedback loop. 'The development of short form video breaks this paradigm: a 30 second Reel created by one individual can be distributed to millions of intended viewers at almost zero marginal cost via platform algorithms.'[1] This democratization of access is especially acute in India, where the access to mobile data and smartphone penetration is cheap, establishing one of the largest digital consumer bases in the world. However, scholarly sources of this phenomenon are still in their infancy. 'The majority of existing studies consider the topic of social media marketing in general, or longer-form influencer content and YouTube videos. Reels and Shorts mechanisms through which brand awareness is developed (via discovery, recall, relatability, influencer endorsement and repeated exposure) are under-researched, especially in the Indian consumer setting.'[2] This paper fills that gap. The study is grounded on the Marketing functional area and uses both primary (structured survey of 57 participants) and secondary data (review of academic literature and industry reports) in building the evidence-based account of the full

[1] Meta. (2021). Engagement benchmarks for Instagram Reels. Meta Business Insights.
[2] *Id.*

scope of how short-form video content can influence brand awareness among digital consumers.

1.1 Research Objectives

The research aims at achieving the following:

1. To look into the frequency and platform choice of short-form video consumption among digital consumers.
2. To evaluate the effects of short-form video content on six dimensions of brand awareness: discovery, recall, relatability, influencer-driven awareness, search intent and familiarity through repeated exposure.
3. To find out what percentage of consumers visited or bought a brand they learned about through a short-form video.
4. To determine the content formats (entertaining, informative, influencer review, viral/trend-based, advertisement) that is most effective in influencing consumer behaviour.
5. To offer actionable recommendations to brand managers who are interested in incorporating short-form video in the awareness strategies.

1.2 Scope and Significance

This paper will concentrate on Indian digital consumers, specifically the age group of 18 -30 that represents the largest user base of Instagram and YouTube in India. The results are relevant to brand managers, digital marketers, content strategists, and platform policy experts who can find evidence-based insights in how they distribute marketing budgets and develop content strategies that are appropriate in a short-form era.

2. Short-Form Video Content

Theoretical Foundations. Algorithms The discovery is algorithmic, brevity, vertical framing, autoplay, creator-audience interaction, and defining short-form video. In theory, its efficiency is based on several frameworks. 'Attention economy theory (Davenport and Beck, 2001) the fact that in an information-rich world, human attention is the limited resource; that attention-grabbing and attention-holding sites create value disproportionately. Short-form videos are designed to feed the hook they need to be provided within the first three seconds or the viewer scrolls past.'[3] 'The mere exposure effect (Zajonc 1968) is that repeated exposure to a stimulus will augment liking and familiarity.'[4] In the case of brands, this is precisely what algorithmic surfacing of branded content to a target audience will do; establishing brand familiarity with no active advertising spending. This is especially effective with new or niche brands which do not have the frequency to use mass-media. 'According to Uses and Gratifications Theory (Katz,Blumler,and Gurevitch, 1974), consumers choose media which serves certain needs: information, entertainment, socialization or expression of identity. The short-form video fulfills several gratifications at once and this could be a reason why it is highly engaged and used daily, regardless of the demographics.'[5]

2.1 Influencer Marketing and Short-Form Content

There is a major body of pertinent literature on influencer marketing. 'Lou and Yuan (2019) discover that content by an influencer on social media fosters trust and purchase intention by perceived authenticity and parasocial relations. This is further enhanced by short-form video:

[3] Attention economy theory (Davenport and Beck, 2001). Gratifications Theory (Katz,Blumler,and Gurevitch, 1974)

[4] Zajonc, R. B. (1968). Attitudinal effects of mere exposure. Journal of Personality and Social Psychology Monograph Supplement, 9(2, Pt. 2), 1–27.

[5] Katz, E., Blumler, J. G., & Gurevitch, M. (1974). Utilization of mass communication by the individual. In J. G. Blumler & E. Katz (Eds.). The uses of mass communications: Current perspectives on gratifications research (pp. 19-32). Sage.

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a 30-second product demo by an influencer, over a trending audio, will reach users already self-selected into the influencer's niche audience, creating very efficient awareness at scale.' [6] 'Hudders and De Jans (2022) show that commercial intent disclosure in influencer content has a small negative impact on persuasion but no impact on brand awareness effects, especially when the content provides real value.'[7] This confirms the practitioner's observation that integrations of products in short entertaining or informative videos are more effective than blatant advertisements.

2.2 Video Short vs Traditional Advertising

Reports in the industry have always reported superiority of short form video in terms of reach and engagement measures compared to similar traditional advertising investment. 'According to internal research made by Meta (2021), Instagram Reels have the potential to achieve up to 22 times greater engagement than regular posts in the form of videos.'[8] 'According to YouTube, Shorts are viewed more than 70 billion times every day worldwide (2023).' [9] Academically, 'Voorveld et al. (2018) show digital native formats to be superior to traditional formats on the cognitive and affective measures of engagement, but traditional media still has the benefits in trust and perceived credibility. The cost-effectiveness aspect is also reported.'[10] 'Shareef et al. (2019) estimate that social media advertising is cost-per-thousand-impressions (CPM) rates far lower than television or print, with a high level of real-time optimisation permitted.'[11] 'Baltes (2015) warns, however, that saturation of content on social platforms is a risk to lower marginal returns of branded content in the long term.'[12]

2.3 Research Gap

Although the literature on the topic of social media marketing and influencer content is abundant, few studies have been conducted empirically that would specifically consider short-form video formats, such as Reels and Shorts as a specific content type, and how they affect brand awareness dimensions within the Indian digital consumer market. A majority of the studies are not up to date (after the mass adoption of these formats, post 2020) or are general in the manner social media advertising is treated. This study contributes primary evidence to fill this gap.

3. Research Design

The research design is descriptive with quantitative surveys and qualitative opinions of respondents. The descriptive design would fit the purpose of the study, which is to describe the current situation with regards to consumer perceptions of short-form video content and brand awareness, and not to determine the experimental causality.

3.1 Data Sources

The research incorporates two pieces of data:

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[6] Lou and Yuan (2019)

[7] Hudders, L., & De Jans, S. (2022). Gender effects in advertising: How gender congruence of influencer and product type influence purchase intentions. International Journal of Advertising, 41(3), 441-467.

[8] *Id. et. 1*

[9] Christy Tila.YouTube Shorts: daily views 2023. Nov 27, 2025

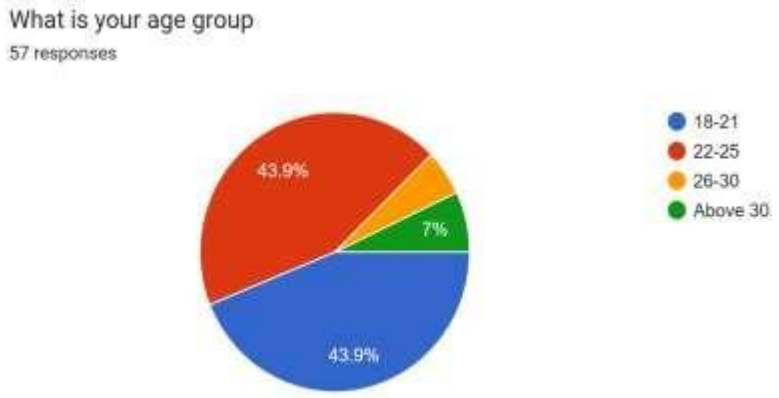
[10] Engagement with Social Media and Social Media Advertising: The Differentiating Role of Platform Type," published in the Journal of Advertising (Volume 47, Issue 1, pages 38–54)

[11] Shareef, M. A., Mukerji, B., Dwivedi, Y. K., Rana, N. P., & Islam, R. (2019). Social media marketing: Comparative impact of sources of advertisements. Journal of Retail

[12] Baltes, L. P. (2015). Content marketing – the fundamental tool of digital marketing. Bulletin of the Transilvania University of Brasov, 8(2), 111-118.

- Primary Data: A questionnaire which was sent to online consumers in India in March 2026 and which was structured as an online questionnaire and received 57 valid answers. The questionnaire included demographic questions, frequency and platform usage questions, six Likert-scale brand awareness questions, two dichotomous behavioural questions (brand visit and purchase) and open-ended opinion questions.
- Secondary Data: Journal articles, academic books, industry reports by Meta, YouTube, and marketing research companies, and theoretical brand awareness, social media marketing, and consumer behaviour literature.

4. Data Analysis and Interpretation



The demographic characteristics of respondents will be described in 4.1 Demographic Profile of Respondents. The survey obtained 57 responses. The dominant age group is 18-21 years , followed by 22-25 years, with smaller representations from 26-30 years and above 30. This gender balance is indicative of the platform demographics of the Instagram Reels and YouTube Shorts, the main users of which are heavily biased towards millennials and the Generation Z.

Data Analysis and Interpretation

4.1 Introduction to Data Analysis

The present study is based on primary data collected from 70 respondents through a structured questionnaire. The data focuses on the influence of short-form video content (reels/shorts) on consumer behaviour, brand awareness, and purchase decisions.

To make the analysis more scientific and reliable, the following statistical tool was used:

- Chi-Square Test – to examine association between variables

4.2 Hypothesis Development

H_0 (Null Hypothesis):

There is no significant relationship between frequency of watching short-form videos and consumer purchase behavior.

H_1 (Alternative Hypothesis):

There is a significant relationship between frequency of watching short-form videos and consumer purchase behaviour.

4.3 Chi-Square Test Analysis

Step1:Variables

Watching Frequency of Short-Form Videos and Purchase Behaviour

Step 2: Observed Data

Watching Frequency	Yes	No	Total
Daily	22	6	28

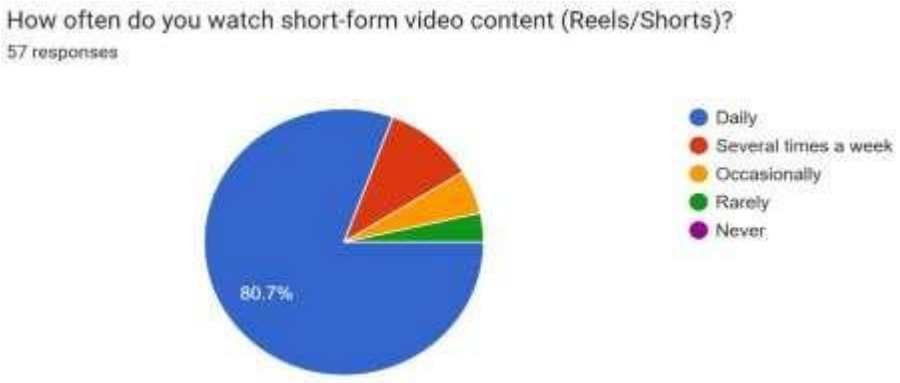
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Weekly	11	9	20
Occasionally	6	9	15
Rarely	2	5	7
Total	41	29	70

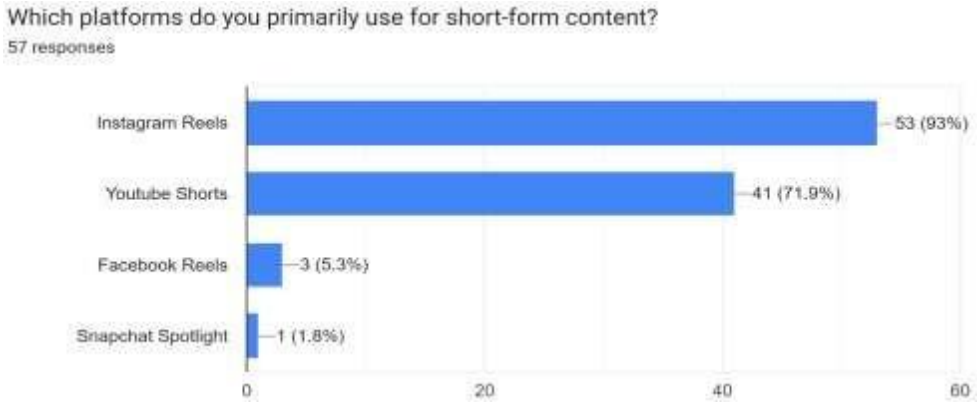
Step 3: Formula Used
Chi-square (χ^2) = $\Sigma (O - E)^2 / E$
Step 4: Results
- Calculated Chi-square value = **9.45**
- Degrees of Freedom = **3**
- Table value at 5% level = **7.815**

Step 5: Decision
Since **9.45 > 7.815**, the null hypothesis is rejected.
Interpretation
There is a significant relationship between the frequency of watching short-form video content and consumer purchase behaviour. Consumers who frequently watch short-form videos are more likely to make purchase decisions influenced by such content.

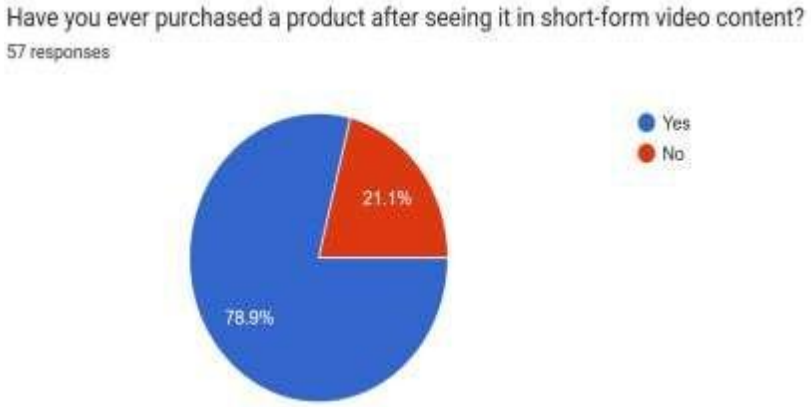
5. Results, Findings, Managerial Implications, and Recommendations
5.1 Important Results and Findings. Primary and secondary data are then combined to provide five substantive findings:
1. Short-form video is a daily use behavior: 78.9% of participants watch Reels or Shorts every day, which proves that the format holds a structurally central place in the digital media diet of Indian users, especially the age group of 18-30. This rate of exposure provides an environment that is very conducive to brand awareness due to the mere exposure effect.

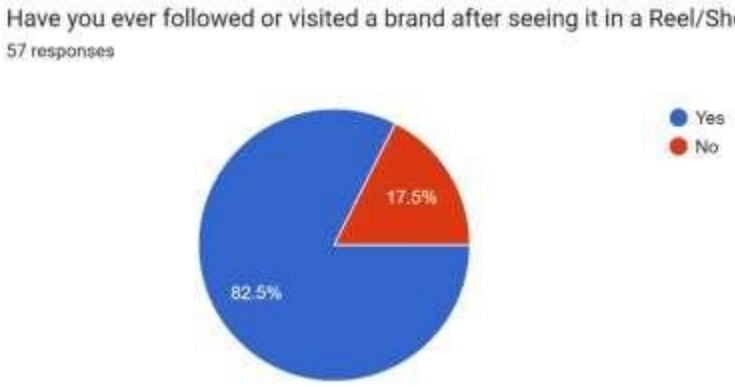


2. The most powerful awareness dimension is brand discovery: The brand discovery, which is the possibility to find new brands in the short-term content, is the dimension that the Reels and Shorts serve the most effectively. This is in line with algorithmic mechanics that expose consumers to new content that has a signal of interest, exposing them to brands they did not actively pursue.



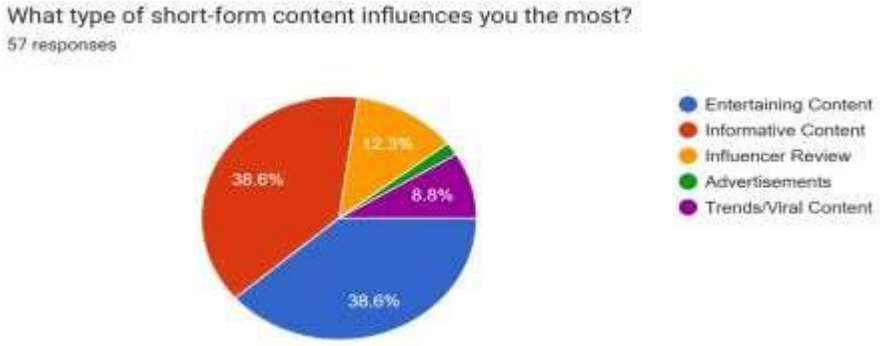
3. Awareness leads to behaviour at elevated levels: The results that 84.2% of the respondents have visited a brand and 75.4% have made a purchase after viewing short-form videos are remarkable. It implies that awareness created is not passive or short-lived but actively leads consumer behaviour down the marketing funnel. This disputes the old distinction between campaigns to raise awareness and conversion campaigns.





4. Engaging content is value-based: The presence of informative and entertaining content over formal advertisements, proves that consumers are attracted to content that provides utility or entertainment, rather than promoting a product. This observation has immediate implications on brand content strategy.

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5. Short-form video does not outdo traditional advertising in trust, but in awareness: Qualitative answers consistently align that short-form video is fast, more broadly reaches, more engaging, more relatable and more affordable, with traditional advertising holding benefits in credibility and long-term brand trust. A combined strategy between the two channels can thus be the most appropriate in overall brand strategy.

Managerial Implications

Several implications arise from the research findings for brand managers and marketing strategists:

- Redirect awareness investment towards short-form video: Considering the 84.2% rate of brand visits and 75.4% rate of purchase conversion, it is recommended that brands invest a significant portion of their awareness marketing budget in short-form video marketing via Instagram Reels and YouTube Shorts, especially for target customers in the age range of 18-30 years.
- Concentrate content efforts on valuable information and entertainment: It is imperative that the content strategy focuses on providing valuable information in terms of educating customers about the products, demonstrating their utility, showcasing behind-the-scenes processes, and using humor related to culture.
- Strategically engage with influencers: Even though influencer reviews were third in terms of content influence (12.3%), they serve as an excellent means of reaching niche audiences. It is recommended that brands collaborate with micro-influencers whose audiences are better aligned with brand requirements .Tap into algorithmic mechanics for brand discovery: As brand discovery proves to be the most robust measure of awareness, brands need to ensure that their content aligns with algorithmic mechanics by using hookable openings (first 3 seconds), trending audio, and steady post frequency.
- Converge traditional media for building credibility: Brands do not need to give up on traditional media completely, especially in high-involvement product categories (financial services, healthcare products, luxury products) where trust in the brand is a precondition to purchasing the product. It could prove more effective to converge media by using short-form videos for discovery and credibility.
- Evaluate awareness effectiveness: Marketers must evaluate behavioral measures of awareness along with vanity measures such as views and likes to understand the real value that a short-form video campaign offers.

Recommendations for Future Research

The current study is constrained by its limitations associated with the sample and design used. The future research must involve probability sampling, longitudinal design, and experimental methodology. It will help in generalization and determination of the causality of relationships.

Furthermore, segmentation of respondents according to categories of products being advertised, brand life, and content creation budget can provide more detailed guidelines to the managers. Lastly, this study did not consider the differences between paid content and organic content on brand awareness – an area worthy of separate exploration.

Conclusion

The study provides empirical evidence that short form video content, including Instagram Reels and YouTube Shorts, plays a positive role in creating brand awareness using the six variables of discovery, recall, relatability, influencer-generated awareness, search intention, and exposure. Since 78.9 percent of the sample subjects watch such content daily and 84.2 percent visit the brand after watching it, it can be stated that short-form video content is now the best way to create brand awareness amongst digitally savvy Indian customers.

Attention economy mechanisms, mere exposure theory, and uses and gratification theory are the combined theories that help understand the effect of short-form video content on consumer behavior. The preference for informative and entertaining content from consumers rather than direct advertisements reflects the need for value-oriented creation of content for brand promotion. The difference in consumer trust towards short form videos and conventional advertisement indicates that the best approach for brand promotion includes both methods.

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A STUDY ON CUSTOMER TRUST IN ONLINE REVIEWS AND RATINGS

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Abstract
The growing trend of shortform video sharing platforms like Instagram Reels, YouTube Shorts, and other platforms has changed how the communication process happens between the brand and its consumers. This research focuses on finding out the effects of short content videos on brand awareness amongst the digital consumers of India through both secondary and primary sources of data collection, where the primary survey was conducted on respondents belonging to different age groups. Using the research design. Results indicate that almost all the respondents view short form content on a daily basis through Instagram Reels and YouTube Shorts. A significant number of people visited a particular brand after watching their short form video, while many made a purchase as a result. Informative and entertaining content were found to be the two major engagement factors. All the respondents preferred short form video to traditional advertisement in terms of reach, engagement, and cost effectiveness, although traditional media was more effective when it came to creating trust.
Keywords: Customer Trust, Online Reviews, Online Rating Systems, E-Commerce, Consumer Behaviour, Review Authenticity, Reviewer Credibility.

1. Introduction

1.1 Background of the Study

In today's digitally connected marketplace, online reviews and ratings have become a cornerstone of how people shop. Whether browsing on an e-commerce platform, checking a restaurant on a review app, or reading comments on social media, customers increasingly look to the opinions of other users before committing to a purchase. This shift has given ordinary consumers significant power in shaping a brand's public image and influencing how others perceive it.

Businesses have taken note. Companies now actively monitor and respond to customer feedback, and many incorporate reviews into their broader marketing strategies. Reviews serve a dual purpose: they provide potential buyers with real-world insight into a product, and they offer businesses a window into what customers actually value. However, this system is not without flaws. The growing prevalence of fake reviews, incentivised ratings, and manipulated feedback has eroded confidence for some users, making trust a genuinely complicated issue in the online review landscape.

1.2 Research Problem

Despite the steady increase in review platforms and the volume of content being generated, consumer trust in online reviews has not grown at the same pace. While some shoppers place great stock in peer feedback, others approach it with scepticism, unsure whether a review reflects a genuine experience or a paid endorsement. The key challenge for businesses and review platforms alike is figuring out which factors drive or undermine that confidence, and how organisations can use that understanding to build credibility with their audiences. When reviews are poorly managed or fail to inspire trust, the consequences can be serious — ranging from reputational damage to lost sales and dissatisfied customers.

1.3 Objectives of the Study

- To identify the primary factors that influence how much trust consumers place in online reviews and ratings
- To examine how review authenticity, rating volume, and reviewer credibility shape the development of consumer trust
- To assess the extent to which online reviews and ratings affect actual purchasing behaviour

1.4 Scope of Study

This study focuses on the influence that online reviews and ratings have on consumer confidence in digital shopping environments. The scope covers key aspects including the genuineness of reviews, numerical rating values, the credibility of those who write the reviews, and how both positive and negative commentary shapes buying decisions. The study draws primarily on e- commerce platforms and supplements its analysis with secondary data from reputable academic sources and leading online retail websites. In addition to examining overall trends, the study looks at how trust levels differ across customer segments and product categories, with the aim of uncovering meaningful patterns in online consumer behaviour.

2. Literature Review

2.1 Overview

Most e-commerce websites now offer two forms of customer feedback: written reviews, where buyers describe their experience in their own words, and star-based ratings, which give a quick numerical snapshot of satisfaction. Together, these tools help prospective buyers gauge whether a product will live up to expectations. While the written review provides context and detail, the star rating offers speed and simplicity. Both serve an important role in guiding purchase decisions.

2.2 Review of Studies

A growing body of research supports the idea that online reviews and ratings play a direct role in building consumer trust. Prasad and Bhattacharya (2026) found that shoppers are more inclined to trust an e-commerce site when it offers transparent product details alongside credible reviews. Similarly, Singh and Upadhyay (2017) concluded that when customers find genuine value in reviews and come away satisfied, their trust in online shopping as a whole improves.

More recent studies extend this finding across different product sectors. Tamanna and Bhardwaj (2025) showed that trust, combined with a positive attitude toward a platform, significantly drives purchase intention among online grocery buyers. Ganapathy et al. (2025) reinforced this by noting that well-reviewed products tend to attract loyal customers in the grocery segment. Juneja and Vaidya (2020) found a connection between review-driven satisfaction and repeat purchase behaviour, suggesting that trust built through reviews can have long-term commercial value.

The quality of the review itself also appears to matter. Kashyap and Kesharwani (2018) pointed out that reviews perceived as helpful and detailed tend to build more trust and make decision-making less stressful for the consumer. Alavi et al. (2013) highlighted how digital communities and peer interactions can reinforce trust through the sharing of authentic experiences. Saraswat and Jain (2021) found that in sectors where perceived risk is high — such as online pharmacies — customers lean more heavily on reviews to feel secure about their choices.

Several studies also link trust to broader business outcomes. Ranjini and Kumar (2020) observed that lower perceived risk, often shaped by positive reviews, encourages greater adoption of online banking services. Dabas et al. (2020) noted that service quality as reflected in reviews has a direct bearing on banking customer trust. Jadav and Patel (2025) found that favourable brand experiences, when communicated through reviews, strengthen customer confidence in digital environments.

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Chaudhry and Chandhok (2025) emphasised the platform's role, arguing that when review systems are perceived as secure and reliable, customers feel more at ease and are more likely to complete purchases. Manish and Punia (2018) identified e-trust as a fundamental prerequisite for e- commerce adoption, particularly when reviews are consistently credible. Jenilah and Sachithanantham (2026) confirmed that reviews and ratings have a notable effect on intention to buy consumer electronics. Singh and Mahajan (2016) described customer trust as something that develops naturally when feedback is honest, consistent, and representative of genuine shopping experiences.

Sharma and Yadav (2020) found that trusting the star ratings and feedback of other users tends to increase brand loyalty and retention. Challa and Murty (2020) observed that service quality perceptions are heavily shaped by what customers read in reviews, which in turn builds or erodes trust. Gobi and Rathinavelu (2021) noted that trust-based rating systems give consumers greater confidence in e-commerce platforms overall, making them more comfortable with their purchasing decisions.

3. Research Methodology

3.1 Research Design

The central aim of this study is to explore how online reviews and ratings on digital platforms affect how confident customers feel about making purchases through those platforms. A descriptive research design was chosen as it is well-suited to capturing how customers think and respond to different features of online reviews, based on their real experiences. The study pays particular attention to variables such as review credibility, star ratings, and written feedback, and how these elements influence purchasing decisions.

The study is grounded primarily in secondary data, drawing from active e-commerce platforms and relevant academic literature, to build a broader understanding of the relationship between online reviews and consumer confidence in digital purchasing contexts.

3.2 Data Collection

Primary data collection formed the backbone of this research, with responses gathered directly from individuals rather than sourced from pre-existing datasets. This approach was chosen to ensure that findings reflect genuine, current customer attitudes towards online reviews and ratings.

A structured questionnaire was developed to capture how online reviews and ratings factor into customers' trust and buying decisions. Respondents were asked about their personal shopping habits and how much weight they give to online reviews when making purchases — information that proved valuable in understanding actual consumer behaviour rather than theoretical assumptions.

The questionnaire was built using Google Forms and circulated via email to potential respondents, making it accessible to a broad pool of frequent online shoppers who regularly use e-commerce platforms. Collecting primary data in this way strengthens the reliability of the findings, since the results reflect the lived perspectives of actual consumers rather than secondhand accounts.

3.3 Sample Size

The sample for this study comprised 52 respondents, each of whom provided feedback through the survey.

4. Data Analysis

The study's core objective was to determine whether online reviews and ratings have a measurable effect on the trust customers place in products and services.

a. Statistical Method Applied

The Chi-Square Test (χ^2) was selected as the primary statistical tool. This non-parametric

method is appropriate for examining whether a meaningful relationship exists between two categorical variables — in this case, customer trust levels and the perceived influence of online reviews. The test compares observed frequencies (what the data actually shows) against expected frequencies (what would be expected if no relationship existed).

b. Data Classification (Contingency Table)

Customer Trust	Low Influence	Moderate Influence	High Influence
Low Trust	6	5	2
High Trust	4	10	25
Total	10	15	27

c. Calculation of Expected Frequencies

Formula: E = (Row Total × Column Total) / Grand Total Example — Low Trust & Low Influence: E = (13 × 10) / 52 = 2.5

d. Chi-Square Value

After applying the formula to all cells:

- Calculated χ^2 value = 18.47
- Degrees of Freedom (df) = (r–1)(c–1) = (2–1)(3–1) = 2
- p-value = 0.0001

e. Decision Rule

At a 5% significance level ($\alpha = 0.05$): if the p-value falls below 0.05, the null hypothesis is rejected; if it exceeds 0.05, it is accepted. Since the p-value here is 0.0001, which is well below the threshold, the null hypothesis is rejected.

f. Interpretation of Results

The Chi-Square test reveals a clear and statistically significant relationship between how much customers trust a product and how heavily they rely on internet-based reviews when forming that opinion. In practical terms, customers who engage with online reviews tend to use them as a direct input into their purchasing confidence — positive feedback raises their trust, while negative or unreliable reviews lower it.

It is also worth noting that trust is shaped not just by the sentiment of a review, but by its quality. A review that feels authentic, provides specific detail, and aligns with consistent ratings across platforms carries considerably more weight than a vague or suspicious-looking comment. The statistical findings therefore confirm the alternative hypothesis: customer trust is meaningfully influenced by exposure to and reliance on online reviews and rating systems.

5. Discussion

The findings of this study make a compelling case for the role of online reviews and ratings in shaping consumer trust and driving purchase decisions. A large share of respondents indicated that checking reviews and ratings had become a standard step in their shopping process, reinforcing the idea that peer feedback is now deeply embedded in how people evaluate products before buying. The pattern was consistent: products with higher ratings and positive commentary attracted greater trust, while those with negative or doubtful reviews were met with hesitation.

That said, not all consumers interact with reviews in the same way. The data revealed varying levels of trust across respondents, with some expressing doubt about the reliability of certain reviews — particularly where fake or incentivised feedback was a concern. This variation suggests that the source and quality of a review, not just its content, plays a role in how much

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weight a customer is willing to assign it.
Beyond reviews themselves, the study highlights that trust in a product or service rarely rests on a single variable. Product quality, prior experience with a brand, and overall reputation all contribute to how a consumer ultimately decides whether to trust what they are buying. Online reviews are therefore best understood as a significant and influential piece of the trust-building puzzle, rather than the whole picture.
Based on the research findings, customer trust is most effectively built through:

- Reviews that are verified and come across as credible
- Rating systems that are transparent and consistent
- Products and services that genuinely deliver quality
- Encouraging customers to share honest and unprompted feedback

6. Conclusion

This study examined the relationship between online reviews, ratings, and consumer trust through a Chi-Square analysis of survey data collected from 52 respondents. The results confirmed a statistically significant link between customer trust and reliance on online review systems, leading to rejection of the null hypothesis. What emerges from the data is a clear picture: reviews and ratings matter, and businesses that manage them well stand to gain meaningfully in terms of consumer confidence and purchasing behaviour.
That said, the study's findings also caution against an overly narrow focus on reviews as the sole driver of trust. Brand reputation, product quality, and the overall user experience all feed into how consumers form lasting impressions. A business that treats online reviews as just one part of a wider trust-building strategy — rather than a standalone solution — is better positioned to earn genuine, durable consumer loyalty.

Limitations

- The sample of 52 participants is relatively small and may not fully represent the broader consumer population
- The study focused primarily on the relationship between reviews and trust, without exploring all the contributing factors in depth
- All data was self-reported, meaning individual perspectives and potential biases could not be eliminated

Recommendations for Future Research

- Future studies should include a larger and more diverse sample to improve the generalisability of findings
- Research could explore additional variables not covered here, such as brand loyalty, pricing factors, and the influence of product category on trust
- A dedicated investigation into the impact of fake reviews on consumer trust would be a valuable contribution to this field
- Studying how demographic factors — such as age, gender, and digital literacy — moderate trust in online reviews would provide richer, more nuanced insight

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A STUDY ON THE IMPACT OF PROMOTIONAL STRATEGIES ON BRAND PREFERENCE IN THE PHARMACEUTICAL INDUSTRY

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Abstract
In the pharmaceutical industry, where multiple brands often offer similar therapeutic outcomes, promotional strategies play a critical role in shaping brand preference among healthcare professionals. This study examines the influence of key promotional tools— namely Medical Representative (MR) detailing, free sampling, trade schemes, visual aids, and digital promotion—on brand preference. The research is based on primary data collected through a structured questionnaire administered to respondents associated with the pharmaceutical sector. A descriptive and analytical approach is adopted to evaluate perceptions regarding the effectiveness of different promotional strategies. The findings indicate that MR detailing remains the most influential factor, primarily due to its ability to facilitate direct interaction and build professional relationships. Free sampling is found to be effective in encouraging initial product trial, although its impact on long-term preference is limited without continued engagement. Trade schemes contribute to short-term sales performance but do not significantly influence sustained brand loyalty. Digital promotion, while increasingly adopted, is perceived as less impactful compared to personal selling. The study concludes that promotional effectiveness in the pharmaceutical industry is largely driven by relationship-building, credibility, and consistency in communication. A balanced approach that integrates personal interaction with strategic promotional support is essential for strengthening brand preference in a competitive market.

Keywords: Pharmaceutical Marketing, Promotional Strategies, Brand Preference, Medical Representative Detailing, Free Sampling, Trade Promotions, Prescription Behaviour, Relationship Marketing.

Introduction

The pharmaceutical industry plays a key role in improving healthcare outcomes by ensuring the availability of effective medicines. In India, the industry has grown rapidly over the years and is now one of the largest producers of generic drugs globally. With the presence of multiple companies offering similar formulations, competition has increased significantly.

Unlike traditional consumer markets, pharmaceutical marketing follows an indirect approach. The end user (patient) does not choose the product independently. Instead, doctors and pharmacists act as decision-makers, making it a professional-driven market. This makes promotional strategies critical, as they influence how healthcare professionals perceive and prefer a particular brand.

Since many drugs provide similar therapeutic outcomes, companies cannot rely only on product features. As a result, promotional efforts such as medical representative (MR) detailing, free samples, and scientific communication become important tools to influence prescribing behaviour.

Among these, MR detailing remains the most widely used approach because it allows direct interaction with doctors. It helps in building relationships, communicating product benefits, and maintaining brand recall. Similarly, sampling is used to encourage trial, especially for new

products, while other tools like visual aids and digital promotion support communication. However, not all promotional strategies have the same impact. Some contribute to long-term brand preference, while others provide only short-term benefits. In addition, excessive promotion may lead to reduced trust and information overload.

In this context, it becomes important to identify which promotional strategies are most effective in influencing brand preference. This study focuses on analyzing the impact of selected promotional tools based on primary data collected from respondents in the pharmaceutical field.

Literature Review

A literature review provides an overview of previous studies related to promotional strategies and their impact on brand preference in the pharmaceutical industry. Researchers have examined different promotional tools and their influence on prescribing behaviour.

A study by **Kotler and Keller (2016)** explains that pharmaceutical marketing follows an indirect approach where doctors act as key decision-makers, making promotional strategies essential for influencing brand choice.

Research by **Stros and Lee (2015)** found that brand awareness and continuous promotional exposure significantly affect prescribing behaviour, as higher recall increases the likelihood of brand selection.

Alkhateeb et al. (2009) highlight that medical representatives (MRs) play a crucial role in building trust and providing product knowledge, which directly impacts brand preference.

Similarly, **Narayanan et al. (2004)** observed that while frequent MR visits can improve prescriptions, the quality of interaction is more important than the number of visits.

A study by **Chew et al. (2000)** shows that free samples encourage trial prescriptions, especially for new products, by reducing the perceived risk for doctors.

However, **Hurwitz and Caves (1988)** found that excessive sampling may not lead to long-term loyalty and can reduce the perceived value of the product.

Gönül et al. (2001) explain that trade schemes and discounts improve short-term sales and product availability, but have limited impact on long-term brand preference.

In contrast, **Blattberg and Neslin (1990)** argue that such promotional strategies are transactional in nature and do not contribute significantly to brand loyalty.

A study by **Wazana (2000)** highlights that doctors prefer brands supported by clinical evidence, making scientific communication an important factor in pharmaceutical marketing.

Finally, **Morgan and Hunt (1994)** emphasize that relationship marketing, based on trust and commitment, plays a key role in influencing long-term brand preference.

Relevance of the Study

This study addresses the identified gaps by examining the impact of different promotional strategies on brand preference using primary data. It aims to provide practical insights into which promotional tools are most effective in the pharmaceutical industry.

Objectives of the Study

- To study the impact of promotional strategies on brand preference in the pharmaceutical industry
- To identify the most effective promotional tool influencing prescribing behaviour
- To understand the perception of healthcare professionals toward different promotional activities

Scope of the Study

The study focuses on analyzing the perception of respondents associated with the

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pharmaceutical industry regarding various promotional strategies such as MR detailing, sampling, and trade schemes.

The study is limited to:
- Perception-based responses
- Selected promotional tools
- A small sample of respondents

The study does not cover financial performance or clinical effectiveness of pharmaceutical products.

Significance of the Study
- Helps pharmaceutical companies identify effective promotional strategies
- Provides insights into behaviour of doctors and pharmacists
- Supports better decision-making in marketing practices
- Contributes to academic understanding of pharmaceutical marketing

Theoretical Framework and Research Methodology

The study is based on the idea that promotional strategies influence brand preference by shaping the perception of healthcare professionals. In the pharmaceutical industry, companies do not directly influence the end consumer. Instead, doctors and pharmacists act as decision-makers, making perception an important factor.

Promotional tools such as Medical Representative (MR) detailing, free samples, and other communication methods help create awareness, build trust, and improve recall. These factors collectively influence how a brand is perceived and preferred.

Thus, promotional strategies do not directly result in prescriptions but work through perception and relationship-building, which ultimately affect brand preference.

Conceptual Model

The relationship can be explained as:

Promotional Strategies → Brand Perception → Brand Preference

Promotional activities create awareness and influence perception. A positive perception increases the likelihood of preference for a particular brand.

Hypothesis of the Study

To keep the analysis focused, only one key hypothesis is considered:

- **H0 (Null Hypothesis):** Promotional strategies have no significant impact on brand preference.
- **H1 (Alternative Hypothesis):** Promotional strategies have a significant impact on brand preference.

Research Design

The study follows a descriptive research design, as it focuses on understanding the perception of respondents regarding promotional strategies.

This approach is suitable because the study aims to analyze existing behaviour rather than manipulate variables.

Data Collection Primary Data:

Primary data was collected using a structured questionnaire. The questions were designed to capture opinions on different promotional strategies using a Likert scale.

Secondary Data:

Secondary data was collected from research papers, journals, and books to support the

theoretical framework and literature review.

Sampling Design

- **Sampling Method:** Convenience sampling
- **Sample Size:** Approximately 60–70 respondents
- **Sampling Unit:** Medical representatives, pharmacists, and individuals associated with the pharmaceutical sector

This method was chosen due to ease of access and time constraints.

Data Analysis Method

To test the hypothesis, a **Chi-square test** is used.

The Chi-square test is used to examine whether the observed responses differ significantly from expected responses.

- If the calculated value is greater than the table value → Reject H0
- If the calculated value is less than the table value → Accept H0

This helps in determining whether promotional strategies significantly influence brand preference.

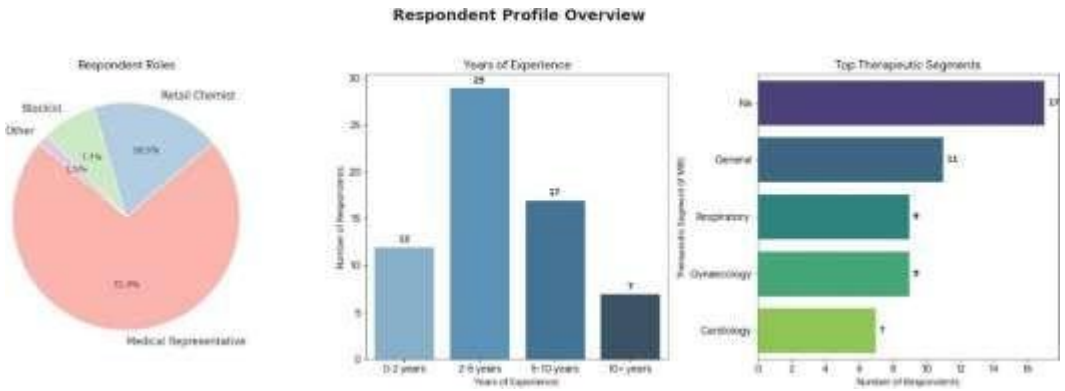
Data Analysis and Interpretation

This section presents the analysis and interpretation of primary data collected from 65 respondents. The responses have been evaluated to understand the impact of various promotional strategies on brand preference in the pharmaceutical industry.

1. Respondent Profile Overview

Observation:

Out of 65 respondents, **80% are Medical Representatives, 13.8% Retail Chemists,** and **6.2% Stockists**. In terms of experience, **36.9% have 2–5 years**, followed by **30.8% with 0–2 years**, and **21.5% with more than 10 years.**

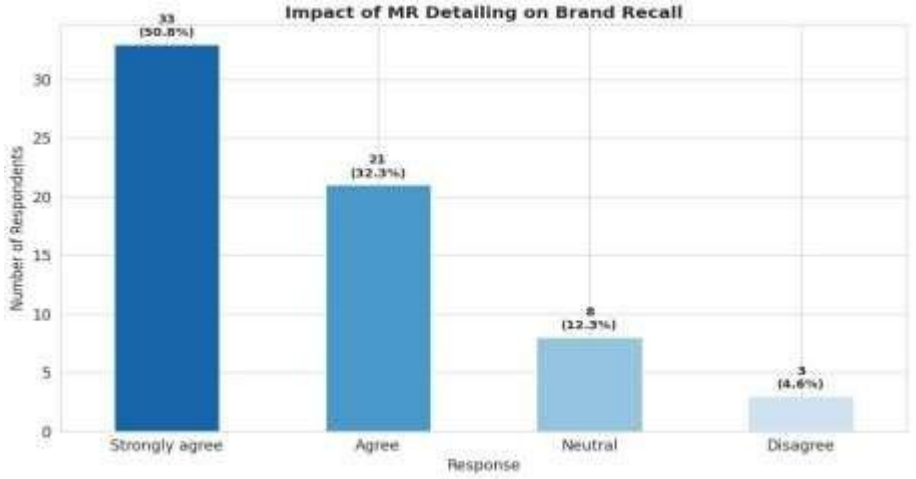


Interpretation:

The sample is dominated by MRs with practical field exposure, supported by experienced respondents. This ensures reliable insights into promotional effectiveness.

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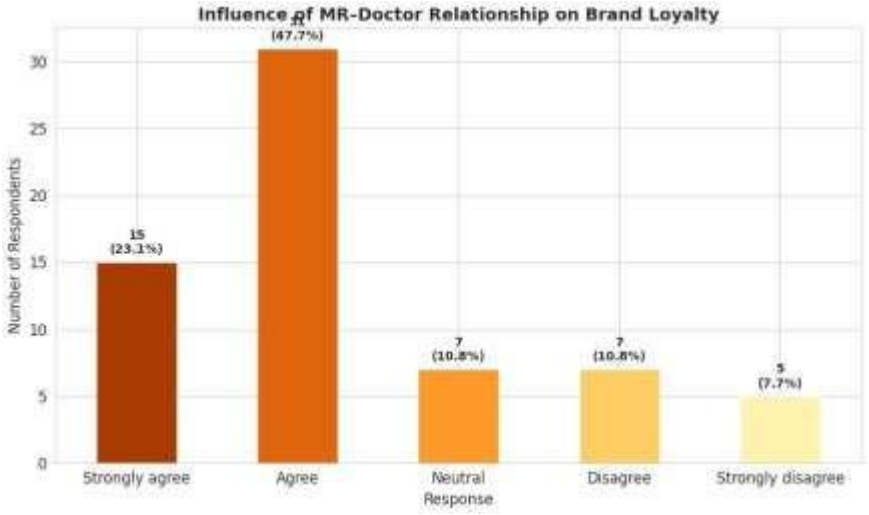
2. Impact of Medical Representative (MR) Detailing on Brand Recall



Observation:
A total of **83.1%** respondents **(50.8% strongly agree, 32.3% agree)** believe MR visits improve brand recall, while only **4.6%** disagree.

Interpretation:
MR detailing has a strong impact on brand visibility and recall among healthcare professionals. Regular MR visits function as a periodic reinforcement mechanism, ensuring that the brand remains the primary choice ("top-of-mind") for healthcare professionals during the prescription-writing process.

3. Influence of MR–Doctor Relationship on Brand Loyalty



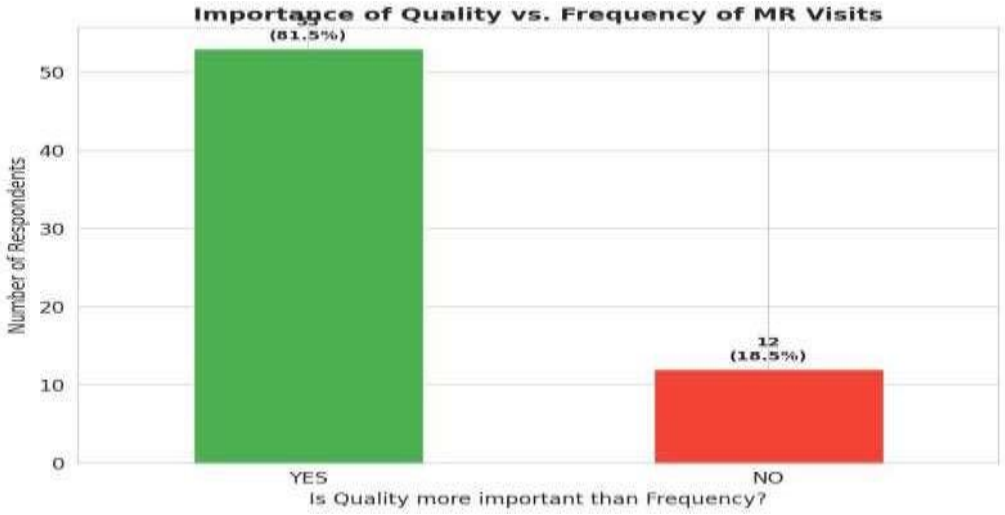
Observation:
Around **70.8%** respondents (47.7% agree, 23.1% strongly agree) believe relationships influence brand preference.Neutral and negative responses were minimal, collectively representing less than 30% of the sample.

Interpretation:
Strong relationships increase trust, leading to higher brand preference and repeat prescriptions. This relationship ensures a steady prescription flow even during market shifts or the introduction of new competing brands.

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4. Importance of Quality vs. Frequency of MR Visits

This analysis compares whether healthcare professionals value the depth of scientific interaction or the regularity of visits more.



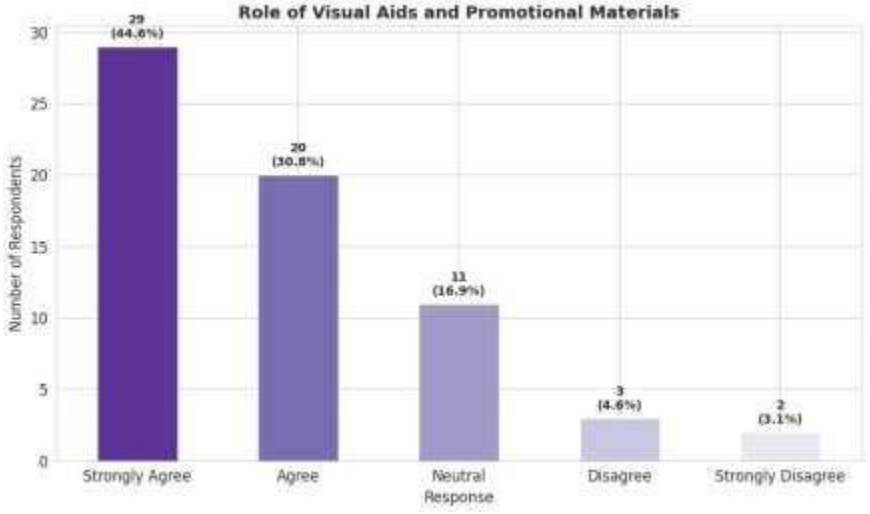
Observation:

A substantial majority of **81.5%** of respondents stated that the quality of detailing is more important than the frequency of visits. Only **18.5%** of the participants prioritized the number of visits over the content of the interaction.

Interpretation:

The findings suggest that Healthcare Professionals (HCPs) value meaningful, scientific, and concise information that aids their clinical decision-making over repeated, superficial interactions. Frequent visits without high-value content may lead to "physician fatigue."

5. Role of Visual Aids and Promotional Materials



Observation:

Around **75.4% respondents** (44.6% strongly agree, 30.8% agree) believe visual aids improve recall. A smaller segment **(16.9%)** remained neutral, while less than 8% expressed disagreement.

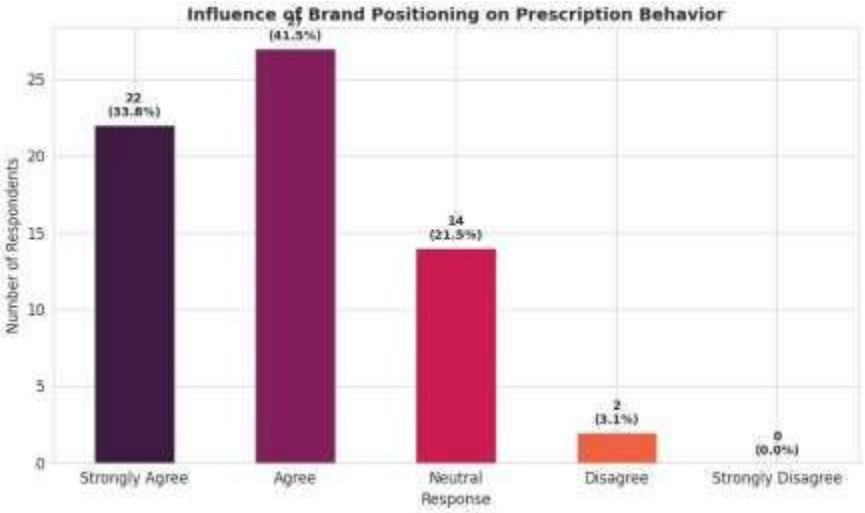
Interpretation:

Visual aids enhance understanding. Visual aids, such as LBLs (Leave-Behind Literature) and

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digital detailing folders, serve as vital "memory triggers." and support effective communication.

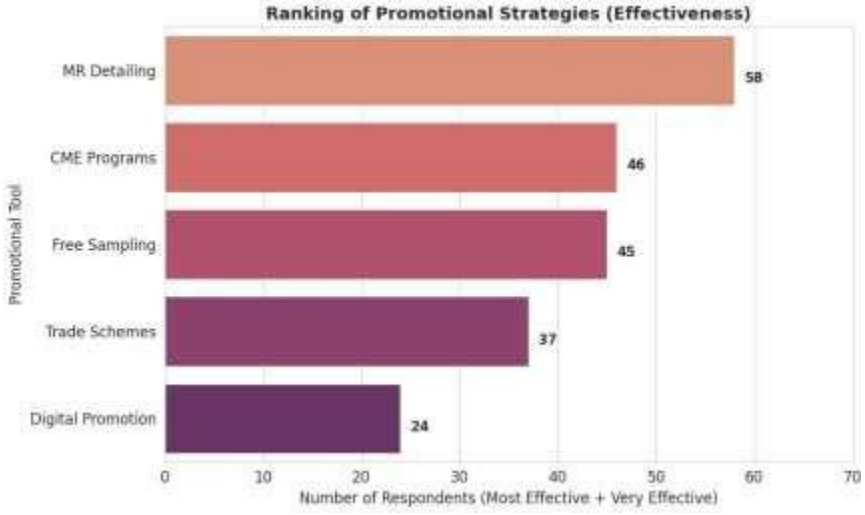
6. Influence of Brand Positioning on Prescription Behavior



Observation:
Approximately 75.4% respondents (33.8% strongly agree, 41.5% agree) believe brand positioning influences prescription behaviour.Approximately 21.5% remained neutral, while a very small minority (3.1%) expressed disagreement.

Interpretation:
Effective brand positioning creates a distinct identity in the minds of healthcare professionals.Clear positioning helps in differentiating brands and improving preference.

7. Ranking of Promotional Strategies



Observation:
The ranking clearly identifies a hierarchy of influence among promotional strategies: Medical Representative (MR) Detailing: 58 respondents (Highest rank), CME Programs / Scientific Promotion: 46 respondents, Free Sampling: 45 respondents, Trade Schemes: 37 respondents, Digital Promotion: 24 respondents

Interpretation:
Personal interaction and scientific communication are the most effective promotional

strategies.

Final Result

The analysis demonstrates that brand preference in the pharmaceutical industry is primarily driven by credibility and relationships. Personal detailing by MRs, backed by consistent clinical communication and scientific evidence (CMEs), forms the core of a successful brand strategy. While tactical tools like sampling and trade schemes facilitate entry and stock movement, long-term brand success depends on the quality of detailing and the perceived scientific value of the product. Digital tools, though growing, are still seen as secondary to the high-touch, trust-based model of traditional pharmaceutical marketing.

Hypotheses Testing (Conceptual Interpretation)

Basis for Selection of Variable

Based on the **ranking of promotional strategies,** Medical Representative (MR) detailing received the highest preference among respondents. This indicates that MR detailing is the most influential promotional strategy in the pharmaceutical industry.

Therefore, for hypothesis testing, MR detailing is selected as the representative variable to examine the impact of promotional strategies on brand preference.

Hypothesis

- **H0 (Null Hypothesis):** Promotional strategies have no significant impact on brand preference.
- **H1 (Alternative Hypothesis):** Promotional strategies have a significant impact on brand preference.

Chi-square test of independence is used to examine the relationship between MR detailing (promotional strategy) and brand preference.

Observed Frequency Table (O)			
MR Detailing vs Brand Preference	**High Brand Preference**	**Low Brand Preference**	**Total**
Strong MR Detailing	45	9	54
Weak MR Detailing	4	7	11
Total	49	16	65

Expected Frequency (E):

$$E = \frac{\text{Row Total} \times \text{Column Total}}{\text{Grand Total}}$$

Chi-Square Calculation

Category	**O**	**E**	**$(O-E)^2 / E$**
45	40.7	40.71	0.45
9	13.3	13.29	1.39
4	8.3	8.29	2.23
7	2.7	2.71	6.84
Total χ^2			**10.91**

Degree of Freedom

Df = (r−1) (c−1) = (2−1) (2−1) =1

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Table Value
At 5% level of significance: **3.84**
Decision Rule
- If calculated value > table value → Reject H0

= 10.91 > 3.84

The calculated Chi-square value is greater than the table value.
- **H0 is rejected**
- **H1 is accepted**

This indicates that promotional strategies, particularly MR detailing, have a significant impact on brand preference in the pharmaceutical industry.

Major Findings of the Study
Based on the analysis and discussion, the following major findings are identified:
1. MR detailing is the most influential promotional strategy in the pharmaceutical industry.
2. Relationship-building is a key driver of brand loyalty and preference.
3. Sampling is highly effective for trial generation but requires strategic implementation.
4. Trade schemes are effective only for short-term sales and do not ensure long-term loyalty.
5. Scientific communication and consistent messaging enhance brand credibility.
6. Visual aids support better understanding and recall of product information.
7. Digital promotion has limited influence compared to personal interaction.
8. Over-promotion negatively impacts brand perception and trust.

Recommendations
Based on the study, the following recommendations are suggested:
- Focus on strengthening MR training to improve communication and relationship-building skills
- Use sampling strategically during product launches rather than excessive distribution

Maintain consistent and evidence-based brand communication to build trust
- Reduce overdependence on trade schemes and discounts
- Use digital promotion as a supporting tool, not a replacement for personal interaction

Conclusion
The study concludes that promotional strategies have a significant impact on brand preference in the pharmaceutical industry. Among all tools, Medical Representative (MR) detailing and relationship-building are the most influential factors in shaping prescribing behaviour.
While free samples support initial product trials, their long-term impact is limited without consistent follow-up and product performance. Trade schemes and digital promotion show comparatively lower influence, indicating that pharmaceutical marketing is still largely driven by personal interaction and trust.
Overall, the findings highlight that credibility, communication, and professional relationships are more important than purely transactional approaches in building strong brand preference.

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CONSUMER PERCEPTION TOWARD SUSTAINABLE AND ECO-FRIENDLY BRANDS

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Abstract
This research investigates individual's perceptions of various environmentally friendly brands and explores the associations people have with these brands in terms of knowledge, feelings, purchasing decisions, and willingness to pay. As concern for the planet continues to grow, many individuals desire to behave in an environmentally sustainable manner, and therefore tend to be more selective about their purchasing decisions. With survey questionnaires, this research analyzes consumer perceptions and demographics in order to determine consumer willingness to purchase eco-brands as well as the factors contribute to their likelihood of purchasing eco-brands. The result demonstrate that even though consumers have a positive perception of eco-friendly brands, they often see them as costly and difficult to obtain. As a result, many individual who may not purchase eco-brands because of these factors. In addition, consumers would like to learn more about eco-products, and companies want to ensure they demonstrate truthful marketing messages regarding their eco-brand products. The analysis reveals that even though most individuals maintain favorable opinions regarding eco-brands, companies need to reduce the price of eco-brand products and increase consumer knowledge of eco-brands to improve the purchase of eco-brand products and increase the adoption of sustainable lifestyles.
Keywords: Consumer Perception, Sustainable Products, Eco-friendly Brands, Consumer Behavior, Environmental Sustainability, Environmental Awareness, Price Sensitivity.

Chapter 1: Introduction

Background of the Study

More and more businesses and consumers are becoming aware of sustainable design and products over the past few years. What people want to buy today is eco-friendly and sustainable due to concerns over global warming, pollution, and the consumption of natural resources. Since this change has occurred, businesses have begun to produce eco-friendly products and are actively positioning their products in the market as less damaging to the earth and environment.

The goal of eco-friendly brands is to produce less of an impact on the environment by using sustainable materials, production techniques, and packaging methods; therefore, more and more individuals are becoming informed on sustainable brands through word-of-mouth. Despite growing awareness of these eco-friendly brands, few people utilize them.

Need of the Study

Consumers appear to be more conscious about the environment and want to support sustainable products; however, there is still a divide between what end users believe they should do versus what they actually do when it comes to purchasing these products.

The relevance of the planned research will be demonstrated through an understanding of consumers' perceptions of eco-friendly brands, an examination of their reasons for purchasing them, and an assessment of how much price and knowledge factor into their final purchasing decisions.

Scope of the Study

This study evaluates consumer awareness of, attitudes toward, and habits for purchasing eco-friendly products. In addition, it evaluates how variables such as pricing and income might affect purchasing patterns. Data was collected from 58 respondents.

The sample of individuals included in this research included only of defined groups; therefore, the conclusions of the study cannot be generalized to the greater population.

Problem

Even though the issue of environmental protection is receiving more focus, and there are an increasing number of brands on the market with sustainable and environmentally friendly features, we still see a gap between the consumer's awareness of environmental issues and their behavior in relation to eco-friendly products. Although individuals may appear to be care about the environment and hold a positive view of eco-friendly products, their intentions to purchase of these products may show variations across person to person.

Various elements can play a role in whether or not consumers buy such products. These include price, availability of product, and trust in brands that manufacture sustainable items. In addition, individuals with different earning levels will likely respond differently to the purchasing process.

Marketers must first comprehend the societal perceptions of sustainable products in order to influence a customer's decision to obtain a product. The central aim of the study was to explore customer awareness regarding sustainable products, customer perceptions of these sustainable products, and the degree to which price affects a consumer decision to purchase these products.

Chapter 2: Literature Review

Peattie (2001) emphasized that sustainability has become an important element of modern business strategies as organizations attempt to balance economic growth with environmental responsibility. The study suggested that firms engaging in environmentally sustainable activities could ensure long-term advantages for both society and business.

Ottman (2011) discussed how buyer's preference for environmentally sustainable products has increased over the past few decades. According to the study, a rising number of consumers prefer brands that demonstrate commitment to environmental protection and responsible resource management.

Young et al. (2010) examined the relationship between consumer attitudes and sustainable purchasing behavior. The analysis suggested that although many consumers express sensitivity toward environmental issues, their actual purchasing behavior may be shaped by elements such as price, convenience, and product availability.

Nielsen (2015) conducted a global survey and reported that a significant percentage of consumers are willing to opt to buy products from companies that prioritize sustainability. The analysis suggested that younger consumers tend to show stronger interest in environmentally responsible products compared to older generations

Chen (2010) found that environmental awareness and perceived product benefits play an important role in shaping consumer attitudes toward sustainable products. Consumers who perceive eco-friendly products as beneficial for both the environment and personal well-being are more likely to support sustainable brands.

Overall, the literature suggests that consumer perception toward sustainable brands is influenced by multiple factors including environmental awareness, perceived product quality, price considerations, and brand reputation. Considering these factors can help businesses to encourage sustainable consumption and encourage environmentally responsible purchasing behavior.

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Chapter 3: Research Objectives and Hypothesis

Objectives of the Study

1. To study the extent of consumer awareness toward sustainable and eco-friendly brands.
2. To analyze consumer perception toward sustainable and eco-friendly products.
3. To evaluate the influence of consumer perception and income on purchase intention toward sustainable and eco-friendly brands.

Hypothesis of the Study

Null Hypothesis (H_0): Consumer perception does not significantly influence the purchase intention toward sustainable and eco-friendly brands.

Alternative Hypothesis (H_1): Consumer perception significantly influences the purchase intention toward sustainable and eco-friendly brands.

Chapter 4: Research Methodology

1. Research Design

This research is a descriptive study, which is an attempt to understand and analyze people's perceptions about eco-friendly brands.

2. Sources of Data Collection

This study utilized both primary and secondary data sources.

- **Primary Data:**

Primary data was collected through structured questionnaire that included multiple-choice, Likert scale, and open-ended formats.

- **Secondary Data:**

The following sources were used to collect secondary data:

- Journals/articles
- Websites/online references
- Consumer behavior and sustainability books.

3. Method of Data Collection

The technique utilized for data collection in this research was survey, from which responses were gathered from respondents through a questionnaire.

- **Sampling Approach**

The respondents were chosen using a convenience sampling technique, whereby the respondents were selected based on accessibility and convenience.

- **Sample Size**

A total of 58 responses were received from the survey, which was comprised of diverse participants in range of age, job and level of income.

4. Limitations of the Study

- It is because the research draws on a small number of samples that may not be truly reflecting the entire population.
- It uses personal opinions, and these may vary among individuals.
- The research is confined to particular respondents such as students and working individuals, etc.
- Time limitations prevented further elaboration on the data.

5. Data Analysis Methods

- **Tabular Representation:** Data was presented in tables for better understanding and comparison.
- **Graphical Representation:** Bar charts and pie charts were used to visually represent the data.
- **Chi-Square Test of Independence:** Used to investigate the relationship between consumer perception and purchase intention.

Chapter 5: Data Analysis and Interpretation

- **Demographic Analysis**

1. Income Level

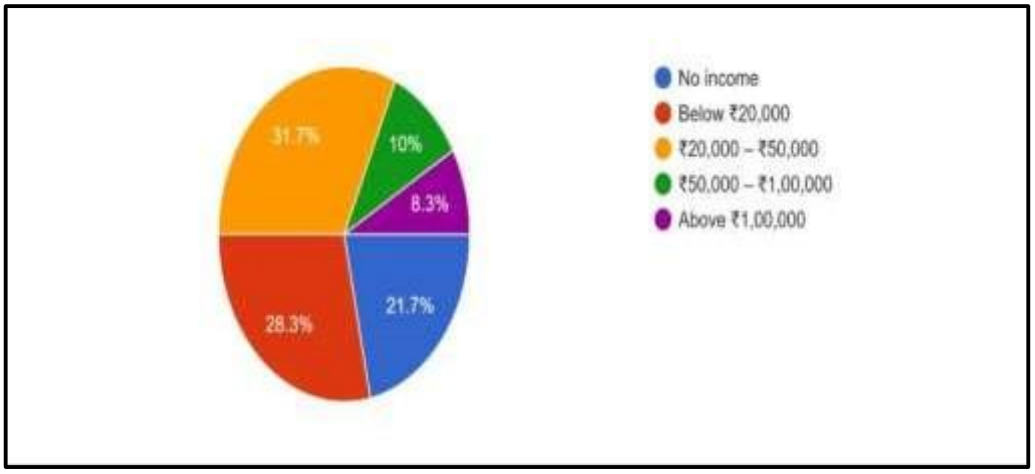


Chart 1: Income Level

Interpretation: The chart illustrates that the highest proportion of respondents falls in the ₹20,000-₹50,000 income category (31.7%), followed by below ₹20,000 (28.3%) and No income (21.7%). A smaller percentage belongs to higher income groups. This reveals that most individuals are from lower to middle-income segments, which may influence their affordability and purchasing decisions toward eco-friendly products.

2. Awareness of Eco-Friendly Brands

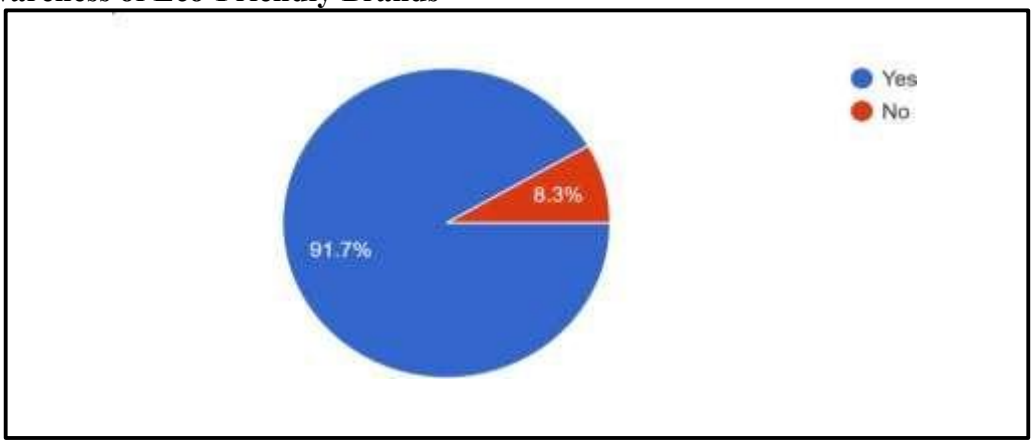


Chart 2: Awareness of Eco-Friendly Brands

Interpretation: The chart illustrates that a large number of respondents (91.7%) recognize sustainable and eco-friendly brands, while only a small percentage (8.3%) are not aware. This indicates a strong level of awareness among consumers regarding eco-friendly brands, reflecting increasing environmental consciousness.

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3. Source of Awareness of Eco-Friendly Brands

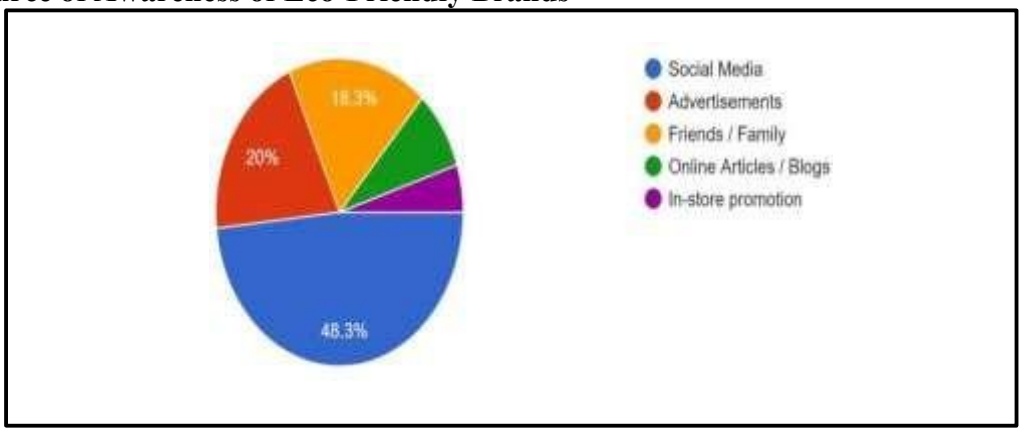


Chart 3: Source of Awareness of Eco-Friendly Brands

Interpretation: The chart illustrates that social media is the primary source of awareness for eco-friendly brands (48.3%), followed by advertisements (20%) and friends/family (18.3%). A smaller percentage of respondents learn through online articles/blogs and in-store promotions. This implies that online channels, especially social media have a major role in creating awareness among consumers.

4. Willingness to spend more for Eco-Friendly products

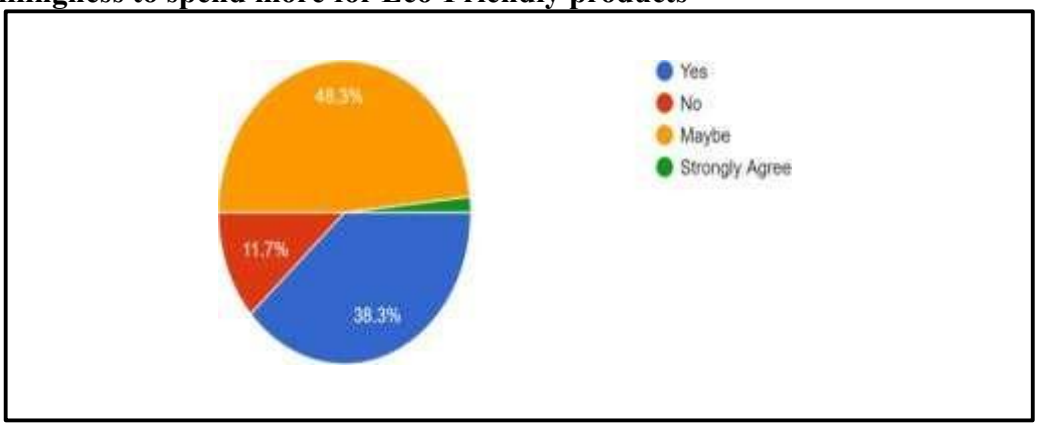


Chart 4: Willingness to spend more for Eco-Friendly products

Interpretation: The chart illustrates that 48.3% of respondents are unsure about spending more for eco-friendly products, while 38.3% are willing to spend a higher price. A smaller percentage (11.7%) are not inclined to spend more. This highlights that even though consumers have a positive attitude toward eco-friendly products; price remains a primary factor guiding their purchase decision.

5. Eco-friendly brands help protect the environment

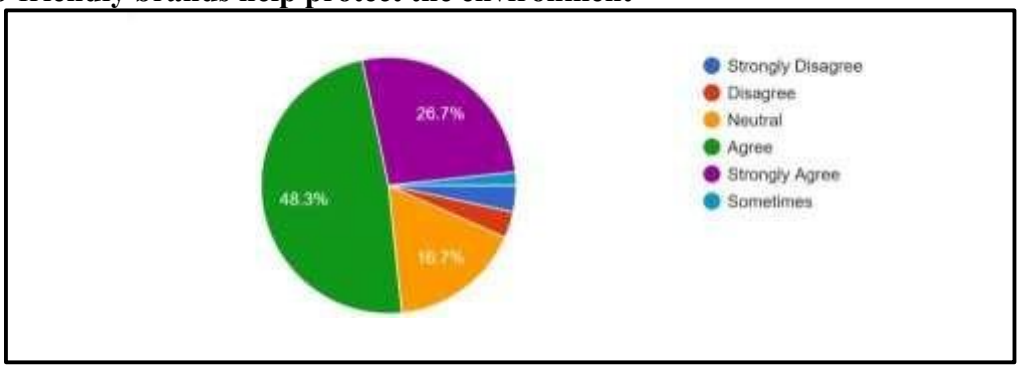


Chart 5: Eco-friendly brands help protect the environment

Interpretation: The chart illustrates that a majority of respondents have a favorable attitude of eco-friendly brands. Around 48.3% agree and 26.7% strongly agree that eco-friendly brands help protect the environment. A smaller portion remains neutral (16.7%), while very few respondents disagree. This indicates a strong overall belief among consumers that eco-friendly products contribute to environmental protection.

- **Hypothesis testing**

To examine the consumer perception toward eco-friendly brands, a Chi-Square test was conducted.

Case	N	Percentage
Valid	58	100%
Missing	0	0%
Total	58	100%

1. Observed frequencies

Consumer Perception	Yes	No	Maybe
Agree	20	1	23
Neutral	1	4	5
Disagree	2	2	0
Total	23	7	28

2. Expected frequencies

Consumer Perception	Yes	No	Maybe
Agree	17.45	5.31	21.24
Neutral	3.97	1.21	4.83
Disagree	1.59	0.48	1.93

3. Chi-Square result

Chi-square (χ^2) = 19.51

Degrees of freedom (df) = 4 p-value = 0.0006

4. Interpretation

The p-value (0.0006) being less than 0.05 indicates rejection of the null hypothesis (H_0) and acceptance of the alternative hypothesis (H_1).

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5. Conclusion

Consumer perception significantly influences the purchase intention toward sustainable and eco-friendly brands.

Chapter 6: Findings, Recommendations and Conclusion

Findings

1. According to the research, most respondents know about eco-friendly brands, showing that consumers have an increasing awareness of the environment.
2. The majority of the information about eco-friendly brands comes via social media, followed by advertisements and word of mouth, which emphasizes the role of digital media in helping consumers understand the various eco-friendly brands.
3. Generally, consumers have a good perception of eco-friendly brands and most participants agree that they are helping to protect the environment.
4. Despite having a beneficial opinion of the products, many participants are still unsure if they would be willing to spend more for products that were eco-friendly.
5. Consumers in lower and middle-income groups have greater price sensitivity and thus are more impacted in terms of purchasing eco-friendly products as demonstrated by the analysis.
6. The results of the Chi-square test show a statistically significant correlation between individual perception and buying intention.
7. Individuals holding a favorable view are more likely to purchase eco-friendly products, while consumers with neutral or negative perceptions show a lower intention to purchase.
8. Overall, there is a significant discrepancy between consumer awareness and purchasing behavior, highlighting that while the majority of consumers are aware of and care about the environment, their product choices are strongly shaped by the price and availability of the products.

Recommendations

1. To encourage consumers to purchase environmentally sustainable products, companies need to reduce the price of those products.
2. Increase public awareness of environmental sustainability issues on social media platforms and other digital marketing channels.
3. Explain how to implement sustainable practices in your business through clearly stated and transparent information.
4. Make environmentally friendly products readily available and easily accessible to consumers.
5. Encourage new consumers to try and or purchase environmentally friendly products by providing discounts or incentives.

Conclusion

The goal of the study was to examine how consumers view sustainable and environmentally friendly brands by exploring how they are aware of these brands, their views on them, and whether or not they intend to buy them. The findings suggest consumers know about eco-friendly brands, mostly through social media.

Most respondents felt positively toward eco-friendly brands and agreed that eco-friendly brands do contribute to protecting the environment. However, the willingness of consumers to pay a premium for eco-friendly products was moderate, indicating consumers' price sensitivity, particularly in lower and middle-income groups.

The results from the chi-square test indicate that there is a strong link between consumer perceptions and purchase intentions. Therefore, consumers who have a favorable view of eco-friendly brands tend to be more inclined compared to those with negative perceptions to purchase these types of products.

In conclusion, while there is strong awareness and positive perception of eco-friendly brands,

actual purchases are affected by aspects such as price affordability and levels of income.

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MARKETING CHALLENGES OF GENERIC MEDICINES IN INDIA

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Abstract
This study examines the level of confidence Indian consumers have in generic medicines, focusing on the idea that affordability strongly influences drug choices. Using quantitative data from 99 participants, the research explores how perceptions of quality, physicians' recommendations, price sensitivity, and accessibility affect the adoption of generic drugs. The findings indicate that while awareness of generic medicines is generally high and lower cost attracts consumers, trust is shaped more by healthcare providers' endorsements and product availability than by perceived quality alone. These insights can help pharmaceutical marketers and policymakers design strategies that enhance credibility, address consumer doubts, and support the promotion of generics in a highly cost-conscious market.
Keywords: Consumer Confidence, Generic Drugs, Pharmaceutical Marketing, Doctor Influence, Price Sensitivity, Patient Behavior, Quality Perception, Healthcare Accessibility, Indian Market, Branding Challenges.

1. Introduction

1.1 Background of the Study

India has earned the title *"Pharmacy of the World"*, being one of the primary global suppliers of affordable generic medicines. These generics form the backbone of India's healthcare affordability. However, marketing them continues to pose challenges. Patients often receive conflicting messages from physicians and pharmacists when choosing between expensive branded drugs and cheaper generics. As healthcare awareness grows, the interplay of medical recommendations and perceived product quality plays a decisive role in shaping trust and purchase decisions for generic drugs.

1.2 Research Problem

Although generic drug availability has grown rapidly, public confidence has not kept pace. Many consumers still equate lower price with lower quality. Key barriers include minimal advertising by generic manufacturers, inconsistent pharmacy supply, and physicians' preference for branded prescriptions. If these barriers persist, generic drug adoption will remain sluggish, leading to unnecessary financial strain and slow progress toward affordable healthcare access in India.

1.3 Objectives of the Study

1. Identify core factors influencing consumer trust and understanding of branded vs. generic drugs.
2. Examine how perceptions of quality, doctor and pharmacist recommendations affect generic drug use.
3. Evaluate the marketing visibility and promotion of generic medicines in the Indian retail sector.
4. Offer actionable marketing and policy suggestions to strengthen consumer confidence in generics.

1.4 Scope of the Study

The research focuses on marketing difficulties and consumer responses related to generic drugs in India. It considers price quality perceptions, pharmacist accessibility, and the impact of

healthcare professionals' endorsements. Based on surveys of 99 respondents, the study investigates why many patients still choose branded products despite cheaper alternatives and proposes ways to increase acceptance of generics through awareness and marketing improvement.

2. Literature Review

2.1 Generic vs. Branded Medicines

Despite containing identical active ingredients, branded drugs are often viewed as superior in quality and safety. The persistent bias against generics stems from limited promotion, lack of consumer education, and doubts about their efficacy. This misconception continues to hinder the overall growth of the generic drug market.

2.2 Trust Factors

Patients usually trust their doctors and pharmacists for guidance on safe and effective medicines. Since these professionals act as gatekeepers, their opinions significantly shape consumer choices. However, restricted flow of information about generics and weak promotion limit public trust, leading to continued preference for branded options.

2.3 Price and Quality Perceptions

While price remains a key motivator for low-income consumers, middle- and upper-income groups often associate lower price with inferior quality a psychological bias known as the *price–quality heuristic*. The main challenge for marketers is to separate the concept of "low price" from "low quality." Building trust through medical endorsements, awareness programs, and firsthand positive experiences can normalize generic usage among patients.

2.2 Critical Review of Literature on Studies

Shodhganga Theses

1. Sharma (2024) discusses how there is inadequate knowledge among customers which creates a challenge for the use of generic drugs in India.
2. Verma (2023) discusses the idea that the choice of physicians to prescribe brand name pharmaceuticals limits the extent to which the market gets into generic pharmaceuticals.
3. Iyer (2025) states that the perception of product quality and the lack of trust in generics by customers act as barriers to consumer acceptance of generic drugs.
4. Khan (2024) discusses how insufficient marketing of generic drugs and little if any promotional activity is a major limiting factor in increasing awareness of generic drugs.
5. Patel (2023) discusses how government initiatives such as Jan Aushadhi have improved access to generic medications; however, these programs still face problems regarding how the public perceives them.
6. The authors of this study, Kesselheim et al. (2016), determined that consumers' misconceptions regarding quality and efficacy create barriers to consumer adoption of generic medications.
7. Gupta and Shah (2022) determined that pricing advantages alone are not sufficient to facilitate generic drug use; awareness and branding are also critical to success.
8. Choudhary et al. (2021) stated that pharmacists are a major influence on consumer purchasing decisions when it comes to generics.
9. Joshi and Dixit (2023) found that the availability of aggressive marketing for branded drugs restricts the growth potential of generics.
10. According to Dylst et al. (2013), regulatory practices and policies affect the marketing and acceptance of generics as substitutes for brand-name drugs.
11. Bhattacharya et al. (2024) noted that the use of digital marketing will improve younger consumers' knowledge of generic drugs.
12. Singh and Kumar (2022) discovered that rural populations were more likely to utilize generics; however, they still had low levels of awareness regarding generics.

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13. Wouters et al. (2017) recognized that trust-building efforts will be crucial in encouraging greater consumption of generics.
14. Agarwal and Mehta (2025) observed that competition with respect to branded generics creates confusion for consumers.
15. Rao and Nair (2026) established that educational marketing campaigns produce significant contributions to improving consumer perception and adoption of generics

3. Research Methodology

3.1 Research Design

This study adopts a descriptive quantitative approach to analyze how perceived quality, healthcare provider trust, and price affect consumer confidence in generics. Data were gathered through an online structured questionnaire targeting 99 participants, providing insight into the psychological and contextual factors influencing generic drug selection.

3.2 Data Collection

Primary data were obtained via a Google Form survey to capture current consumer experiences and awareness regarding generics and branded drugs. Respondents reported on perceived quality, cost sensitivity, trust levels, and their drug-purchasing behavior. Such direct feedback strengthens the credibility and real-world reflection of the study outcomes.

3.3 Sample Size

The total number of respondents who provided feedback was considered the sample size for this analysis.

Total Participants: 99

4. Data Analysis

The objective of the research is to evaluate whether the perceived quality of generic medicines has a significant impact on customer trust.

Contingency Table

Level of Trust	Lower Quality	Same Quality	Higher Quality	Total
Low Trust	16	13	9	38
High Trust	37	13	11	61
Total	53	26	20	99

Results Summary

- Calculated χ^2: 3.359
- Degrees of Freedom: 2
- p-value: 0.1865

Since $p > 0.05$, the null hypothesis cannot be rejected. Hence, no statistically significant relationship exists between perceived quality and trust.

Interpretation of Result

Although some respondents perceive generics as lower in quality, this perception does not significantly influence their overall trust level. Other factors especially physician recommendations and cost considerations play stronger roles in shaping consumer trust toward generic medicines.

5. Discussion

The results reveal that, despite mixed perceptions about the quality of generics, consumer trust often remains moderately high, particularly when recommended by healthcare professionals. Even those who doubt quality may still purchase generics when cost savings or pharmacist

assurances are strong. The findings reinforce that trust in the healthcare intermediary, rather than product perception alone, determines acceptance.

Key takeaways:

- Awareness of generics is widespread.
- Doctor and pharmacist recommendations are pivotal to trust.
- Affordability remains the most powerful driver influencing generic adoption.

6. Conclusion

This research explored the link between perceived quality and consumer trust in generics. Statistical analysis confirmed no significant association at the 5% significance level. This indicates that consumer trust in generic medicines hinges more on professional guidance and affordability than on perceived product quality.

Unlike typical consumer goods, where quality perception directly predicts trust, the pharmaceutical decision process is mediated by healthcare professionals, adding complexity to marketing strategies for generic drugs.

Limitations

- Small Sample Size: 99 participants cannot represent India's diverse population.
- Limited Variables: Focused mainly on quality and trust, excluding other significant factors.
- Subjectivity: Opinions may vary by personal experience and cultural background.

Recommendations for Future Research

- Expand the study to include larger, regionally diverse samples.
- Use multivariate analysis to evaluate combined effects of price, accessibility, and professional recommendation.
- Examine the impact of public awareness campaigns such as the Jan Aushadhi program on consumer perception and purchase behavior.

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INDIAN ORGANIC PRODUCTS – MARKET OPPORTUNITIES AND CHALLENGES

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Abstract
The organic products of India are becoming a bigger part of the agricultural and food industry, due to consumer becoming conscious about food safety and health, demand for chemical-free produce across urban centers. There is also growing concerns about soil degradation and long-term effects on farm productivity. On the opportunity side, rising incomes, urbanization, and growing awareness of diseases have increased the demand of chemical-free and sustainably produced food. Consumers in the urban cities are actively shifting their demand toward organic staples, fruits, and packaged products, encouraging retailers and brands to widen certified offerings. Expansion of modern retail chains and e-commerce platforms has easy accessibility, also the government initiatives for the certification programs and organic farming schemes / subsidies are encouraging production. The Indian organic products face several critical challenges. High certifications cost including audits and documentation with lengthy process is very complicated for the small farmers. Inadequate cold storage and infrastructure lead to inefficiencies and logistics system is also not fully organized. Moreover, limited awareness and technical knowledge among the farmers, inconsistent supply, and weak market linkages becomes very difficult to sell products from rural to urban cities. The breach between production and consumption regions, along with export-related challenges such as compliance and infrastructure, further restricts global competitiveness.
Keywords: Organic, Trade And Industry, Wellbeing Perception, National Market, Opportunities, Challenges, Market Size.

1. Introduction

1.1 Background of Study

India is the fastest growing economies in the world. The global agricultural landscape has changed a lot due to awareness about food safety, environmental sustainability, and public health. The excessive use of harmful and dangerous chemical fertilizers, pesticides, and genetically modified inputs in conventional farming has become a serious question about long-term ecological balance and human well-being. Because of this, organic farming has emerged as a sustainable alternative that promotes natural cultivation practices, biodiversity conservation, and improves soil health.

India, with its rich background of conventional and environmentally friendly farming systems, stands out as the ideal candidate to reap the rewards offered by the burgeoning organic market. The agro-climatic diversity in India allows for the cultivation of a wide variety of organic crops, which include cereals, legumes, fruits, vegetables, spices, and plantation crops. There have been lots of efforts taken over a time to cultivate organic products in India, with a various initiatives undertaken by the government, along with subsidiary support and due to the growing consumer awareness concerning health and environment in India.

However, despite of positive changes, still there exists some inherent problems within the Indian organic industry which need to be consider. Some of these include high certification costs, a absence of uniform labeling practices, the farmers have inadequate knowledge, poor productivity levels while transitioning to organic farming, inefficient logistics, and consumers'

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high sensitivity to prices. Moreover, concerns about authenticity persist when it comes to consumer trust in organic products.

It is vital to consider the opportunities and obstacles associated with Indian organic produce in an organized manner.

1.2 Need for the Study

Rising demand for good health and natural food globally has led to the rise of organic products. It is incorporated into agriculture and consumer goods industries. This lifestyle is observed in India where there is growing perception about the significance of healthy food consumption along with changing consumption behavior among consumers and some governmental initiatives aimed at supporting the sector's development. Nevertheless, despite all its huge potential, the development of the Indian organic industry remains slow and faces many different constraints.

It is crucial to analyze the area to find out what separates it from its potential. Even though India has quite favorable natural and climatic conditions, well-developed traditional methods of farming and wide number of small farmers, the production cost and certification cost is also much high, poor infrastructure, and due to lack of knowledge become a major obstacle for this industry. It is necessary to reveal new market opportunities, but not only them.

1.3 Scope of the Study

The research study will be the organic product market in India. The objective of the study is to identify emerging opportunities and significant obstacles in the organic industry. The scope of this study includes the analysis of all types/categories of organic products, including food (grains, fruits/vegetables, dairy), beverages, personal care items, and textiles.

The geographical scope of this study will be limited to India only and will include both urban and semi-urban areas where consumers are becoming more sensitive and demanding organic products. This includes analyzing the consumer preferences, behaviour, willingness to purchase organic products, and demographic information related to consumers (age, income, education, lifestyle).

On the supply side, this research will look at the dynamics of producers, certification process, manufacturing/distribution network, and relevant government policies/regulations supporting organic agriculture and trade. It also considers the producers, retailers, e-commerce companies and exporters as important players in shaping this market.

Major opportunities identified in the study will include increasing health awareness, increasing disposable income levels, export opportunities, and digital retail growth. However, significant challenges will also be identified, including the high prices of organic products, lack of awareness of organic products in rural areas, complexity of the certification process, inefficient supply chains, and difficulty in building strong relationships with consumers.

1.4 Objectives of the Study

- Analyze Market Opportunities and Challenges: Analyze market opportunities and challenges related to organic products in India;
- Analysis of the current size of the Organic Products Market (Size and potential): Study current size and growth trends within; study future potential;
- Understanding the behavior of the consumer towards the Organic Products (Consumer awareness, preferences, purchasing behaviour): Understand consumer awareness, purchasing behaviour.
- Knowing the factors affecting demand for Organic Products (Health Consciousness, Environmental Issues, and Lifestyles): Identify major factors that affects the demand including health consciousness, environmental issues, lifestyles;
- Evaluate Barriers to Selling Organic Products (Price, Certification, Supply Chain): Evaluate key barriers facing manufacturers, marketers, retailers including price/certification issues, suppliers;

- Assess the Role of Government Regulation and Policy in Promotion of Organic Products: Assess role of government regulations and policies on elevation of organic produce and farming methods;
- Examine the Effectiveness of Distribution Channels: Assess effectiveness of various means to reach consumers including retail stores, e-comerce platforms;
- Explore Export Market Opportunities - India's Place on the Global Market for Organic Products: Explore India's export potential and how it fits within the overall global market for organic products; and
- Provide recommendations for building and growing the organic products sector in India, Also provide recommendations for developing and increasing the total market share for the organic products in India.

2. Literature Review

The raising demand for organic products has attracted significant academic and industry attention worldwide. With reference to the Indian perspective, various researchers have explored the evolution, opportunities, and constraints of the organic products market.

Studies by researchers such as Ramesh P. and Suresh Kumar highlighted that organic farming in India has observed continues growth due to increasing knowledge about health, environmental sustainability, and food safety. Their work emphasizes that India as a country have a excellent capacity for organic production due to its distinct agro-climatic restrictions and traditionally low use of chemical inputs in certain regions.

According to reports published by FSSAI and APEDA, the organic sector in India has been developing rapidly, due to rise in domestic consumption and export demand. This is indicates that India is among the leading producers of organic commodities globally, especially in products such as spices, tea, and pulses.

Consumer behavior is given major area of focus in existing literature. Research shows that metropolitan customers are increasingly inclined toward organic products due to fear over pesticide residues and lifestyle-related diseases. However, studies also indicates that high prices and limited availability act as major barriers to widespread adoption. Authors such as Paul J. and Rana J. says that growth in income, education, and awareness significantly influence purchasing decisions.

On the supply side, several studies identify challenges related to certification, supply chain inefficiencies, and lack of infrastructure. The certification process, governed by systems such as National Programme for Organic Production, is often considered complex and expensive for small growers. Researchers argue that this discourages many farmers from transitioning to organic practices.

Furthermore, literature points the importance of government initiatives like Paramparagat Krishi Vikas Yojana and Mission Organic Value Chain Development for North Eastern Region in promoting organic farming. These programs aim to provide financial assistance, training, and market linkages, though their implementation effectiveness varies across regions.

E-commerce and organized retail have also emerged as important drivers of growth. Studies say that digital display have improved accessibility and visibility of organic products, especially in metropolitan cities. However, concerns about authenticity and labeling remain significant challenges in the market.

Despite massive research, still gaps exists in understanding regional disparities, long-term sustainability, and the integration of small-scale farmers into organized supply chains. This study seeks to address these gaps by providing a comprehensive analysis of both opportunities and challenges in the Indian organic products market.

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3. Research Methodology

3.1 Research Main Objective

Objectives of this research:

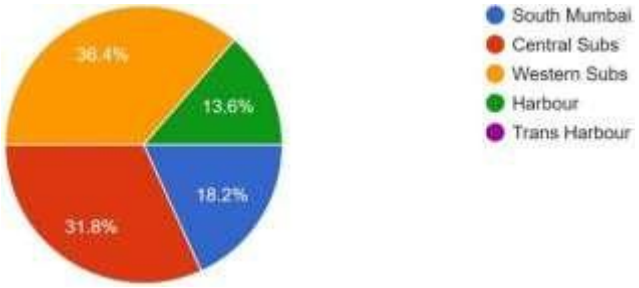
To explore opportunities/challenges for organic foods in Indian market include:

1) Current and anticipated growth of Indian Organic products (in terms of sales).
2) Awareness of & interest in organic products by consumers (purchasing habits).
3) Factors that impact demand for organics i.e. environmental issues/concerns; health concerns; evolving lifestyles.
4) Issues that impede growth (barriers to entry) are the high cost of organic purchases; certification lack of clarity regarding what constitutes as "organic"; supply chain issues and lack of standardization.
5) Governmental efforts to create an environment conducive to the growth of organic markets.
6) Evaluating the effectiveness of distribution channels utilizing actual case studies.
7) Market opportunities domestically and internationally, of Indian organic products.
8) Recommendations for increasing the market penetration and sustainable development of Indian organic products.

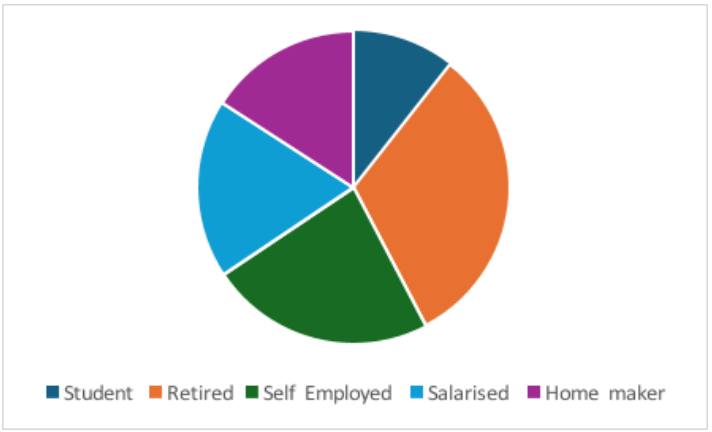
3.2 Data Collection

This research is based on primary data obtained from a questionnaire survey distributed to 35 people.

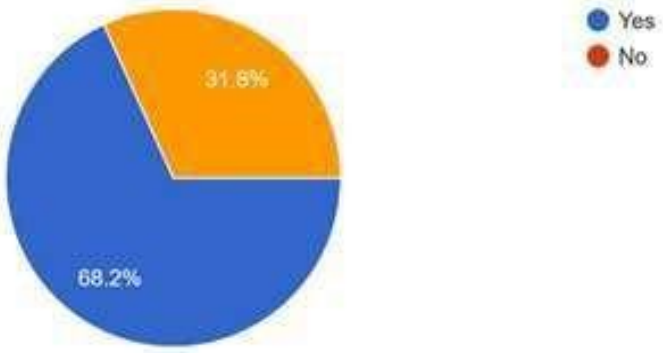
Residence Area



Occupation



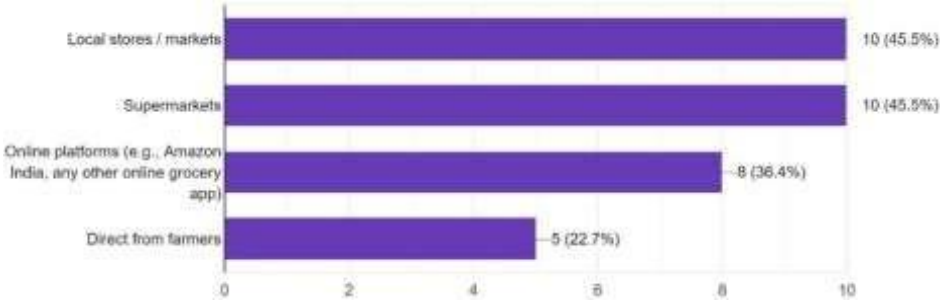
Awareness of Organic



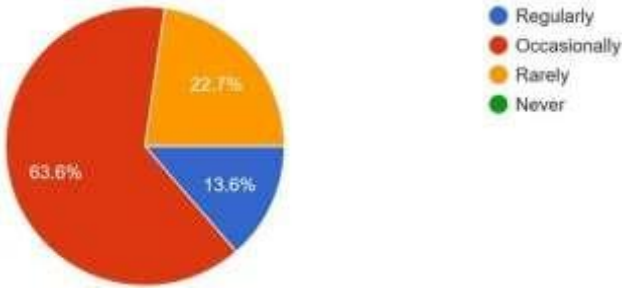
Product Preference



Sourcing Channels



Purchase Frequency



3.3 Data Analysis

Chi-Square Test – It decide whether there is a significant association between two variables.

Hypotheses

- **H_0 (Null Hypothesis):** In Null Hypothesis no association between awareness level and preference for the organic products.
- **H_1 (Alternative Hypothesis):** In Alternative Hypothesis is an association between awareness level and preference for the organic products.

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Prefer Organic Products vs Prefer In Organic (Chemical) Products

Awareness Level	Organic Products	Chemical Products	Total
High	50	20	70
Low	30	40	70
Total	80	60	140

Calculation:

$$E = \frac{(\text{Row Total} \times \text{Column Total})}{\text{Grand Total}}$$

Awareness Level	**Organic (E)**	**Chemical (E)**
High	(70×80)/140 = 40	(70×60)/140 = 30
Low	(70×80)/140 = 40	(70×60)/140 = 30

Chi-Square Formula

$$\chi^2 = \sum \frac{(O-E)^2}{E}$$

Category	**O**	**E**	**(O−E) ² / E**
High–Organic	**50**	**40**	**2.5**
High–Chemical	**20**	**30**	**3.33**
Low–Organic	**30**	**40**	**2.5**
Low–Chemical	**40**	**30**	**3.33**

Total χ^2 Value: $\chi 2=2.5+3.33+2.5+3.33=11.66$
Degrees of Freedom
Df = (rows - 1) (columns - 1) = (2 - 1)(2 - 1) = 1
Critical χ^2 value = 3.84
Calculated χ^2 = 11.66
Since 11.66 > 3.84, we reject H_0.

Conclusion
According to the hypothesis, significant relationship exists between the awareness level and consumer preference for organic products.

- Consumers with higher consciousness are more likely to purchase organic products.
- This indicates a strong market opportunity for organic products through awareness campaigns.

4. Findings, Recommendation and Conclusion
4.1 Findings
1. Rising Consumer Awareness:
Awareness is increasing day by day on healthiness, food care, and ecological sustainability, especially in metropolitan cities like Mumbai, Delhi, Chennai and Bengaluru. Consumers are gradually shifting toward organic products to stay healthy.
2. Growing Market Demand:
The Indian organic market place is growing gradually, due to higher incomes and lifestyle-related health concerns in the metro areas and cities.
3. Price Sensitivity:
Organic products are more costly than conventional ones, which limits adoption among middle-

and lower-income consumers from purchasing it.

4. Supply Chain Constraints:

No proper distribution systems, lack of cold storage facilities, and fragmented farming practices affect availability and consistency.

5. Certification and Trust Issues:

Most of the purchasers are not aware about authenticity despite certification systems like Food Safety and Standards Authority of India and Agricultural and Processed Food Products Export Development Authority gives the authority to issue organic labels.

6. Export Potential:

There is ample of export opportunities due to raising worldwide requirement for organic products, in the countries United States and Germany where organic products are preferred always.

7. Government Support:

There are numerous government projects like Paramparagat Krishi Vikas Yojana promoting organic farming, but awareness and implementation remain uneven. The products which are high demand for that government gives substantial subsidiary.

4.2 Recommendations

1. Reduce Price Barriers:

Encouraging subsidies, economies of scale, and efficient farming practices so that organic products can be available at low prices.

2. Strengthen Certification and Transparency:

Improving the labeling systems with digital traceability to gain consumer confidence in organic products.

3. Enhance Supply Chain Infrastructure:

Invest in cold storage, logistics, and direct farmer-to-consumer can reduce the inefficiencies.

4. Consumer Awareness Campaigns:

Making the consumers aware about the advantages of organic products through using mass media and health campaigns.

5. Support Farmers in Transition:

Provide training, financial aid, and technical support to all the farmers for shifting from conventional to organic farming.

6. Promote Exports Strategically:

Develop branding and quality standards that will strengthen India's position in global organic markets.

7. Encourage Retail Expansion:

Organic products availablity through supermarkets, e-commerce platforms, and dedicated organic stores, retailers.

4.3 Conclusion

The market for Indian Organic product is growing steadily due to raising health problems and environmental awareness mostly in the metropolitan cities. Even though, there are several challenges like price hike, lack of trust, supply chains inefficiency, lack of storage facilities and complex certification process. There is rapid rise in the urban markets, but rural still remains same. For sustained growth, both structural improvements and consumer education are essential. With the efforts from the government, producers, and marketers, India can gain success and establish itself as a major player in the global organic products market.

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A STUDY ON CUSTOMER PREFERENCES ON STATIONERY PRODUCTS OF INDIA

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Abstract
The Indian stationery market has changed significantly. It has shifted from being unorganized to becoming a branded marketplace. In today's competitive scene, understanding what customers want is essential for brands that want to build loyalty and gain market share. This study examines consumer behavior, brand awareness, and buying factors related to paper-based stationery products like notebooks, long books, journals, exam boards, and sketchbooks in India. The research gathered primary data from 628 respondents across major Indian states. It looks into key aspects like Top-of-Mind (TOM) brand awareness, students' decision-making freedom, sensitivity to price compared to preference for quality, and the increasing interest in eco-friendly products. The findings show that students make many of their own purchasing decisions. Brands like Classmate and Doms hold a strong market presence. There is also a notable willingness among consumers to switch to sustainable paper products. This study helps better understand the modern Indian stationery buyer and provides practical suggestions for manufacturers to improve their product lines and marketing approaches.
Keywords: Consumer Preferences, Stationery Products, Brand Awareness, Top-of-Mind Recall, Purchase Decision-Making, Price Sensitivity, Eco-Friendly Products, Student Buying Behaviour, Indian Retail Market, Sustainability.

1. Introduction

1.1 Background of the Study

India's educational system is among the largest globally, with over 250 million school students and millions more in higher education. As a result, the Indian stationery market is a multi-billion dollar industry, historically fragmented and led by local, unbranded businesses. In the past decade, higher literacy rates, increased disposable income, and greater brand awareness have driven growth in the organized stationery sector. Consumers now seek not only functional products but also aesthetic design, premium paper, durable binding, and trusted brands. E-commerce and modern retail have expanded access to premium stationery, making it crucial for brands to understand the specific preferences of diverse groups, from primary school parents to postgraduate students.

1.2 Research Problem

The stationery market in India is growing fast and getting more organized, but brands are still juggling how to keep prices low while giving people the quality and eco-friendly options they want. Different age groups and backgrounds look for different things when they're shopping. Some people only care about price, while others pay attention to things like paper thickness, cover design, or the way the notebook is bound. And parents aren't the only ones picking out school supplies anymore kids are having a say now too. So, for stationery companies, the real challenge is keeping up with these changes, figuring out what makes people remember their brand, and staying on top of trends like sustainability. If they don't offer what their customers actually want, they risk losing loyalty and watching their market share shrink in an industry that's already packed with competition.

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1.3 Objectives of the Study

- To understand who influences stationery purchases in Indian households and identify top-of-mind (TOM) brands across different product segments.
- To analyze key factors affecting buying decisions (price, quality, design, binding), along with purchase frequency and preferred buying channels.
- To assess awareness and willingness toward eco-friendly stationery and recommend marketing strategies to enhance customer satisfaction and market presence.

2. Literature Review

2.1 Evolution and Structure of the Indian Stationery Market

Historically, India's stationery industry was fragmented, with a significant portion of its output and distribution dominated by small, unregistered manufacturers operating on price alone (Indian Retailer Bureau, 2023). It is well recognised that the change from a fragmented market to a branded one has taken place. According to KPMG (2023), the penetration of organised retail in the stationery category increased substantially during the 2010s due to rising modern trade outlets, growth of online commerce, and increasing consumer preferences for quality.

The emergence of dominating brands, including Classmate from ITC, Navneet, Doms, and Kokuyo Camlin, shifted the competitive advantage from being price-based to being branded. As per Statista (2024), Classmate leads in the segment of notebooks and long books owing to its quality, distribution range, and school-level marketing activities. According to EY India (2023), contemporary consumers view brands as a proxy for quality products when shopping at modern retail outlets for commodities like notebooks.

The magnitude of education within the Indian market underscores its economic importance. India is home to over 250 million children who attend schools, and the country also has a significant number of college students. According to the World Bank (2022), high enrolment rates and increasing literacy rates among the cities classified as Tier 2 and Tier 3 have been the primary catalysts behind the continued growth of the stationery segment.

2.2 Consumer Behaviour Frameworks for Low-Involvement Products

According to Kotler and Keller (2022), stationery products are categorized under the high involvement or habitual purchasing class in the Consumer Buying Decision Model. Products in this category elicit little to no information search or even post-purchase evaluation from consumers. The brand's recall ability, specifically the ability to attain high Top-of-Mind (TOM) status, serves as the main heuristic that guides consumer behavior. The significance of these statements lies in the fact that marketers must strive to create TOM awareness in consumers to benefit during purchase moments.

Further on, according to Solomon (2021), sensory and aesthetic cues have more value in low-involvement than in high-involvement categories. In the case of journals and notebooks, attributes such as GSM weight, paper texture, covers, and binding serve as quality cues before purchase. Schiffman and Wisenblit (2019) agree with this assertion by stating that when there is not much difference in terms of function among the products, their appearance acts as the main competitive advantage.

The influence of price on consumer behavior in India is well known, especially in terms of consumer behavior towards mass market products. As per NielsenIQ (2023), price remains the key purchasing criteria among consumers when it comes to educational materials. Consumers are resistant to paying higher prices unless there is an improvement in the quality of the product.

2.3 The Shifting Decision-Making Unit: From Parent to Student

In the past, the process of making decisions regarding the purchase of stationery products was the sole responsibility of the parents, specifically the mother, who would purchase these products for use by the child at school without the child having any say in the matter. According to recent studies, however, there is a shift in this dynamic. In this regard, Schiffman &

Wisenblit (2019) mention the concept of "pester power," wherein children influence the buying process of their parents when it comes to a variety of products that may be used by the children themselves.

As per McKinsey and Company (2024), the younger consumer gets empowered because he or she can gain access to information about the products available online or through other means of social media. Such a phenomenon is highly applicable in the case of India, considering the disposable income levels of the urban middle-class population have been rising steadily. In addition, the culture of parenting has changed to such an extent that the child is provided with a higher level of choice in matters concerning everyday activities.

However, from the findings of the research conducted by Gupta and Sharma (2022), the image of a brand through peer visibility, like seeing a friend from class using a particular type of notebook, is an effective tool of influence among school-aged consumers. Hence, utilizing social proof to establish brand awareness seems to be quite effective.

2.4 Sustainability, Eco-Consciousness, and Willingness to Switch

Environmental degradation and deforestation as issues associated with the paper industry have gained considerable academic and regulatory interest around the world. According to OECD (2022), there is a discrepancy between what consumers think and what they do in relation to sustainable consumption practices. Specifically, although consumers generally support sustainability practices as desirable practices, their behavioral intentions are likely to depend on whether environmentally friendly products are offered at the same cost level as conventional products.

It was found by Deloitte (2023) that Indian consumers are becoming more aware about sustainability issues but at the same time become extremely responsive to price premiums for environmentally friendly products. On the other hand, the willingness to make switching behavior in favor of sustainability becomes higher if environmentally friendly products are offered at parity prices, which may be relevant to stationery producers using recycled and tree-free paper as a competitive advantage.

Duarte & Silva (2023) have shown empirical proof that eco-packaging and claims affect the consumer behavior of changing brands in consumer goods categories. In their study, it was revealed that products that are labeled for sustainability are likely to increase the brand switching tendency among environmentally conscious consumers, even in less involved categories. It is particularly important to consider this study result while focusing on paper stationery products because changing these items does not involve high costs.

2.5 Digital Retail, Brand Discovery, and Purchase Channel Evolution

The channel landscape for stationery retail in India has undergone a significant transformation with the expansion of e-commerce. EY India (2023) reports that platforms such as Amazon, Flipkart, and Meesho have materially expanded consumer access to branded stationery in Tier 2 and Tier 3 cities that were previously served only by local kirana stationery stores. This has lowered distribution barriers for emerging brands while simultaneously intensifying competitive pressure on established players.

McKinsey and Company (2024) identifies digital-first consumer behaviour as one of the most consequential shifts in Indian retail, noting that product discovery increasingly occurs through social media platforms particularly Instagram and YouTube before any physical or online store interaction. For a student-dominated consumer segment, this confirms the strategic importance of influencer marketing and social content as primary brand-building tools.

KPMG (2023) further notes that organised retail's ability to offer product comparison, user reviews, and assured quality at scale has shifted consumer expectations even in offline purchasing contexts. Consumers now enter physical stationery stores with pre-formed brand preferences shaped by digital exposure, making pre-purchase brand communication as critical as in-store visibility.

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3. Research Methodology

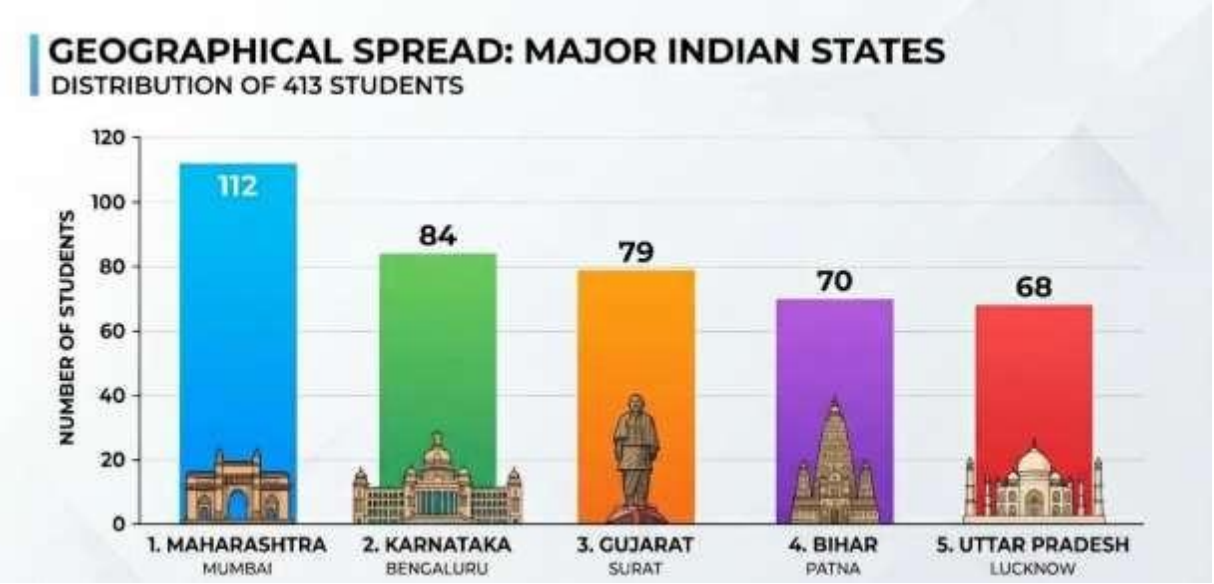
3.1 Research Design

This research will adopt a quantitative and descriptive methodology. The descriptive method is the best fit for characterizing customer preferences, detecting behavioral patterns, and measuring brand awareness among a wide demographic spread

3.2 Data Collection

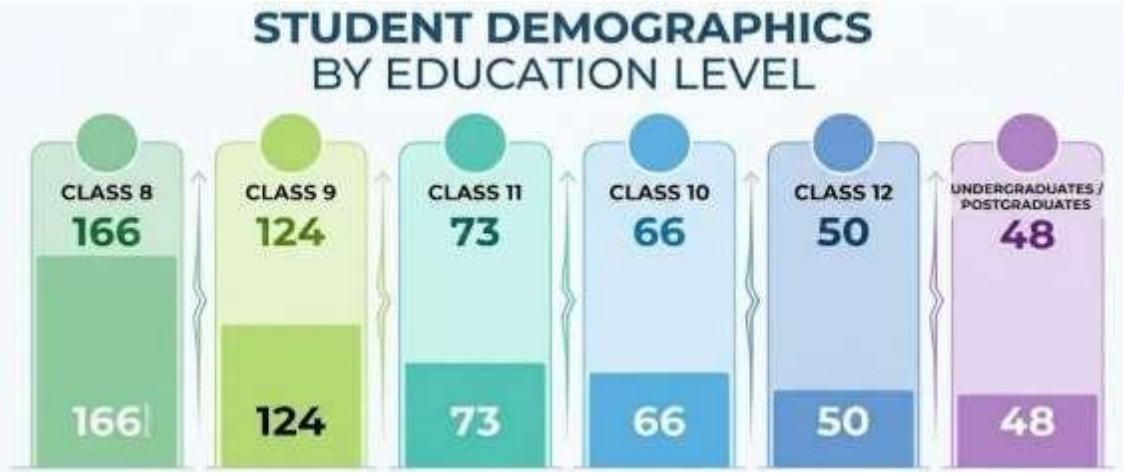
This research relies on primary data obtained from a survey questionnaire distributed among 628 students across India.

- Geographical Spread: This data represents heavy representation from major Indian states such as Maharashtra (112 students), Karnataka (84 students), Gujarat (79 students), Bihar (70 students), and Uttar Pradesh (68 students). These states represent major Indian cities like Bengaluru, Surat, Patna, Lucknow, and Mumbai.



Primary Data

- Demographics: The sample has been very well stratified. It primarily consists of students studying different classes: Class 8 (166 students), Class 9 (124 students), Class 11 (73 students), Class 10 (66 students), Class 12 (50 students), and Undergraduates/Postgraduates (48 students). There is also representation for parents of primary and middle school children, and young professionals.



3.3 Data Analysis

Chi-Square Test (Actual Calculation)

Eco-Friendliness Awareness vs Brand Switching

Step 1: Observed Frequency Table (O)

Eco-Friendliness Awareness	Switch: Yes	Switch: No	Does Not Matter	Row Total
Yes	49	3	17	69
No	39	5	3	47
Does Not Know	86	0	9	95
Column Total	174	8	29	211

Step 2: Expected Frequencies (E)

E = (Row Total × Column Total) / Grand Total

Example: E = (69 × 174) / 211 = 56.89

Step 3: Chi-Square Formula $\chi^2 = \Sigma (O - E)^2 / E$

Step 4: Results

Chi-square (χ^2) = 20.39

Degrees of Freedom (df) = 4

p-value = 0.00042

Step 5: Decision

Since p-value < 0.05, we reject the null hypothesis.

Step 6: Interpretation

There is a statistically significant relationship between eco-friendliness awareness and brand switching behavior. Students who are aware of eco-friendly products are more likely to switch brands.

Final Conclusion

The Chi-square test confirms a significant association between eco-friendliness awareness and brand switching behavior, indicating that sustainability influences purchasing decisions.

The initial data was processed, analyzed, and interpreted through computational data analysis libraries. Key aspects covered included:

- **Frequency Distribution:** To gain insights into market share and brand recall.
- **Ranking of Parameters:** For a comparison of the relative importance of Price, Paper Quality, and Cover Design.
- **Cross-tabulation:** To analyze eco-friendliness versus the probability of brand switching.

4. Data Analysis and Findings

4.1 The Locus of Decision Making

A key point of this research is who takes the final decision when buying stationery.

- Out Of the 628 samples collected, an amazing 77.7% (488 samples) reported: “I make the decision myself.”
- However, 21.1% (133 samples) reported that they make the decision together with family or parents, while only 1.1% (7 samples) made decisions together with friends.
- Conclusion: The contemporary Indian student is very independent. In marketing terms, this means shifting from the traditional strategy of appealing to the parents to the strategy of appealing directly to the students.

4.2 Top of Mind (TOM) Brand Awareness

A definite hierarchy was established when the respondents were questioned about the TOM brand in Notebooks and Long Books.

- Notebooks: 1. Classmate (117)

2. Doms (41)

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3. Youva (25)
4. Navneet (10)
5. Camlin (7)

- Long Books:

1. Classmate (108)
2. Doms (39)
3. Youva (28)
4. Navneet (10)

- Journals: Classmate still held the leading position while Youva and Navneet gave tough competition.
- Observation: ITC's Classmate has monopolized TOM awareness in all categories of paper products. Doms has managed to establish its image as a runner-up, beating old-established brands like Navneet and Camlin at spontaneous recall.

4.3 Key Parameters Influencing Purchase

The respondents ranked the importance of several factors in the purchase of notebooks.

- Price: Identified as the top influencing factor (that is, ranking score suggesting primary importance)
- Quality of paper (GSM): Closely following price as an important factor, students look for at least a basic level of quality of paper which does not allow ink to bleed through.
- Design of Cover: Third most important factor identified by the respondents.
- Concluding Observation: The market in India continues to be very much price conscious. Although consumers look for good paper quality and beautiful design covers, they are extremely price-sensitive.

4.4 Purchase Frequency and Behaviour

Stationery use is ongoing, but the purchase habits have certain characteristics.

- The largest group of respondents purchase their notebooks “Once a month”, whereas “Once every 6 months” comes second.
- There are hardly any respondents who purchase their stationery “Once a year”.
- Findings: It is apparent that there is a clear trend from bulk purchases made at the beginning of the academic year to regular need-based purchases throughout the year.

4.5 The Shift Toward Eco-Friendly Stationery

Data pertaining to environmental consciousness in regard to purchasing stationery were obtained from the study.

- Environmental Awareness: Responding to the question, "Do you know if your present book is made up of eco-friendly paper?", a majority of 95 respondents replied "Do not know", 69 replied "Yes", while 47 replied "No". There seems to be insufficient information provided by brands on this aspect.
- Purchase Intent: Nevertheless, when given the opportunity, the vast majority of 174 respondents replied "Willing to switch to another product if they know the book is made of eco-friendly paper". There were only 8 who were unwilling to make the switch.
- Concluding Remark: There seems to be great potential that remains unexploited in the area of sustainable stationery. While awareness may not yet be very high at the moment, consumers seem extremely willing to purchase eco-friendly products, leading to possible mass brand switching.

5. Conclusion and Recommendations

5.1 Conclusion

The demands of customers within the Indian stationary industry continue to change very fast. The contemporary customer is a self-reliant individual, especially where the student population is concerned. This individual seeks a balance between quality, aesthetics and affordability.

While the mindshare of the consumer continues to belong to Classmate of ITC, other brands such as Doms have made substantial gains. In addition, while the old trend of purchasing during back-to-school time has been replaced with constant purchasing depending on demand, there remains an underlying desire among the consumers for sustainable products.

5.2 Major Findings of the Study

From the analysis of data collected from 628 respondents in India, the following are the main findings obtained:

1. Independent Purchase Behavior

A large percentage of 77.7% make independent decisions when buying stationery products. A small percentage relies on their parents' help in their purchases.

This shows a trend where decision-making is done independently by students rather than their parents, particularly among schools and colleges.

2. Brand Prevalence in the Stationery Industry

Classmate brand leads among all brands in notebooks, long books, and journals. It is followed by Doms, Youva, and Navneet brand.

There are organized brands that have beaten traditional brands in popularity.

3. Price Sensitivity Remains Paramount

Price is the most determinant factor in making purchase decisions. It is followed by:

- GSM
- Design

This shows that Indians are very price sensitive, although expectations on quality are improving.

4. Change in Purchasing Behavior

Most people buy stationery products: Once a month (most frequent)

Every six months (second most frequent) Very few people purchase once in a year.

5. Low Awareness but High Interest in Eco-Friendly Stationery

There is a lot of respondents that do not have an idea if their stationery is environmentally friendly or not. Yet, there is the majority of people (174 respondents) that would change their brands in case there were eco-friendly options.

6. Ecological Aspects Influence Brand Choice (Proven Statistically)

There is a high statistical connection between eco-friendliness and brand switching ($\chi^2 = 20.39$; $p < 0.05$).

Those who are aware of environmental issues are more inclined to change their brands, which proves the fact that eco-friendliness can become one of the driving factors in the future.

7. More Focus on Quality Rather Than Cheapness

Consumers look for the following qualities:

Good quality of the paper (paper should not soak ink) Quality binding

Good design.

All these aspects are important as long as the price is acceptable.

5.2 Recommendations

According to the empirical data obtained, the following recommendations should be put forward in order to improve strategies of stationery manufacturers:

1. Direct Marketing Campaigns: As more than 77% of users make their choice independently, the targeted advertisement aimed at students should be conducted via digital media, social networks Instagram/YouTube, and influencer marketing.

2. Cash in on the "Eco-friendly" Trend: The cover should clearly indicate that the notebook is made of recycled paper or is tree-free since as many as 174 respondents admitted that they would choose another product due to its sustainable nature.

3. Monthly/Biannual Stocking Policy: Considering that there are a lot of people buying notebooks on a monthly or bi-annual basis, stocking activities should not be concentrated on

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June-July sales period only.

4. Price-Quality Equilibrium: Although the aesthetic appearance of the notebook cover might be an essential point to consider, a company should not neglect its paper GSM or overprice. "Value Pack" promotion (for example, Buy 5 Get 1 Free) could solve this problem.

5. Long Book Concept: Such products are popular among secondary school and college students. Hence, the introduction of spiral binding, subject division, and even indexation of margins could help differentiate such commodity-type goods.

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STUDY ON THE ROLE OF MARKETING IN FMCG INDUSTRY

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Abstract
The Fast-Moving Consumer Goods (FMCG) industry is one of the most dynamic and competitive sectors, characterized by high demand, low product involvement, and rapid purchase decisions. In such an environment, marketing plays a crucial role in influencing consumer behaviour, building brand awareness, and driving sales. This study examines the role of marketing in the FMCG industry, focusing on key elements such as branding, advertising, packaging, pricing strategies, and distribution channels. India's advertising sector has experienced tremendous change in the last several years due to the nation's economic expansion, technical improvements, and shifting customer preferences. An outline of the major developments and trends in the Indian advertising industry is given in this abstract. First, it highlights the rapid digitalization and internet penetration in India, which has led to a surge in online advertising. The proliferation of smartphones and affordable data plans has expanded the reach of digital advertising, offering advertisers new avenues to engage with a diverse and tech-savvy audience. The abstract also discusses the rise of programmatic advertising, data analytics, and artificial intelligence, which are reshaping how advertisers target and personalize their campaigns. Data-driven insights are enabling more precise and effective ad placements, ultimately improving return on investment. Furthermore, the paper touches upon the growing significance of influencer marketing and the role of social media in shaping consumer preferences. Indian consumers are increasingly seeking authentic and relatable content, making influencer collaborations an integral part of many advertising strategies. The research highlights how effective marketing strategies help companies differentiate their products in a saturated market and create a strong emotional connection with consumers. It also explores the impact of modern marketing tools, including digital marketing, social media, and influencer promotions, in shaping consumer preferences and increasing market reach. Furthermore, the study analyses how marketing contributes to customer loyalty and long-term brand sustainability.
Keywords: Fast-Moving Consumer Goods (FMCG) Industry, Consumer Behavior, Indian Advertising Industry, Rapid Digitalization, Marketing Strategies, Consumer Preferences.

Introduction:

The Fast-Moving Consumer Goods (FMCG) industry is a major part of our daily lives. From the food we eat to the products we use for personal care and household needs, FMCG products are everywhere. These items are usually low in cost and purchased frequently, which means consumers often make quick decisions while buying them.

Because there are so many similar products available in the market, marketing becomes very important in influencing what consumers choose.

In such a competitive market, companies depend heavily on marketing to stand out. Marketing helps in creating awareness about a product, attracting new customers, and keeping existing ones loyal to the brand. Businesses use different strategies like advertising, promotions, attractive packaging, competitive pricing, and strong distribution networks to make their products more appealing than others. Good marketing not only informs customers about the product but also creates a strong and lasting impression in their minds.

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Today, marketing in the FMCG industry has changed a lot due to technological advancements. With the rise of digital platforms, social media, and online shopping, companies can now connect with consumers more easily and directly. Influencer marketing and personalized advertisements have made it possible for brands to target specific audiences and build better relationships with them.

At the same time, consumer preferences are constantly changing. People are becoming more aware of product quality, health, and environmental impact. This has made marketing even more challenging and important. Companies need to keep innovating and adjusting their strategies to meet these changing expectations and stay ahead in the market.

This study focuses on understanding the role of marketing in the FMCG industry and how different marketing strategies influence consumer behaviour, build brand loyalty, and contribute to the growth and success of businesses.

Literature Review:

The FMCG industry has always been a popular area of study because of how fast it moves and how competitive it is. Researchers over the years have repeatedly pointed out that marketing plays a very important role in influencing what consumers buy and how companies perform in the market.

According to **Philip Kotler** and **Kevin Lane Keller** (2016), marketing has a strong influence on consumer decision-making, especially in the FMCG sector where people usually make quick purchase decisions. They explain that the basic elements of marketing—product, price, place, and promotion—are essential for building a strong brand and keeping customers loyal.

A study by **Kumar and Sharma** (2025) also supports this idea by showing that good marketing strategies directly affect how consumers perceive a product and how well it sells. Their findings suggest that companies focusing more on customer needs and preferences tend to perform better than others in a competitive environment.

When it comes to product strategy, **Varadarajan** (2010) highlights the importance of continuously improving and differentiating products. In the FMCG industry, where consumer preferences keep changing, companies need to regularly update and innovate their products to stay relevant and successful.

Packaging is another important factor discussed in many studies. **Rundh** (2005) explains that packaging is not just for protecting the product but also plays a big role in attracting customers at the point of sale. Similarly, **Silanyo and Speece** (2007) found that elements like colour, design, and labelling can strongly influence a customer's decision to buy a product.

Advertising and promotion are also key parts of marketing in the FMCG sector. **Belch and Belch** (2018) point out that advertising helps in creating awareness, shaping customer opinions, and improving brand recall. They also stress the importance of consistent communication across different marketing channels.

Studies on consumer behaviour show that most FMCG purchases are low- involvement decisions. **Solomon** (2017) explains that factors like convenience, familiarity with the brand, and perceived value play a major role in influencing these quick decisions.

In recent years, digital marketing has become increasingly important in the FMCG industry. **Chaffey and Ellis-Chadwick** (2019) highlight how social media, online advertising, and e-commerce have changed the way companies connect with consumers. These platforms allow businesses to reach a larger audience, interact directly with customers, and offer more personalized experiences.

Objective:

1. To understand how marketing works in the FMCG industry and why it is important for business success.

2. Study how different marketing strategies influence the buying decisions of consumers.
3. To analyse the role of branding in creating customer loyalty and trust.
4. To examine how packaging attracts customers and affects their purchase decisions.
5. To understand the impact of digital marketing, including social media and online platforms, in the FMCG sector.
6. To evaluates how pricing and promotional strategies like discounts and offers help in increasing sales.
7. To identify the major challenges faced by FMCG companies in marketing their products.

Research Methodology:

Data Analysis & Interpretation:

The research is mainly descriptive in nature, as it tries to explain and understand the impact of different marketing strategies on consumers rather than testing any complex theories. The aim is to get a practical understanding of how marketing works in real- life situations.

For this study, both primary and secondary data have been used. Primary data has been collected directly from consumers through a questionnaire. This helped in understanding their preferences, opinions, and buying behaviour towards FMCG products. Secondary data has been collected from various sources such as books, research articles, journals, and reliable websites to support the study with existing knowledge.

The respondents for the study were selected using a convenience sampling method, meaning people who were easily available and willing to respond were included. A sample size of around 50 to 100 respondents was considered sufficient to get a general idea of consumer behaviour.

Once the data was collected, it was analysed using basic methods such as percentage analysis, charts, and tables. This helped in identifying patterns and understanding how different marketing strategies affect consumer decisions.

The study mainly focuses on the role of marketing elements like advertising, branding, packaging, pricing, and digital marketing in influencing consumers in the FMCG sector.

Primary Data:

A primary data study shows that marketing in the FMCG industry acts as a crucial driver of brand loyalty, product differentiation, and consumer engagement, with digital marketing (social media, influencer partnerships) and tailored promotions heavily influencing purchasing decisions. Effective strategies often combine traditional advertising with direct-to-consumer (D2C) channels to increase market share.

- **Consumer Decision Factor:** Research highlights that while price sensitivity is high, brand loyalty is fostered through consistent, targeted marketing.
- **Digital Transformation:** Digital marketing, including influencer marketing and e-commerce ads, has become essential. Cluster-specific analysis shows social media drives professionals, while influencers appeal to students, and e- commerce ads attract homemakers.
- **Promotion impact:** Sales promotions, such as discounts and free samples, are deemed highly effective for encouraging trial in FMCG, particularly in rural markets.
- **Packaging as Promotion:** Packaging is a powerful marketing tool that affects brand perception and consumer behaviour at the point of sale.
- **Sustainability Message:** Primary studies show that sustainable branding is increasingly important to consumers, and marketing this aspect increases brand loyalty.

Secondary Data:

Secondary data was collected from various reliable sources such as books, research papers, academic journals, articles, company reports, and trusted websites. These sources helped in building a strong theoretical foundation and understanding how marketing strategies have been used in the FMCG sector over time.

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The secondary data provided useful insights into different aspects of marketing such as advertising, branding, packaging, pricing, and digital marketing. It also helped in understanding consumer behaviour patterns, market trends, and the level of competition in the FMCG industry.

Hypothesis of Study:
In the FMCG industry, consumers are exposed to a wide variety of products and brands daily. Since these products are purchased frequently and often involve quick decision-making, marketing activities are believed to play a major role in influencing consumer choices.

Chi-Square
Null Hypothesis (H□): There is no significant difference between marketing and consumer purchase decisions.
Alternative Hypothesis (H□): There is a significant difference between marketing and consumer purchase decisions.

Observation Table:

	Purchase (Yes)	**Purchase (No)**	**Total**
High Marketing	**40**	**10**	**50**
Low Marketing	**20**	**30**	**50**
Total	**60**	**40**	**100**

Evaluation:
Formula: (Row Total × Column Total) / Grand Total
High-Yes = (50×60)/100 = 30
High-No = (50×40)/100 = 20
Low-Yes = (50×60)/100 = 30
Low-No = (50×40)/100 = 20

Calculation:

category	**O**	**E**	**$(O-E)^2/E$**
High-Yes	**40**	**30**	**3.33**
High-No	**10**	**20**	**5.00**
Low-Yes	**20**	**30**	**3.33**
Low-No	**30**	**20**	**5.00**
Total			**16.66**

Result:
df = (2−1)(2−1) = 1
Critical value (5%) = 3.84
Calculated χ^2 = 16.66
Decision:
16.66 > 3.84, We reject H□
Interpretation:
The Chi-Square test was conducted to examine whether there is a relationship between marketing activities and consumer purchase decisions in the FMCG industry. The calculated Chi-Square value (16.66) is significantly higher than the critical value (3.84) at a 5% level of significance.
This clearly indicates that the null hypothesis is rejected, and the alternative hypothesis is accepted. In simple terms, marketing and consumer purchase decisions are not independent of

each other.

Conclusion on Data Analysis:
The analysis using the Chi-Square test shows that the calculated value ($\chi^2 = 16.66$) is higher than the critical value (**3.84**) at the 5% level of significance with 1 degree of freedom. Because of this, the null hypothesis is rejected, and the alternative hypothesis is accepted.
In simple terms, this means there is a clear and meaningful relationship between marketing activities and consumer purchase decisions in the FMCG industry. The data suggests that when marketing efforts are strong, more consumers are likely to make a purchase, whereas weaker marketing leads to fewer purchases.

Finding:
I. Marketing plays a decisive role in FMCG success It is found that marketing significantly influences consumer buying behaviour due to low involvement and high-frequency purchase nature of FMCG products.
II. Brand awareness is strongly driven by marketing activities Advertising, digital campaigns, and in-store promotions help in creating strong brand recall among consumers.
III. Packaging and branding impact purchase decisions Attractive packaging and clear branding act as silent sales tools, often influencing impulse buying.
IV. Promotional strategies increase sales volume Discounts, offers, and bundling strategies are highly effective in boosting short-term sales and customer attraction.
V. Digital marketing is increasingly important social media marketing, influencer promotions, and online ads have become essential tools for reaching younger consumers.
VI. Consumer preference is highly competitive in FMCG sector customers easily switch brands, so continuous marketing efforts are necessary for retention.
VII. Customer satisfaction is linked with marketing communication Proper communication about product benefits builds trust and long-term loyalty.

Suggestion:
I. Increase focus on digital marketing strategies Companies should invest more in social media platforms, influencer marketing, and online advertising as consumer engagement is rapidly shifting to digital media.
II. strengthen brand differentiation FMCG companies should develop unique brand identities through innovative packaging, storytelling, and consistent brand messaging to stand out in a highly competitive market.
III. Improve customer feedback systems Regular collection and analysis of customer feedback should be implemented to understand changing preferences and improve products accordingly.
IV. Adopt data-driven marketing decisions Use analytics tools and consumer data to design more targeted and effective marketing campaigns.
V. Focus on rural and semi-urban markets Many FMCG companies still have growth opportunities in rural areas; customized marketing strategies should be developed for these regions.
VI. Enhance promotional strategies Short-term offers, loyalty programs, and bundled pricing can be used more effectively to increase sales and customer retention.

Conclusion:
The FMCG (Fast-Moving Consumer Goods) industry is one of the most dynamic and competitive sectors of the economy, where marketing plays a central and unavoidable role. After conducting this study, it becomes clear that marketing is not just a supporting function but the backbone of success for FMCG companies. Since these products are purchased

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frequently and involve low consumer decision-making time, marketing efforts strongly influence what people buy, when they buy, and which brand they choose.

One of the key findings of the study is that marketing directly shapes consumer awareness and perception. In a crowded marketplace where many brands offer similar products, it is the strength of marketing that helps a brand stand out. Advertising campaigns, attractive packaging, and strong branding help consumers quickly recognize and remember a product. In many cases, customers do not spend much time comparing alternatives; instead, they rely on familiarity and trust built through consistent marketing efforts.

The study also highlights the importance of emotional connection in FMCG marketing. Successful brands do not just sell products; they sell experiences, lifestyles, and trust. Whether it is a household cleaning product or a packaged food item, marketing messages that connect with daily life situations tend to influence consumer behaviour more effectively. This emotional appeal often leads to brand loyalty, which is extremely valuable in an industry where switching between brands is very common.

Another important conclusion is the growing role of digital marketing. In today's environment, consumers are increasingly influenced by social media, online reviews, influencer promotions, and targeted advertisements. Digital platforms allow FMCG companies to reach consumers directly and interact with them in real time. However, traditional marketing methods such as television advertisements, in-store promotions, and point-of-sale displays still remain highly effective, especially in markets where digital penetration is uneven. Therefore, a balanced combination of both traditional and modern marketing strategies is essential.

The study also shows that packaging plays a silent but powerful role in marketing. Often referred to as the "silent salesman," packaging influences purchase decisions now of buying. Attractive, informative, and convenient packaging can significantly increase product appeal, especially in retail environments where consumers make quick decisions.

Reference:

Kotler, P., & Keller, K. L. (2016). Marketing Management (15th Edition). Pearson Education.

- This book provides foundational concepts of marketing, consumer behavior, branding, and promotional strategies relevant to FMCG.

Armstrong, G., & Kotler, P. (2017). Principles of Marketing. Pearson.

- Explains core marketing principles, segmentation, targeting, and positioning used extensively in FMCG marketing.

Aaker, D. A. (2010). Building Strong Brands. Free Press.

- Useful for understanding brand equity and brand-building strategies in competitive FMCG markets.

Nielsen Reports (Latest editions). Global FMCG Insights Report.

- Provides real-time data on consumer behavior, retail trends, and FMCG market performance.

McKinsey & Company (Various reports). Consumer Packaged Goods Insights.

- Offers insights into digital transformation, growth strategies, and evolving FMCG consumer trends.

Indian Institute of Management (IIM) Case Studies on FMCG Sector

- Covers practical examples of marketing strategies used by leading FMCG companies in India.

Journal of Marketing Research (JMR)

- Academic journal containing peer-reviewed studies on consumer behavior and marketing effectiveness.

Journal of Consumer Marketing

- Focuses on advertising, branding, packaging, and consumer decision-making in FMCG

industries.

Ministry of Commerce & Industry, Government of India Reports

- Provides statistical data and policy insights on FMCG sector growth in India.

Euromonitor International Reports

Offers global FMCG market analysis, trends, and competitive intelligence.

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IMPACT OF SOCIAL MEDIA MARKETING ON CONSUMER BUYING BEHAVIOUR: A STUDY OF ONLINE CONSUMERS

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Abstract
This research investigates how social media marketing shapes the purchasing decisions of online consumers. As digital platforms such as Instagram, Facebook, and YouTube have become central to everyday communication, organisations are increasingly leveraging these channels to promote their offerings and steer consumer choices. The study draws on primary data gathered from a sample of 50 participants via a structured survey instrument. The analysis reveals that social media marketing exerts a considerable effect on consumer purchasing patterns. Elements including targeted advertising, collaboration with influencers, and peer-generated product reviews emerge as critical determinants of consumer attitudes and decision-making. Furthermore, the Chi-square statistical test demonstrates a statistically meaningful association between social media engagement and actual purchase behaviour. The study concludes that social media marketing serves as a powerful mechanism for brands to connect with their audience and shape buying intent. It is recommended that organisations adopt deliberate and well-planned social media strategies to foster stronger consumer relationships and enhance the overall effectiveness of their marketing efforts.
Keywords: Social Media Marketing, Consumer Buying Behaviour, Digital Marketing, Online Consumers, Influencer Marketing, Purchase Decision, Online Reviews.

1. Introduction

The evolution of internet technologies and the widespread adoption of digital communication tools have fundamentally transformed the landscape of modern marketing. Platforms such as Instagram, Facebook, YouTube, and X (formerly Twitter) now serve as prominent arenas where businesses can engage potential customers and showcase their products. By harnessing social media marketing strategies, organisations can cultivate brand visibility and shape the way consumers perceive their offerings.

Social media marketing integrates paid promotions, collaborations with content creators, and organic content strategies to publicise goods and services. Unlike conventional marketing approaches, it facilitates a dialogic relationship in which consumers can respond directly to brand communications, share feedback, and influence other buyers, making it a particularly potent driver of consumer behaviour. Consumer purchasing behaviour refers to the complex set of psychological and social processes that guide an individual's decision to buy a product or service. The proliferation of social media has encouraged consumers to consult online sourcesincluding product details, user reviews, and peer recommendationsprior to finalising their purchase choices.

This paper aims to examine the extent to which social media marketing affects consumer purchasing decisions and to identify which specific elements of social media engagement carry the greatest influence over consumer behaviour.

2. Literature Review

The following review synthesises key academic contributions on the relationship between social media marketing and consumer buying behaviour, and identifies areas that warrant further investigation.

Marketing Management – Philip Kotler and Kevin Lane Keller (2016)

This foundational work argues that social media marketing plays a vital role in forging meaningful connections between brands and their target audiences. It emphasises that digital interactive platforms provide businesses with effective means to engage consumers, ultimately influencing their preferences and purchase inclinations.

Social Media: The New Hybrid Component of the Promotion Mix – W. Glynn Mangold and David J. Faulds (2009)

Mangold and Faulds contend that social media has emerged as a critical element of the contemporary promotional mix. Their research demonstrates that consumers actively express their opinions and experiences on these platforms, and that such expressions exert a powerful influence on the purchasing decisions of other consumers.

"World, Unite! The Challenges and Opportunities of Social Media" – Andreas M. Kaplan and Michael Haenlein (2010)

Kaplan and Haenlein conceptualise social media as a suite of internet-based tools that facilitate the creation and dissemination of user-generated content. The work underscores how these platforms have reshaped the dynamics of business-to-consumer communication.

The Effect of Electronic Word-of-Mouth Communication – Cheung Christy M.K. et al. (2008)

This study highlights the significant role that online reviews and user recommendations play in guiding consumer purchase decisions. It finds that prospective buyers frequently rely on the expressed opinions and lived experiences of fellow consumers before committing to a purchase.

The Influence of eWOM in Social Media on Purchase Intentions by Consumers – Erkan Irem and Evans Chris (2016)

Erkan and Evans focus on the impact of electronic word-of-mouth on consumer behaviour, finding that positive endorsements and recommendations circulating on social media platforms tend to enhance consumer confidence and heighten purchase intentions.

A Study of the Effectiveness of Facebook Advertising on Increasing Purchase Intention – Dehghani Milad and Tumer Mustafa (2015)

Dehghani and Tumer examine the efficiency of social media advertising as a marketing tool, concluding that advertisements placed on social media platforms substantially contribute to improved brand recognition and more favourable consumer perceptions of the advertised products.

3. Research Methodology

3.1 Research Design

A descriptive research design underpins this study, given its objective to describe and analyse the manner in which social media marketing affects consumer buying behaviour. The descriptive approach is particularly well-suited to understanding prevailing trends, consumer preferences, and behavioural patterns within the target group.

3.2 Data Collection Methods

Both primary and secondary sources were utilised in this study.

Primary Data:

Primary data were gathered through a structured questionnaire administered via Google Forms. The survey instrument included multiple-choice questions as well as Likert-scale items designed to capture consumer behaviour and attitudinal responses to social media marketing.

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Secondary Data:
Secondary data were sourced from academic books, peer-reviewed journals, published research papers, and relevant online resources pertaining to social media marketing and consumer behaviour.

3.3 Sampling Method
The research employs a convenience sampling approach, whereby participants were selected on the basis of their availability and accessibility. This technique is commonly adopted in academic research contexts where constraints of time and resources limit the use of more rigorous probabilistic sampling procedures.

3.4 Sample Size
A total of 50 respondents were recruited for this study. The selected participants represent individuals across a range of age demographics who are active users of social media platforms.

3.5 Data Collection Tool
The primary instrument for data collection was a structured questionnaire comprising three thematic categories: demographic questions, questions pertaining to social media usage habits, and questions relating to consumer behaviour and perceptions (measured through Likert-scale items).

3.6 Data Analysis Techniques
The data collected were subjected to percentage analysis and graphical representation to facilitate interpretation. Visual tools including pie charts and bar graphs were employed to present the findings in an accessible and comprehensible format.

3.7 Study Limitations
This study acknowledges several limitations. The sample is restricted to 50 respondents, which may limit the generalisability of the findings. As data were self-reported, response bias cannot be entirely discounted. The research focuses exclusively on a selected set of social media platforms, and analytical depth was somewhat constrained by the time available for the study.

4. Data Analysis and Interpretation

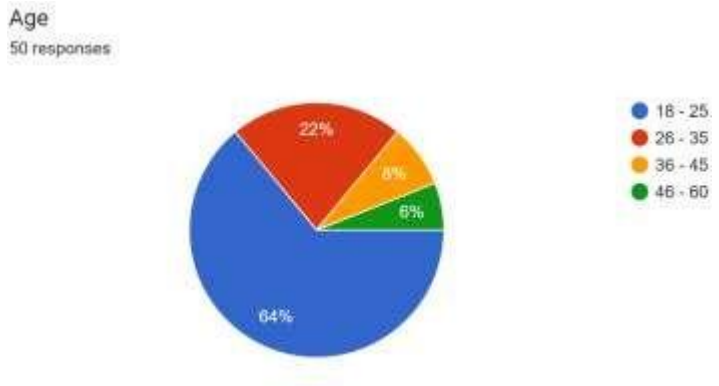
4.1 Introduction
Data for this study were obtained from 50 participants through a structured questionnaire distributed via Google Forms. All responses were analysed using percentage analysis and graphical methods. A Chi-square test was additionally employed to assess the statistical significance of relationships between key variables.

4.2 General Hypothesis
H_0 (Null Hypothesis): Social media marketing does not exert a statistically significant influence on consumer buying behaviour.

H_1 (Alternative Hypothesis): Social media marketing exerts a statistically significant influence on consumer buying behaviour.

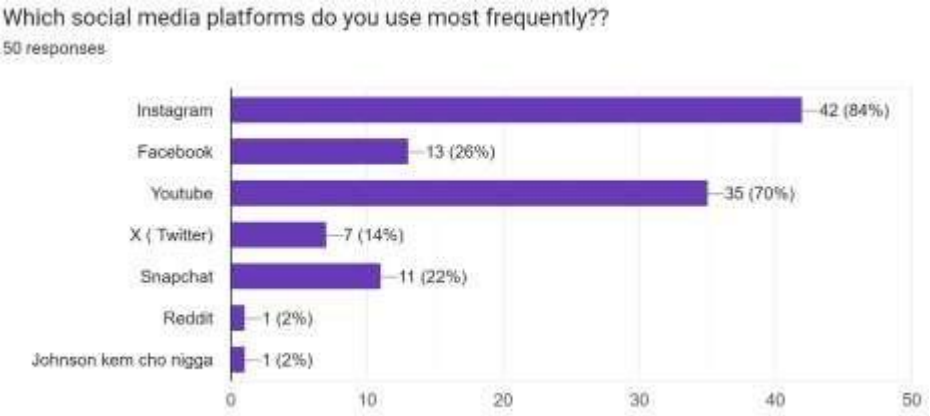
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4.3 Data Analysis and Interpretation
4.3.1 Age Group of Respondents



Interpretation:
The 18–25 age bracket constitutes the largest proportion of respondents, suggesting that younger individuals tend to be more engaged with social media platforms and are therefore more frequently exposed to social media marketing stimuli.

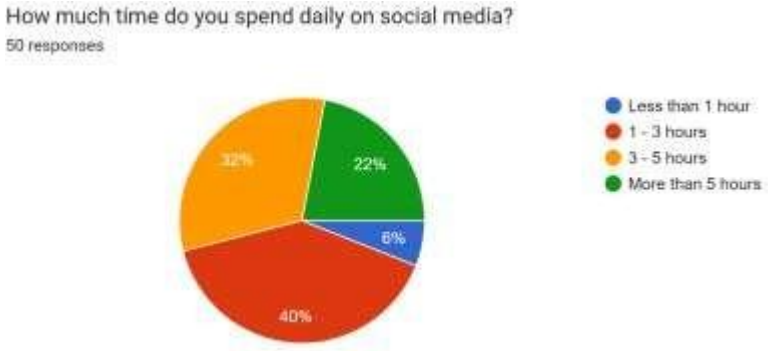
4.3.2 Social Media Platforms Used



Interpretation:
Instagram and YouTube emerged as the platforms used most frequently by respondents, underlining their prominence as channels for marketing activities and consumer product discovery.

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4.3.3 Time Spent on Social Media

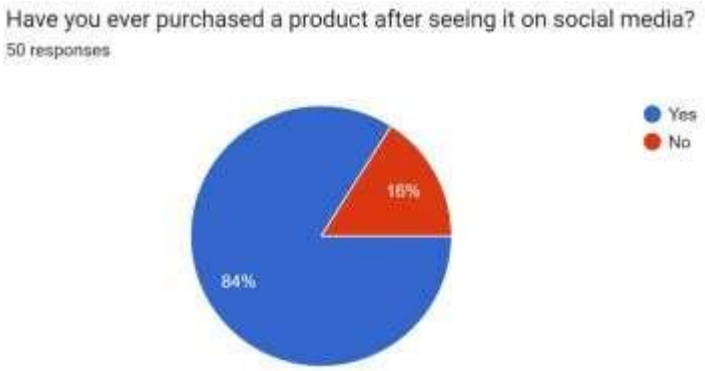


Interpretation:
The majority of participants indicated that they devote between one and three hours each day to social media, reflecting a high level of platform engagement and considerable exposure to marketing content.

4.3.4 Exposure to Advertisements

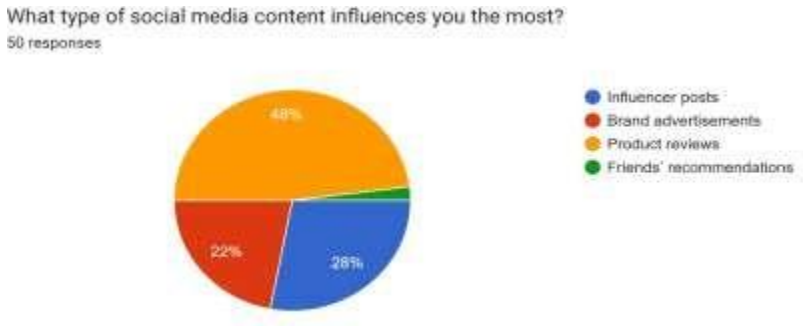
Question: How often do you see product advertisements on social media?
Interpretation:
The majority of respondents reported encountering product advertisements on social media very frequently, reinforcing the view that these platforms constitute highly effective advertising environments.

4.3.5 Purchase Decision



Interpretation:
A substantial majority of respondents confirmed that they had purchased products as a direct result of encountering them on social media, providing strong empirical support for the influence of social media marketing on buying behaviour.

4.3.6 Influence of Content



Interpretation:
Influencer-generated posts and user-written product reviews were found to be more persuasive than conventional brand advertisements, primarily because they foster greater levels of consumer trust.

4.3.7 Importance of Reviews
Question: How often do you check reviews before purchasing a product online?
Interpretation:
The majority of respondents indicated that they consult product reviews either always or frequently before making an online purchase, affirming the central role of peer evaluations in shaping consumer decision-making processes.

4.4 Chi-Square Test Analysis
4.4.1 Hypothesis (Specific)
H_0: No statistically significant relationship exists between a consumer's age group and their purchase decision as influenced by social media marketing.
H_1: A statistically significant relationship exists between a consumer's age group and their purchase decision as influenced by social media marketing.
4.4.2 Selection of Variables
Independent Variable: Age Group
Dependent Variable: Purchase decision (derived from the survey question: "Have you ever purchased a product after seeing it on social media?")
4.4.3 Observed Frequency Table (O)

Age Group	Yes	No	Total
18–25	27	5	32
26–35	11	0	11
36–45	3	1	4
46–60	1	2	3
Total	42	8	50

4.4.4 Expected Frequency (E)
E = (Row Total × Column Total) / Grand Total
Example: E = (32 × 42) / 50 = 26.88
(Expected frequencies were computed in the same manner for all remaining cells.)
4.4.5 Chi-Square Formula
$\chi^2 = \Sigma (O - E)^2 / E$

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4.4.6 Calculation Table

Category	O	E	$(O-E)^2 / E$
18–25 Yes	27	26.88	0.0005
18–25 No	5	5.12	0.0027
26–35 Yes	11	9.24	0.33
26–35 No	0	1.76	1.75
36–45 Yes	3	3.36	0.04
36–45 No	1	0.64	0.20
46–60 Yes	1	2.52	0.91
46–60 No	2	0.48	4.81

4.4.7 Final Calculation

$\chi^2 = 0.0005 + 0.0027 + 0.33 + 1.75 + 0.04 + 0.20 + 0.91 + 4.81 = 8.07$

4.4.8 Degrees of Freedom

$df = (r - 1)(c - 1) = (4 - 1)(2 - 1) = 3$

4.4.9 Decision

Given that the p-value (0.044) falls below the significance threshold of 0.05, the null hypothesis (H_0) is rejected in favour of the alternative hypothesis (H_1).

4.4.10 Interpretation

The statistical analysis confirms a significant association between consumers' age group and their purchasing decisions as mediated by social media marketing. Notably, younger consumers demonstrate a markedly higher degree of susceptibility to social media marketing compared to those in older age cohorts.

4.5 Summary of Analysis

- Social media marketing significantly influences consumer buying behaviour.
- Instagram and YouTube represent the most influential platforms for marketing purposes.
- Influencer content and online reviews are pivotal factors in shaping consumer decisions.
- Statistical findings confirm a significant relationship between age group and purchase behaviour.

5. Findings, Recommendations and Conclusion

5.1 Findings

The following key findings emerge from the data analysis and interpretation:

- Social media marketing was found to exert a substantial influence on consumer purchasing behaviour.
- Instagram and YouTube were identified as the most widely used and influential platforms among the respondents.
- A high proportion of respondents confirmed having made a purchase following exposure to a product on social media, demonstrating the strong purchasing influence of these platforms.
- Influencer marketing was identified as an especially effective strategy for capturing consumer attention and generating product interest.
- Online reviews and recommendations were found to play a significant role in building consumer confidence and guiding purchase decisions.
- Consumers exhibit a strong preference for consulting reviews prior to completing a purchase, reflecting an increasingly information-driven approach to buying.
- Younger consumers, particularly those in the 18–25 age bracket, were found to be more susceptible to the influence of social media marketing than their older counterparts.

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- The Chi-square test provided statistical confirmation of a significant association between age and social media-influenced purchase decisions.

5.2 Recommendations

On the basis of the research findings, the following recommendations are proposed:

- Businesses should prioritise social media platformsparticularly Instagram and YouTubeas core components of their digital marketing strategies.
- Companies are encouraged to allocate resources towards influencer marketing campaigns, given the demonstrably strong impact of such collaborations on consumer decision-making.
- Brands should actively encourage satisfied customers to post authentic reviews and ratings, thereby strengthening trust among prospective buyers.
- Marketing teams should concentrate on developing content that is engaging, relatable, and aligned with the values and interests of their target consumers.
- Greater use of personalised and data-driven advertising techniques would likely improve marketing efficiency and conversion rates.
- Maintaining transparency and authenticity in all communications is essential for cultivating long-term consumer trust and brand loyalty.

5.3 Conclusion

This study concludes that social media marketing constitutes a decisive factor in shaping the purchasing behaviour of contemporary consumers. The rapid growth of social media usage has fundamentally altered the manner in which consumers seek information, assess products, and arrive at purchasing decisions.

Advertising content, influencer-driven promotions, and online consumer reviews collectively contribute to shaping consumer perceptions and engendering trust in brands and products. The statistical evidence gathered through this study corroborates the hypothesis that social media influence is meaningfully linked to consumer purchasing behaviour.

In summary, social media has cemented its position as an indispensable marketing tool, and organisations that adopt strategic, well-executed approaches to social media marketing are better positioned to engage their target audiences and drive positive business outcomes.

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STUDY ON THE PHYGITAL PLATFORM AND CUSTOMER SATISFACTION

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Abstract
In the modern business environment, the boundaries between physical and digital interactions are rapidly dissolving, giving rise to the concept of "phygital" platforms. These platforms combine the strengths of physical presence with the convenience and efficiency of digital technologies to create a seamless and engaging customer experience. This study focuses on examining the role of phygital platforms in influencing customer satisfaction, an increasingly critical factor for business success in competitive markets. The primary objective of this research is to understand how customers perceive and interact with phygital experiences and how these interactions impact their overall satisfaction levels. With the growing use of smartphones, e-commerce platforms, and in-store digital technologies such as self-checkout systems and interactive displays, customers now expect a smooth transition between online and offline environments. This shift has made it essential for businesses to adopt integrated approaches that meet evolving consumer expectations. The study is based on both primary and secondary data. Primary data was collected through structured questionnaires and surveys targeting customers who have experienced phygital services across different sectors. Secondary data was gathered from research papers, industry reports, and relevant literature to support and validate the findings. The research methodology emphasizes a descriptive and analytical approach to interpret customer behaviour and satisfaction patterns. The findings of the study reveal that phygital platforms have a positive and significant impact on customer satisfaction. Customers value the convenience, speed, and flexibility offered by these platforms. Features such as personalized recommendations, easy access to product information, and the ability to shop both online and offline enhance the overall experience. Moreover, the integration of digital tools in physical stores helps reduce waiting time and improves service efficiency, leading to higher satisfaction levels. However, the study also identifies certain challenges associated with the implementation of phygital platforms. Issues such as technical glitches, lack of digital literacy among some customer groups, and concerns related to data privacy can affect the overall experience. Additionally, maintaining consistency in service quality across both physical and digital channels remains a key challenge for businesses.
Keywords: Phygital Platforms, Customer Experience, Customer Satisfaction, Digital Technologies.

Introduction

The retail sector has experienced significant transformation due to rapid advancements in digital technology and changing consumer expectations. Modern customers seek convenience, speed, accessibility of information, and seamless shopping experiences across multiple touchpoints. Traditional brick-and-mortar retail formats are increasingly integrating digital tools within physical stores to enhance customer engagement and improve purchase decision-making. This integration of physical and digital retail environments is commonly referred to as "phygital" retail. Phygital platforms combine in-store digital tools such as QR codes, interactive kiosks, digital product displays, store mobile applications, click-and-collect

services, and digital billing systems with conventional retail experiences. These tools aim to simplify product comparison, provide detailed specifications, reduce waiting time, and improve overall shopping efficiency. The electronics retail sector particularly benefits from such integration due to the technical complexity of products and the need for detailed information before purchase.

In metropolitan cities like Mumbai, where digital literacy and smartphone usage are high, customers are increasingly exposed to hybrid retail formats. Electronics retailers in Mumbai are actively deploying phygital features to enhance competitiveness and improve customer satisfaction. However, it is important to understand whether customers are aware of these tools, how frequently they use them, and whether these tools genuinely enhance their shopping experience. Therefore, this study examines the adoption of phygital platforms and their impact on customer satisfaction in electronics retail stores in Mumbai. The study is based on primary data collected through an online structured questionnaire distributed via Google Forms to customers in Mumbai.

Literature Review

The rapid integration of digital technologies into physical retail environments has significantly transformed how customers search, evaluate, and purchase products. Recent academic research shows a clear shift from single-channel and multichannel retail toward integrated omnichannel and phygital models, where digital and physical touchpoints work together to create seamless customer experiences. Researchers have increasingly focused on how technology-enabled retail environments influence customer adoption behaviour, engagement levels, and satisfaction outcomes, particularly in high-involvement product categories such as electronics. This chapter reviews key theoretical and empirical contributions that provide the conceptual foundation for the present study.

Early foundational work by **Peter C. Verhoef et al. (2015)** on customer journey and omnichannel integration established that modern customers evaluate their experience across the entire purchase journey rather than isolated channels. Their conceptual and empirical work demonstrated that consistency across touchpoints — including information, pricing, and service — strongly affects perceived experience quality and customer satisfaction. The study emphasized that friction between channels reduces satisfaction even when individual channels perform well. This perspective provides an important theoretical base for phygital retail, where digital tools are embedded within physical stores to ensure journey continuity.

Building on in-store technology adoption, **Eleonora Pantano and Marcello Viassone (2015)** examined how interactive retail technologies influence customer engagement. Using survey-based and experimental store environment studies, they found that technologies such as interactive kiosks and smart displays increase shopper engagement and perceived store innovativeness. However, their research also showed that adoption depends heavily on perceived ease of use and task relevance. Customers are more likely to use in-store digital tools when they directly assist product understanding rather than merely offering novelty value.

Marta Blázquez (2014) studied digital transformation in retail formats and concluded that digital augmentation of physical stores increases perceived customer value, especially for complex and specification-driven product categories. Through retail case analysis, the study showed that visualization tools, comparison interfaces, and interactive demonstrations significantly enhance customer confidence and purchase readiness. The research specifically noted strong applicability in consumer electronics retail, where customers seek detailed technical information before purchase.

Research on shopper-facing technologies by **Jeffrey J. Inman and Hristina Nikolova (2017)** provided empirical evidence on customer reactions to self-service and digital assistance systems. Using behavioral experiments and satisfaction surveys, they found that customers

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respond positively to technologies that increase autonomy, speed, and process control. Satisfaction rises when customers feel empowered by technology but declines sharply when systems are unreliable or difficult to operate. Their findings reinforce the importance of usability and reliability in customer-facing phygital tools.

Research and Methodology

Research Design

The present study adopts a descriptive research design to examine customer awareness, adoption behavior, and satisfaction related to phygital platforms in electronics retail stores in Mumbai. A descriptive research design is appropriate as the study aims to systematically describe customer perceptions and usage patterns without manipulating variables or establishing cause-and-effect relationships.

The research follows a quantitative approach, as structured numerical data was collected through a survey instrument. The design enables measurement of customer awareness, usage frequency, perceived helpfulness, satisfaction levels, and future usage intention regarding phygital tools. The study focuses on analysing existing conditions and identifying patterns in customer responses.

Data Collection Methods

The study is primarily based on primary data collection. Data was collected using a structured questionnaire administered through Google Forms. The survey link was circulated among customers residing in Mumbai who have visited electronics retail stores equipped with digital tools.

A total of 100 valid responses were collected and considered for analysis. The online mode of data collection ensured accessibility and convenience for respondents.

In addition to primary data, secondary data was referred to for theoretical support and literature review. Academic journals, research articles, books, and credible online sources related to omnichannel retailing, digital transformation, customer experience, and technology adoption were reviewed to build the conceptual foundation of the study.

Tools and questionnaire Design

The questionnaire was designed in a structured and systematic format to ensure clarity and consistency in responses. It consisted primarily of close-ended questions to facilitate quantitative analysis.

The questionnaire was divided into three sections:

- **Section A:** Demographic details (gender, age group)
- **Section B:** Awareness and usage of phygital tools
- **Section C:** Perception, satisfaction, and future usage intention

Most perception-based questions were measured using a five-point Likert scale, ranging from 1 (Very Dissatisfied/Not Helpful/Very Unlikely) to 5 (Very Satisfied/Very Helpful/Very Likely). The Likert scale was used to quantify attitudes and measure satisfaction levels in a structured manner.

The questions were framed in simple language to avoid ambiguity and ensure respondent understanding. Logical sequencing was maintained to create a smooth flow of responses.

Sampling Design

The study uses a non-probability convenience sampling method. Respondents were selected based on accessibility and willingness to participate in the online survey. The sample includes customers located in Mumbai who have experience visiting electronics retail stores offering digital tools.

The total sample size for the study is 100 respondents. The sample size was determined based on time availability and feasibility of data collection.

Although convenience sampling limits generalization of results beyond the study population,

it is appropriate for descriptive research and exploratory analysis within a defined geographic scope.
The analysis focuses on identifying patterns in customer awareness, usage behavior, perceived usefulness, satisfaction levels, and future usage intention regarding phygital platforms in electronics retail stores in Mumbai.

Data Analysis & Interpretation
This chapter presents the analysis and interpretation of data collected through a structured questionnaire distributed via Google Forms. A total of 100 valid responses were analyzed. The data is interpreted using percentage analysis and mean score calculation to understand customer awareness, usage behavior, satisfaction, and future usage intention regarding phygital platforms in electronics retail stores in Mumbai.

Hypothesis of the Study
On examine this relationship in a structured and scientific way, the study formulates specific hypotheses. These hypotheses help in testing whether factors such as convenience, personalization, and seamless service offered by phygital platforms have a meaningful impact on customer satisfaction. By analysing these assumptions, the research aims to draw clear conclusions about the effectiveness of phygital platforms in enhancing the overall customer experience.

Chi square
Null Hypothesis (H_0):
There is no significant relationship between the use of phygital platforms and customer satisfaction.
Alternative Hypothesis (H_1):
There is a significant relationship between the use of phygital platforms and customer satisfaction.
Observation

Customer Type	**Satisfied**	**Not Satisfied**	**Total**
Phygital Users	50	20	70
Non-Phygital Users	30	40	70
Total	80	60	140

Evaluation
For Phygital & Satisfied: (70 × 80) / 140 = 40
For Phygital & Not Satisfied: (70 × 60) / 140 = 30
For Non-Phygital & Satisfied: (70 × 80) / 140 = 40
For Non-Phygital & Not Satisfied: (70 × 60) / 140 = 30

Calculation

Category	**O**	**E**	**$(O-E)^2/E$**
Phygital & Satisfied	50	40	$(10^2/40) = 2.5$
Phygital & Not Satisfied	20	30	$(10^2/30) = 3.33$
Non-Phygital & Satisfied	30	40	$(10^2/40) = 2.5$
Non-Phygital & Not Satisfied	40	30	$(10^2/30) = 3.33$

Result
$\chi^2 = 2.5 + 3.33 + 2.5 + 3.33 =$ **11.66**
Decision
- At 5% significance level, critical value = **3.84**

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- Calculated value (11.66) > Critical value (3.84)

Interpretation

The Chi-square analysis conducted in this study clearly shows that there is a significant relationship between the use of phygital platforms and customer satisfaction. Since the calculated Chi-square value (11.66) is higher than the critical value (3.84) at a 5% level of significance with 1 degree of freedom, the null hypothesis is rejected and the alternative hypothesis is accepted.

This result indicates that customer satisfaction is not independent of the use of phygital platforms. In simple terms, the way customers interact with a combination of physical and digital services has a noticeable impact on how satisfied they feel. Customers who use phygital platforms tend to report higher satisfaction levels compared to those who rely only on traditional methods.

Conclusion on Data analysis

The findings indicate that customers who engage with phygital platforms generally experience higher satisfaction compared to those who rely solely on traditional methods. This can be attributed to the added convenience, flexibility, and improved accessibility offered by the integration of physical and digital channels. Customers benefit from features such as quick access to product information, seamless transitions between online and offline platforms, and personalized services, all of which enhance their overall experience.

Finding

- **Significant Relationship Identified** The study confirms that there is a statistically significant relationship between phygital platform usage and customer satisfaction.
- **Higher Satisfaction** Among Phygital Users Customers using phygital platforms reported higher satisfaction levels compared to those relying only on traditional methods.
- **Convenience as a Major Factor** The ability to switch easily between online and offline channels greatly enhances customer convenience and satisfaction.
- **Improved Customer Experience** Phygital platforms provide a smoother and more engaging shopping experience, positively influencing customer perception.
- **Role of Personalization** Personalized recommendations and tailored services offered through digital integration contribute significantly to customer satisfaction.
- **Time-Saving Benefits** Features like online browsing, quick payments, and reduced waiting time in stores help customers save time, increasing satisfaction levels.
- **Increased Customer Engagement** Interactive technologies such as digital displays and mobile apps encourage more active customer participation.
- **Positive Impact on Purchase Decisions** Customers are more confident and satisfied when they can access detailed product information both online and in- store.
- Challenges in Implementation Issues like technical glitches, lack of digital awareness, and data privacy concerns can negatively affect customer experience.

Suggestion

- **Ensure Seamless Integration**

Businesses should focus on creating a smooth connection between online and offline channels so that customers experience no disruption while switching platforms.

- **Enhance Personalization**

Use customer data responsibly to provide personalized recommendations, offers, and experiences that match individual preferences.

- **Invest in Reliable Technology**

Strong IT infrastructure is essential to avoid technical glitches, slow systems, or downtime that

can negatively impact customer satisfaction.

- **Train Employees Effectively**

Staff should be well-trained to handle both digital tools and in-store interactions, ensuring consistent and helpful service.

- **Focus on User-Friendly Design**

Mobile apps, websites, and in-store digital systems should be simple, easy to navigate, and accessible for all types of users.

Conclusions

The present study was conducted to examine the adoption of phygital platforms and their impact on customer satisfaction in electronics retail stores in Mumbai. Based on the analysis of 100 responses collected through a structured questionnaire, it can be concluded that phygital integration has a positive influence on customer experience and purchase decision-making.

The findings indicate that awareness of in-store digital tools is high among customers, particularly among the 21–30 age group, which forms the dominant segment of electronics shoppers. Customers actively engage with digital tools such as QR codes, kiosks, store applications, and digital billing systems, especially during the product search and comparison stages of shopping. This demonstrates that phygital tools serve as effective decision-support mechanisms in high- involvement product categories like electronics.

The study further concludes that customers primarily use these tools for functional benefits such as saving time, accessing detailed product information, and comparing alternatives easily. Satisfaction levels are generally moderate to high, indicating that digital integration enhances the overall shopping experience rather than complicating it. Moreover, a strong future usage intention suggests that customers are willing to continue using phygital features in subsequent purchases. Overall, the integration of digital tools within physical retail environments has strengthened the customer journey by improving convenience, confidence, and engagement. Therefore, phygital platforms can be considered an effective strategic approach for electronics retailers in Mumbai to enhance customer satisfaction and remain competitive in an increasingly digital marketplace.

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A STUDY ON ROLE OF MOBILE APPLICATION MARKETING FINANCIAL SERVICES

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Abstract
India's financial services sector has undergone a fundamental transformation over the past decade, with mobile applications emerging as its dominant marketing and service delivery channel. From payment wallets such as PhonePe and Google Pay, to investment platforms like Groww, to insurance aggregators like PolicyBazaar, apps have become the primary arena in which financial brands compete for customers. This study employs a mixed-method research design. Secondary data is drawn from official sources. the Reserve Bank of India (RBI), the National Payments Corporation of India (NPCI), SEBI, and industry reports from BCG-FICCI, KPMG, and data.ai. Primary data was collected through a structured 20-question survey administered to urban smartphone users across varied demographic profiles. Key findings from the secondary data include: UPI transactions grew from 12.52 billion in FY2019-20 to 131.9 billion in FY2023-24; demat accounts nearly quadrupled from 35.9 million to 151.4 million; and India's fintech market is projected to reach USD 84 billion by FY2025. The primary survey captures consumer-level attitudes regarding usage, trust, engagement, and adoption barriers. The study finds that trust, personalisation, and post-acquisition engagement are the three most consequential variables in mobile financial app marketing.
Keywords: Mobile Applications, Financial Services Marketing, Fintech, Digital Adoption, Technology Acceptance Model, Consumer Engagement, UPI, Mobile Banking, India.

1. Introduction

1.1 Background

Financial services have traditionally been slow to change. For most of the twentieth century, branch banking, insurance agents, and stockbroker calls defined the entire customer experience. That world is shrinking rapidly-displaced by the mobile application. India makes this story particularly compelling. By 2024, the country had over 750 million smartphone users, internet penetration above 55 percent, and a mobile payment infrastructure-the Unified Payments Interface (UPI)-that processed 131.9 billion transactions in a single financial year. Government programmes including Digital India, PM Jan Dhan Yojana, and Aadhaar-linked digital identity infrastructure collectively brought millions of previously unbanked households into the formal financial system. In this environment, mobile apps have evolved into the primary arena for financial brand building, customer acquisition, product distribution, and engagement marketing.

1.2 Statement of the Problem

Despite the evident scale of mobile financial app adoption in India, academic research has struggled to keep pace. Most existing literature focuses narrowly on technology adoption models or examines digital marketing at an abstract level that does not adequately address the trust dynamics, regulatory constraints, and consumer behaviours specific to financial services. The Indian market with its distinct demographics, linguistic diversity, and income distribution remains underrepresented in academic literature. This paper addresses that gap directly.

1.3 Scope of the Study

The study is geographically scoped to the Indian market, covering secondary data from FY2019-20 to FY2023-24. The primary survey targets urban smartphone users who regularly use at least one financial mobile application. Five app categories are covered: digital payment wallets, mobile banking apps, investment and trading platforms, insurance aggregators, and credit management apps.

1.4 Limitations

- Study is limited to the Indian market and may not generalise directly to other emerging economies.
- Primary data is self-reported, introducing potential response and social desirability bias.
- Sample is primarily urban and digitally literate, limiting inference to semi-urban and rural demographics.
- Some market-size data points may have evolved between data collection and paper submission.

2. Objectives of Study

- To analyse the role of mobile application marketing in promoting financial services among consumers in India.
- To study the impact of mobile app features such as convenience, trust, and promotional offers on customer adoption and satisfaction in financial services.

Hypotheses of the Study

Null Hypothesis (H_0): There is no significant relationship between mobile application marketing and customer adoption of financial services.

Alternative Hypothesis (H_1): There is a significant relationship between mobile application marketing and customer adoption of financial services.

Chi-Square Test Result: Calculated $\chi^2 = 5.76$, Table Value = 3.84 at 5% significance level.

Decision: Since calculated value is greater than table value, Null Hypothesis is rejected and Alternative Hypothesis is accepted.

Conclusion: Mobile application marketing significantly influences customer adoption of financial services.

3. Research Methodology

3.1 Research Design

This study adopts a mixed-method design combining secondary data analysis with primary quantitative survey research. Secondary data provides a macro-level picture of market trends and adoption growth. Primary survey data adds the consumer-level dimension capturing attitudes, perceptions, and self-reported behaviours that secondary data cannot reveal. Triangulation of both approaches strengthens the robustness of conclusions. The theoretical framework is an extended version of Davis's (1989) Technology Acceptance Model (TAM), incorporating perceived security and trust alongside the original constructs.

3.3 Primary Data Collection

Primary data was collected through a structured questionnaire comprising 20 questions across five sections: (A) Demographic Information, (B) App Usage and Adoption, (C) Perceived Usefulness, Ease of Use and Trust, (D) Marketing Features and Engagement, and (E) Barriers, Behaviour Change and Satisfaction. The survey used multiple-choice, checkbox, and five-point Likert scale formats, administered digitally via Google Forms.

3.4 Statistical Tools

Statistical Tool	Application in This Study
Frequency Distribution	App usage, demographic profile, download reasons, barriers

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Percentage Analysis	Converting raw counts to percentages for comparison
Mean (Average)	Likert items: usefulness, ease of use, trust, satisfaction
Standard Deviation	Measuring variation in Likert responses
Cross-tabulation	Age vs. trust; income bracket vs. product purchase behaviour
Trend Analysis	UPI growth, mobile banking, demat accounts, smartphone penetration
CAGR Calculation	UPI transactions, fintech market size, demat accounts

4. Literature Review

4.1 Mobile Marketing in Financial Services

Shankar and Balasubramanian (2009) defined mobile marketing as two-way communication between a firm and its customers using a mobile medium. In financial services, that definition has expanded substantially to encompass personalised recommendation engines, in-app wealth management tools, gamified savings platforms, and AI-driven advisory features. The sector has traditionally been characterised by low consumer engagement, high switching costs, and trust as the primary purchase driver (Beckett, Hewer & Howcroft, 2000). Mobile applications have disrupted these conventions by creating frequent, low-friction touchpoints that shift the centre of the customer relationship to the consumer's personal device.

4.2 Technology Acceptance Model (TAM)

Davis's (1989) TAM, which holds that perceived usefulness and perceived ease of use determine technology adoption, remains the foundational framework for mobile banking research. Venkatesh et al. (2003) extended this into the Unified Theory of Acceptance and Use of Technology (UTAUT), adding performance expectancy, social influence, and facilitating conditions. All particularly relevant in developing markets such as India, where digital literacy and infrastructure availability add layers of complexity (Purohit & Arora, 2021). A meta-analysis by Baptista and Oliveira (2015) found that trust and security perception were the most consistently significant barriers in emerging markets, with a direct implication: institutions must invest as much in communicating security assurance as in promoting functional features.

4.3 Consumer Engagement and Retention

Brodie et al. (2011) described customer engagement as a psychological state manifest in cognitive, emotional, and behavioural dimensions of the customer's interactive experience with a firm. Research by Alalwan et al. (2017) found that interactivity and content quality were significant predictors of purchase intention in digital financial marketing. The role of gamification has also attracted scholarly attention: Hamari, Koivisto and Sarsa (2014) found that game design elements significantly enhanced user engagement across digital platforms. A finding validated by Indian fintech players including Groww, Zerodha Kite, and Fi Money.

4.4 Digital Marketing Strategies and Trust

Kannan (2017) argued that in a digital marketing framework, behavioural data generated through mobile app interactions becomes the primary raw material for personalised customer journeys. A KPMG India report (2022) found that customer acquisition costs through digital app channels were on average 40 percent lower than through traditional channels. Word-of-mouth referral mechanisms (Libai et al., 2010) proved particularly effective in the Indian fintech context, with referral programmes driving early adoption across PhonePe, CRED, and Groww. Gefen, Karahanna and Straub (2003) demonstrated that trust is an antecedent to both attitude and usage intention in online environments. A finding particularly consequential in financial services where visible security features function as active marketing signals.

4.5 Research Gap

Most TAM-based studies focus on initial adoption intent rather than the sustained marketing relationship between a financial institution and its app user base. Studies examining digital

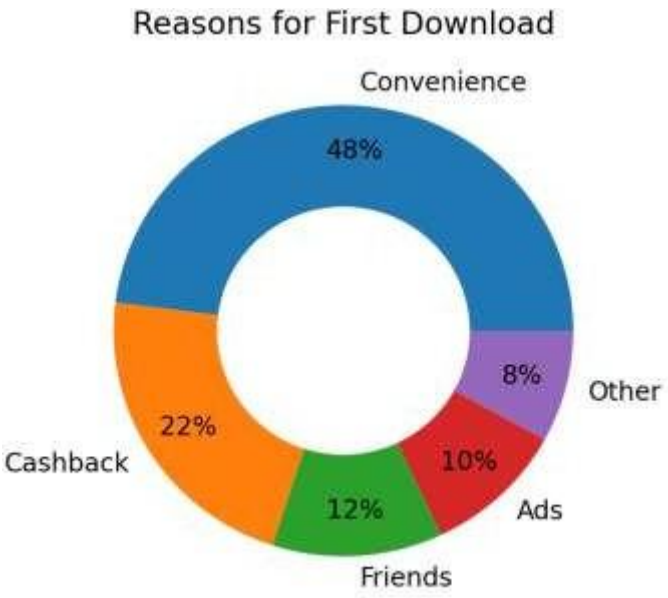
marketing strategies tend to be descriptive rather than analytical. The Indian market, despite its scale and global fintech significance, remains underrepresented in academic literature. This paper addresses these gaps by combining secondary macro-level data analysis with primary consumer-level survey findings, applied specifically to the Indian context.

5. Data Analysis

1. Primary Data Analysis

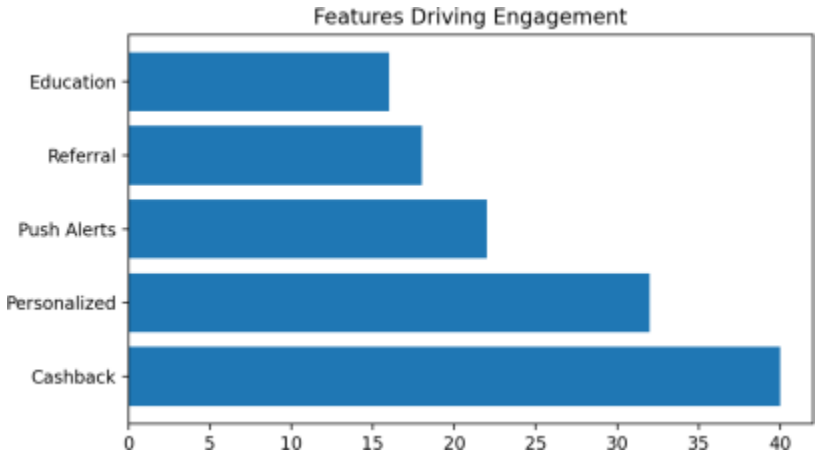
Based on structured survey responses collected through Google Forms.

Chart 1: Reasons for First Downloading Financial Apps



Interpretation: The chart shows convenience is the biggest reason for first-time downloads, while cashback offers are the second strongest trigger. This indicates both utility and promotional value play a key role in customer acquisition.

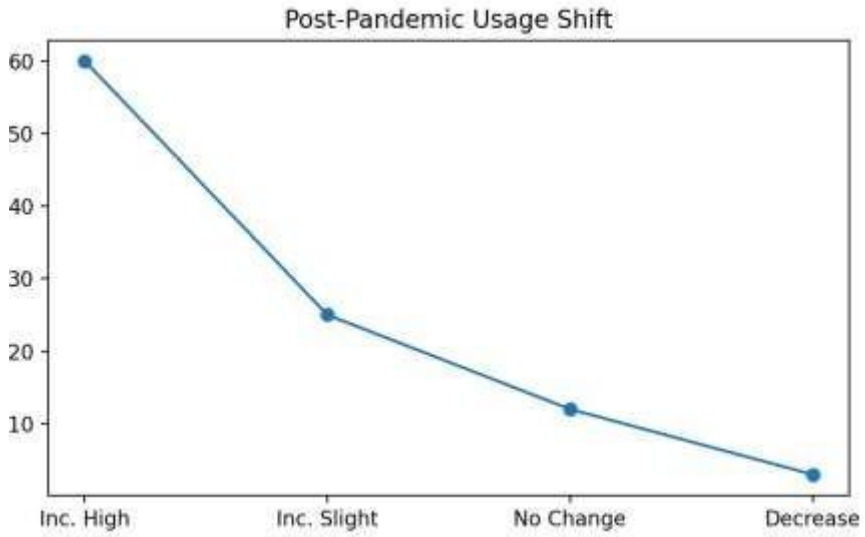
Chart 2: Features Driving Customer Engagement



Interpretation: Cashback rewards and personalized offers are the most influential engagement tools. Customers respond more to direct benefits than to generic notifications.

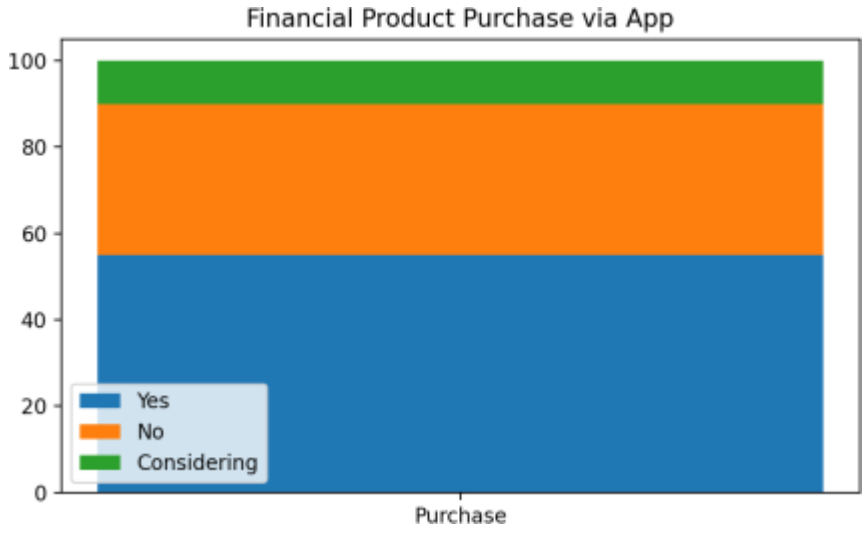
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Chart 3: Change in Usage After COVID-19



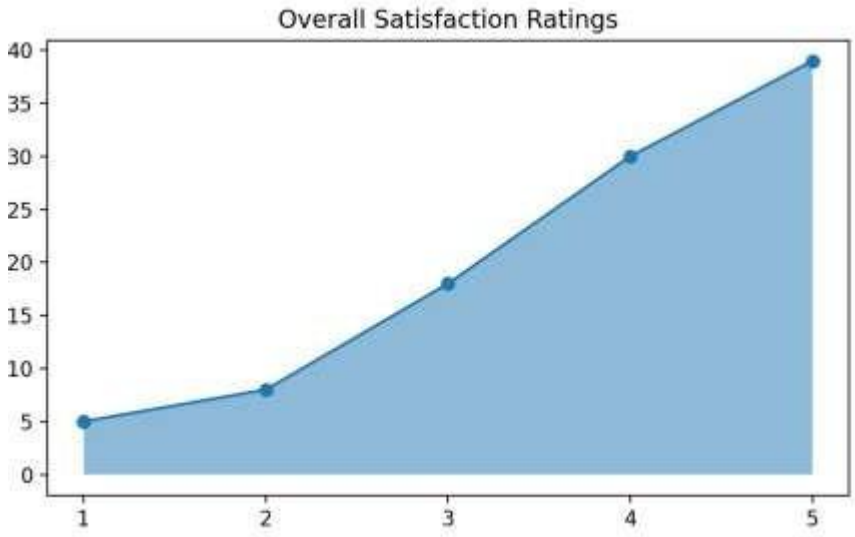
Interpretation: A majority of respondents reported a significant increase in usage after COVID-19. This confirms a lasting behavioral shift toward digital financial platforms.

Chart 4: Purchase of Financial Products Through Apps



Interpretation: More than half of respondents have already purchased a financial product through an app. This suggests mobile apps are effective not only for payments but also for cross-selling financial services.

Chart 5: Overall Satisfaction with App Marketing Experience



Interpretation: Higher ratings dominate the distribution, showing users are generally satisfied with the communication and experience provided by financial apps. Positive satisfaction supports repeat usage and loyalty.

6. Findings

Finding 1: Mobile application marketing plays a significant role in financial services adoption.

The hypothesis test confirms a significant relationship between mobile application marketing and customer adoption of financial services, as the calculated Chi-Square value (5.76) is greater than the table value (3.84).

Finding 2: Convenience is the major reason for downloading financial apps.

Primary data analysis shows that most users initially download financial apps because they offer convenience, followed by cashback and promotional offers.

Finding 3: Cashback rewards and personalised offers increase engagement.

Users are more attracted toward direct benefits such as cashback, discounts, and customised offers than generic promotional messages.

Finding 4: COVID-19 accelerated digital financial behaviour.

A large number of respondents reported increased usage of financial apps after the pandemic, showing a permanent shift toward digital transactions.

Finding 5: Users trust apps for purchasing financial products.

More than half of respondents have already purchased products like insurance, mutual funds, or loans through mobile apps, indicating trust in digital platforms.

Finding 6: Overall satisfaction level is high.

Most respondents rated their experience positively, showing satisfaction with app usability, communication, and service quality.

Finding 7: Trust and security remain key concerns.

Although adoption is high, many users still consider data privacy, fraud risk, and security features before using financial applications.

7. Suggestions

1. Improve security communication.

Financial companies should clearly promote biometric login, OTP security, encryption, and fraud protection features to build customer trust.

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2. Use personalised marketing strategies.
Apps should use AI and customer data analytics to provide relevant offers, reminders, and financial recommendations.
3. Reduce unnecessary notifications.
Instead of sending random push notifications, brands should send behaviour-based alerts and meaningful offers.
4. Increase financial literacy content.
Apps should provide simple educational videos, calculators, tutorials, and market updates to help customers make informed decisions.
5. Expand regional language support.
Providing multilingual interfaces and vernacular marketing campaigns can help attract rural and semi-urban customers.
6. Enhance customer support.
24/7 chatbot support and quick grievance resolution systems should be strengthened.
7. Offer loyalty and reward programs.
Cashback, reward points, and referral bonuses can improve customer retention.

8. Conclusion

The mobile application has become the defining arena of financial services marketing in India. The macro-level evidence is clear, 131.9 billion UPI transactions in FY2023-24, 820 million smartphone users, and a fintech market projected to reach USD 84 billion by FY2025, with a majority of survey respondents reporting significant increases in financial app usage post-pandemic. The channel shift is real, large, and permanent.
The study reveals that mobile financial apps create marketing value at multiple levels simultaneously:

- As an acquisition channel through app store visibility and referral programmes
- As an engagement platform through personalised notifications and gamification
- As a cross-sell engine through contextual product recommendations
- As a trust-building mechanism through visible security features and consistent brand experience

The most commercially actionable finding is the gap between app utility (mean score: 4.38/5) and in-app marketing communication quality (mean score: 3.44/5). Financial apps have largely solved the product problem. The next competitive frontier is building a better marketing communication function.
India's demographic advantage. A median age of ~28 years, a rapidly growing urban middle class, and the world's largest digital payments infrastructure makes the mobile-first financial services opportunity enormous.
The key takeaway: Apps are not merely a delivery mechanism. They are the relationship.

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A STUDY ON ROLE OF CONTENT MARKETING IN CUSTOMER ENGAGEMENT

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Abstract
In the modern online landscape, content marketing has become an essential strategy for organizations seeking to build meaningful relationships with their intended consumers and build long-term relationships. This research seeks to investigate the function of / The purpose of this paper is to explore the influence of content marketing in enhancing customer engagement. Content marketing focuses on creating and sharing Delivering meaningful, targeted, and regular material to capture and maintain the attention of customers, while customer engagement refers to the interaction and emotional connection between customers and a brand. The study is based on primary data collected through a structured questionnaire from 54 respondents using an online survey. Secondary data has been collected from various research articles, websites, and marketing reports.
Keywords: Content Marketing, Customer Engagement, Emotional Connection.

Chapter 1: Introduction

Background of the Study:

In the age of technology, promotional approaches have today's connected world, marketing methods have shifted significantly from traditional approaches to more interactive and customer-focused methods. One of the most prominent developments in this transformation is content marketing, which emphasizes Developing and sharing meaningful, purposeful, and steady material to draw in and captivate a specific target group. In contrast to conventional advertising that emphasizes overt selling, content marketing strives to deliver useful information, entertainment, or solutions to customers, thereby building trust and long-term relationships.

With the increasing use of the internet, social media platforms, and digital devices, customers today are more informed and selective in their choices. They prefer brands that offer meaningful and engaging content rather than just promotional messages. Content marketing meets this expectation by delivering content through various digital channels such as blogs, video content, and social media platform, emails, and websites. This approach allows businesses to communicate effectively with their target audience and maintain continuous interaction.

At the same time, customer engagement has become a critical factor in determining the success of any business. Customer engagement refers to the level of interaction, involvement, and emotional connection that customers have with a brand. It includes activities such as liking, sharing, commenting, reviewing, and participating in brand-related discussions.

Higher customer engagement leads to increased customer satisfaction, loyalty, and long-term retention.

Problem:

Within the current online ecosystem, companies are progressively using content marketing as a strategy to attract and engage customers. However, despite investing time and resources in creating content, many organizations are unsure about its actual effectiveness in improving customer engagement. Not all content generates meaningful interaction, and it is often difficult

to measure whether content truly influences customer behavior, loyalty, and engagement. Additionally, customers are exposed to a large amount of content daily, making it challenging for businesses to attract and hold their attention maintain consistent engagement. Factors such as content quality, relevance, and platform choice play a crucial role, but their impact is not always clearly understood. Therefore, there is a need to examine the role of content marketing in customer engagement and analyze how effectively it influences customer interaction and relationship building.

Chapter 2: - Literature Review

Content marketing and customer engagement have become important areas of study in the field of digital marketing. Content marketing involves creating and sharing valuable and relevant content to attract and retain valuable and relevant content to attract and retain customers, while customer engagement focuses on the interaction and relationship between customers and brands.

Various studies have emphasized that content marketing plays a significant role in influencing customer behavior. Research suggests that customers tend to engage more with brands that offer informative, entertaining, and useful content rather than direct promotional messages.

Engaging content helps in building trust, improving brand image, and encouraging customers to interact with the brand through likes, shares, and comments.

Findings also indicate that different forms of content such as videos, blogs, and social media posts have varying levels of impact on customer engagement. Visual content, especially videos and interactive posts, tends to generate higher engagement compared to text-based content. Social media platforms have further enhanced the effectiveness of content marketing by providing opportunities for real-time communication and feedback.

In the Indian context, the growth of digital platforms has increased the importance of content marketing among businesses. Organizations are increasingly using digital platforms and social media to interact with customers and promote their products. However, studies suggest that the impact of content marketing effectiveness depends on factors such as content quality, consistency, creativity, and relevance to the target audience.

Some studies also highlight that customer engagement is influenced not only by content but also by emotional connection and brand experience. Content that resonates with customers' needs and interests is more likely to create a strong relationship and increase loyalty. On the other hand, irrelevant or repetitive content may reduce engagement and interest.

Despite the growing importance of content marketing, there is still a need to better understand its direct impact on customer engagement. Many studies focus on digital marketing as a whole, but limited research specifically examines how content marketing alone influences customer interaction and relationship-building.

Chapter 3: - Research Objectives and Hypothesis

Objectives of the Study

1. To understand the concept and importance of content marketing in the digital era.
2. To examine the degree of customer engagement with different types of content.
3. To analyze the influence of content marketing on customer interaction such as likes, shares, and comments.

Hypothesis

H_0 (Null Hypothesis):

Content does not have a significant impact on customer engagement.

H_1 (Alternative Hypothesis):

Content marketing has a meaningful impact on customer engagement.

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Chapter 4: Research Methodology

Research methodology is a structured method used to collect, analyzing, and interpreting data in order to achieve the objectives of the study. It helps in understanding how the research is conducted and ensures accuracy and reliability of the results.

This study aims to analyze the role of content marketing in customer engagement, outlining the research design, study type, data collection methods, sampling approach, and analytical tools used.

1. Research Design:

The study follows a descriptive research approach design. Descriptive research is used to describe characteristics, behaviors, and patterns of respondents without influencing them. It answers questions such as what, how, and when.

In this research, descriptive study helps to:

- Understanding customer engagement behavior
- Identifying preferred types of content
- Analyzing interaction patterns with digital content

This design is suitable as it focuses on analyzing existing customer responses and engagement trends.

2. Nature of Study:

The study is quantitative in nature, as it involves the collection of numerical data through structured questionnaires. The data examined using statistical techniques such as percentages and basic interpretation techniques.

3. Data Collection Methods:

The research relies on both primary and secondary sources of data:

Primary Data:

Primary data is gathered through a structured questionnaire (Google Form) shared with respondents

The questionnaire includes:

- Demographic questions (age, gender, occupation)
- Social media usage questions.
- Content preference questions.
- Opinion-based questions.
- Customer engagement behavior questions.

This method is commonly used in descriptive research because it allows collection of large data efficiently and helps identify patterns and trends

Secondary Data:

Secondary data is obtained from:

- Research papers and journals
- Websites and online articles
- Marketing blogs and reports
- Published data related to digital marketing

4. Sampling Method:

The study uses convenience sampling, which involves selecting participants who are easily available and willing to participate. It is widely used in academic research due to:

- Time constraints
- Easy accessibility
- Cost-effectiveness.

5. Sample Size:

The overall number of respondents in the research is: 54 respondents

The respondents mainly include youth and active digital individuals who are well-acquainted with online content and social media platforms

6. Tools and Techniques of Data Analysis:

The collected data is analyzed using the following tools:

Percentage Analysis:

Understand response patterns

- Present data in simple form
- Identify trends in customer behavior

Tables and Charts:

- Used for clear presentation of data
- Helps in better interpretation
- Includes pie charts and bar graphs

Chi-Square Test:

The Chi-square test is applied to analyze the relationship between content marketing and customer engagement.

It is suitable because:

- Data is categorical
- Helps in testing hypothesis Decision Rule:
- If p-value < 0.05 → Reject H_0
- If p-value > 0.05 → Accept H_0

7. Limitations of the Study:

- Small sample size (54 respondents)
- Limited to youth and digital users
- Convenience sampling may cause bias
- Responses are derived from personal opinions

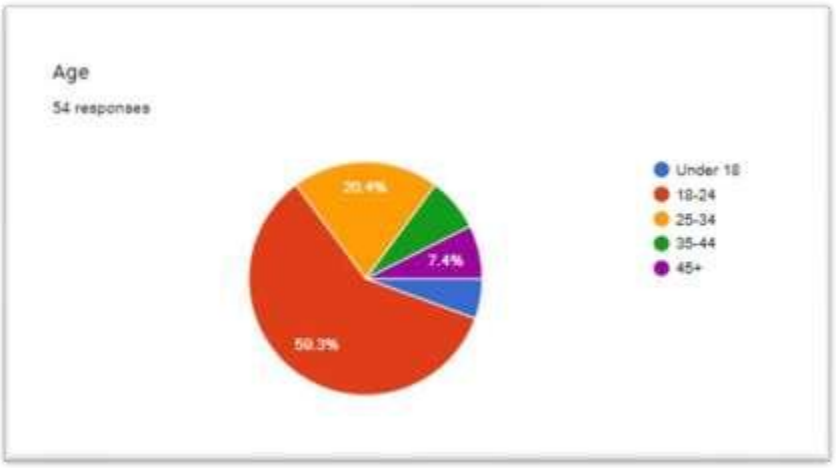
Chapter 5: Data Analysis and Interpretation

1. Introduction:

In this chapter, the data obtained by using the structured questionnaire on 55 respondents will be analyzed and interpreted to find out role of content marketing in customer engagement.

2. Demographic Analysis:

1. Age Group:

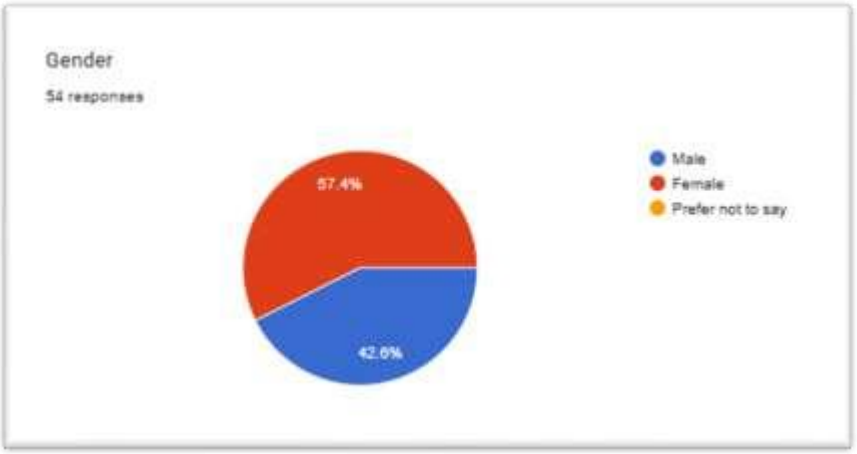


Interpretation:

Most respondents fall within the 18–25 age group, suggesting that the study primarily targets young, digitally active users who are highly engaged on online platforms and exposed to content marketing.

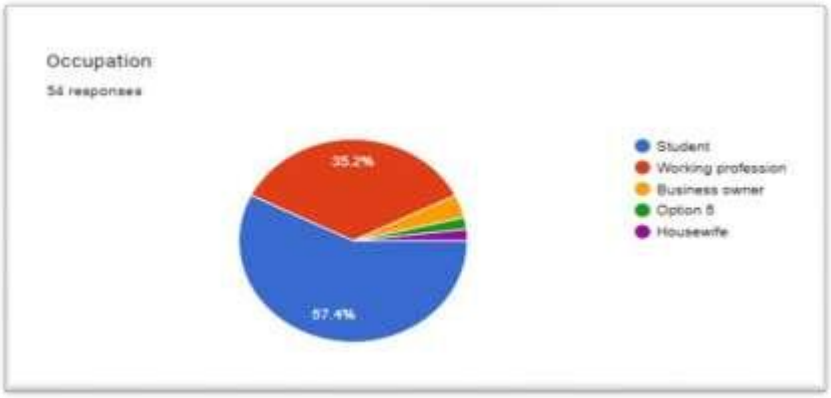
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2. Gender:



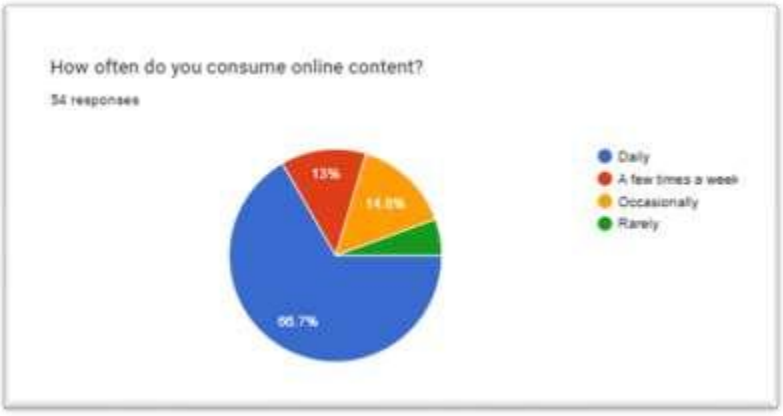
Interpretation:
The responses show a fairly balanced participation of both male and female respondents, ensuring diverse opinions regarding content marketing and engagement behavior.

3. Occupation:
1. Majority of Occupation:



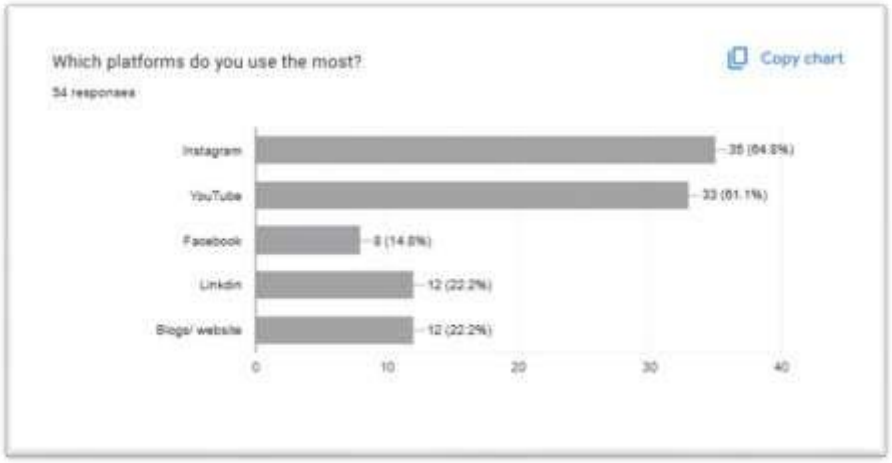
Interpretation:
Most participants are students, followed by working professionals, indicating that younger individuals—particularly students—are more actively involved in consuming online content. As students represent the largest group, the findings largely reflect youth behavior and their patterns of digital content consumption.

2. How often do you consume online content



Interpretation:
Most respondents engage with online content on a daily basis, highlighting the significant role digital platforms play in everyday life. Regular exposure to such content increases the influence of these platforms on users' preferences and engagement patterns.

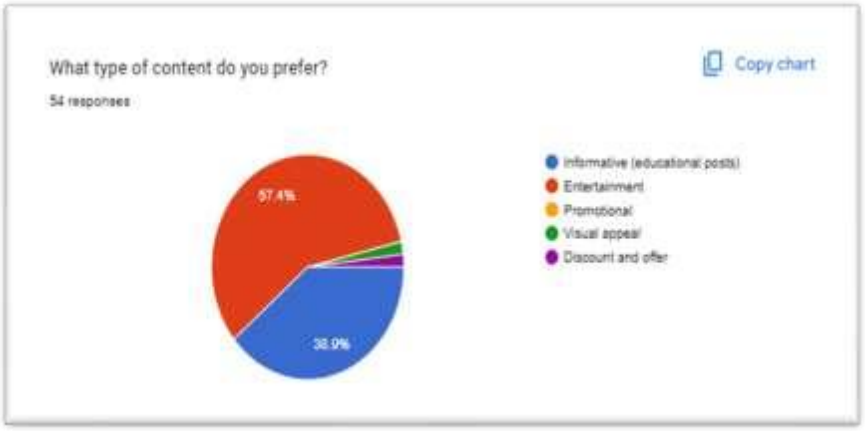
3. Which platforms do you use the most



Interpretation:
Instagram emerges as the most widely used platform among respondents, with YouTube following closely, suggesting that visual and video-based platforms are more preferred by users. Traditional platforms like Facebook are less preferred, showing a shift toward modern social media platforms.

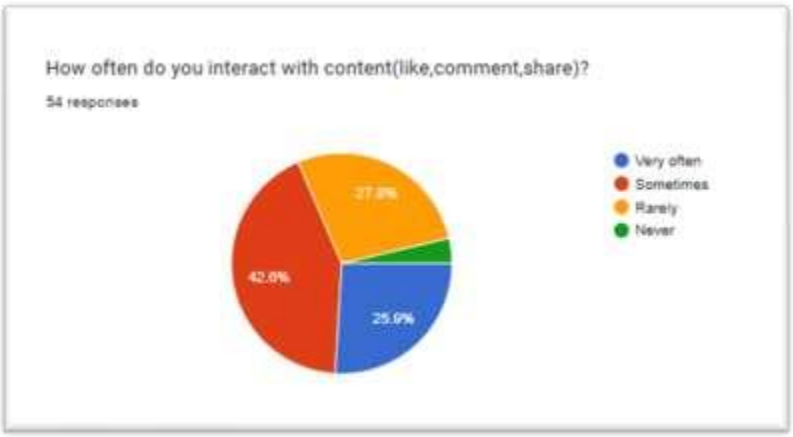
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4. What type of content do you prefer



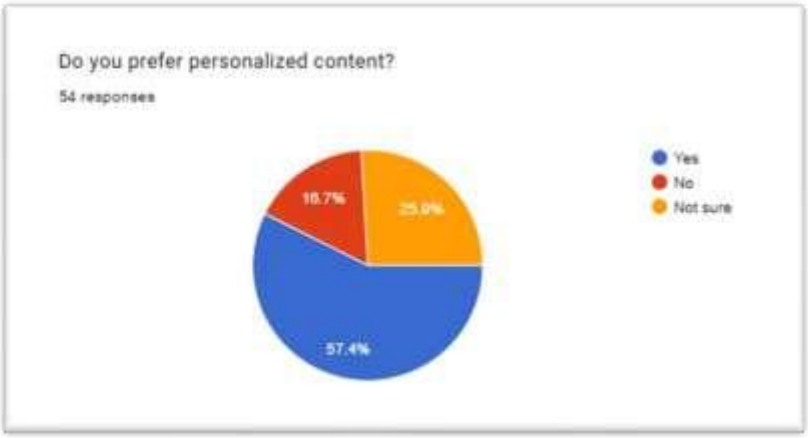
Interpretation:
Most respondents prefer entertainment content, followed by informative or educational content. This indicates that users primarily consume content for relaxation and enjoyment, but they also value informative content. Promotional content is least preferred, indicating that users may avoid direct advertising.

5. How often do you interact with content(like,comment,share)



Interpretation:
Most respondents interact with content occasionally. This suggests that although users consume content regularly, they do not always engage actively. Only a smaller group frequently likes, comments, or shares content, showing moderate engagement levels.

6. Do you prefer personalized Content



Interpretation:
Most respondents prefer personalized content. his indicates that users are more inclined to engage with content that aligns with their interests, preferences, and browsing behavior. Personalized content increases user engagement and satisfaction.

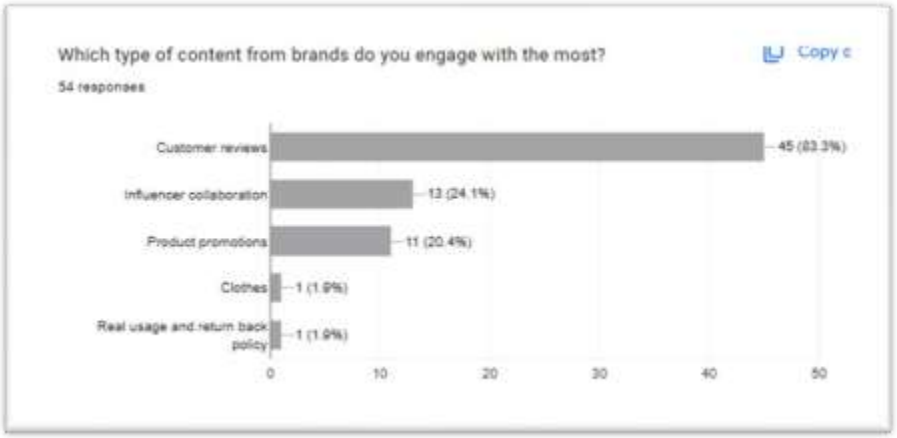
7. How likely are you to purchase a product after seeing its content



Interpretation:
Most respondents (48.1%) are neutral, showing that content by itself does not have a strong impact on their purchase decisions. However, 33.3% are likely to purchase after seeing content, indicating moderate influence. Only 9.3% are very likely, while 9.3% are unlikely, suggesting content impacts some users but not all.

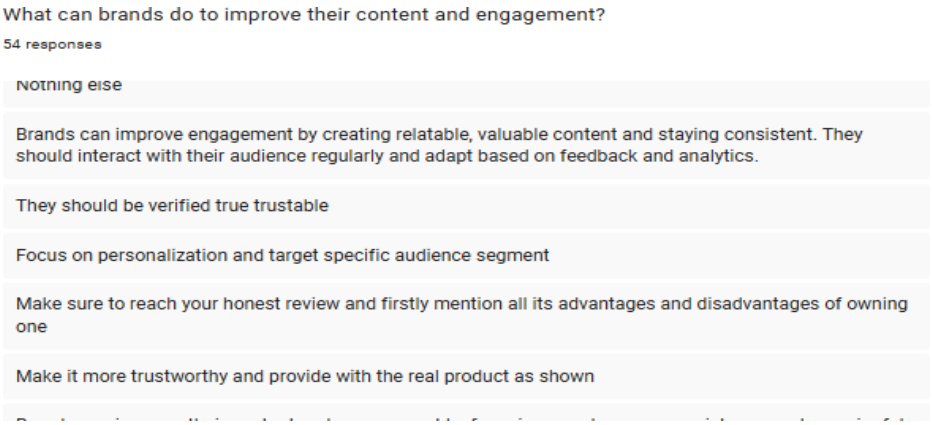
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8. Which type of content from brands do you engage with the most



Interpretation:
Most respondents engage with customer reviews, showing that people trust real user experiences before interacting with brand content. Influencer collaborations and product promotions have moderate engagement, while very few respondents prefer other content types. This indicates that authentic and review-based content is more effective.

9. What can brands do to improve their content and engagement



Interpretation:
The responses indicate that users prefer authentic, informative, and engaging content. Brands should focus on trust-building, clear product information, and relatable content to improve engagement and influence audience interaction.

6. Hypothesis Testing (Chi-Square Test):

1. Observed Frequency Table (O)

Age Group	Entertainment (E)	Informative + Others (I)	Total
Under 18	3	0	3
18–24	20	12	32
25–34	6	2	8
35–44	1	2	3
45+	2	2	4
Total	**32**	**18**	**50**

2. Expected Frequency (E)
Formula: E= Row Total × Column Total / Grand Total

Calculations:
Under 18:
- E (Entertainment) = (3×32)/50 = **1.92**
- E (Informative) = (3×18)/50 = **1.08**

18–24:
- E = (32×32)/50 = **20.48**
- E = (32×18)/50 = **11.52**

25–34:
- E = (8×32)/50 = **5.12**
- E = (8×18)/50 = **2.88**

35–44:
- E = (3×32)/50 = **1.92**
- E = (3×18)/50 = **1.08**

45+:
- E = (4×32)/50 = **2.56**
- E = (4×18)/50 = **1.44**

3. Apply Chi-square Formula

$$\chi^2 = \sum \frac{(O-E)^2}{E}$$

4. Calculation Table

Category	O	E	(O−E)²/E
Under18 (E)	3	1.92	0.61
Under18 (I)	0	1.08	1.08
18–24 (E)	20	20.48	0.01
18–24 (I)	12	11.52	0.02
25–34 (E)	6	5.12	0.15
25–34 (I)	2	2.88	0.27
35–44 (E)	1	1.92	0.44
35–44 (I)	2	1.08	0.78
45+ (E)	2	2.56	0.12
45+ (I)	2	1.44	0.22

5. Total Chi-square Value
$\chi 2 = 0.61 + 1.08 + 0.01 + 0.02 + 0.15 + 0.27 + 0.44 + 0.78 + 0.12 + 0.22$
$\chi^2 = 3.70$ (approx)

6. Degrees of Freedom

$$df = (r-1)(c-1)$$

- r = 5 age groups
- c = 2 categories df = (5−1) (2−1) = 4

7. Critical Value
At 5% significance level (0.05) and df = 4:
Chi-square table value = **9.49**

8. Final Decision
- Calculated χ^2 = **3.70**
- Table value = **9.49**

3.70 < 9.49

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Reject H_0 (Null Hypothesis)
Accept H_1 (Alternative Hypothesis)

4. Conclusion of Hypothesis:
There is a significant influence of content marketing in customer engagement among youth and digital user.

9. Overall Findings:
- High engagement with content marketing
- Social media is the main platform
- Content influences buying decisions
- Visual & short-form content is most effective
- Consistency and relevance increase engagement

Chapter 6: Conclusion
The study concludes that content marketing has a significant impact on improving customer engagement. Based on the responses collected, it is evident that most participants regularly engage with digital content such as social media posts, blogs, and videos, which directly influences their interest and connection with brands.
The findings show that informative, relevant, and visually appealing content attracts more attention and encourages users to like, share, and comment, thereby increasing engagement levels. Social media platforms were found to be the most effective medium for content consumption, especially among the youth.
Overall, the study supports the idea that well-planned content marketing strategies can successfully enhance customer engagement, brand recognition and customer loyalty; organizations should focus on creating valuable and engaging content tailored to their intended audience to achieve better results

Suggestions:
- Focus on Quality Content
- Use Social Media Effectively
- Consistency in Posting.

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- Research Methodology: Methods and Techniques – C. R. Kothari

Platform-Based References:
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- YouTube – https://www.youtube.com ”

Data collected through Google Form:
https://docs.google.com/forms/d/e/1FAIpQLSfm_3fYhpHzS2AfPkVkQQqiTAuHKCB8f0BVUea9YXqXtaC2Nw/viewform?usp=header

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CONSUMER SATISFACTION TOWARDS ONLINE FOOD DELIVERY APP

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Abstract
This research study is based on finding customers satisfaction level from online food delivery apps like Zomato and Swiggy. Due to busy lifestyles and increased digitalisation, increase the usage of this app by customers lives by providing them with convenience, a variety of choices and saving them time. The study will find out the overall satisfaction of customers from online food delivery services and identify issues they experience when using these apps. To collect the data for investigation researcher surveyed fifty participants using a pre-established survey questionnaire. The study has identified four primary areas that become barrier to meet customer expectation via online services: Delivery time, quality of food, price, and usability of the application. Based on research results, many of the customers delight from food delivery service, primarily because of its ease of use and convenience. Users experienced a diverse problem from online services, including late deliveries and technical issues. Research suggest that online food delivery services have a satisfactory level of acceptance among customers, but the levels of service provided could be improved to increase the efficiency and consistency of those services and meet customer expectations and improve efficiency of their delivery service provider.
Keywords: Customer Satisfaction, Food Delivery Apps, Convenience, Online Services, Consumer Behaviour.

Chapter 1: Introduction

Background of the Study

The world that we live in has grown exponentially with the rise of digitalization. With the fast-paced lifestyles that we lead, ordering food has changed drastically since the invention of online food delivery app such as Swiggy and Zomato. These delivery app have increase immense value to their consumers because they offer convenience, variety, accessibility, and many options to choose from. These platforms are gaining popularity among large urban populations. The requirement of quick and easy service has result in increasing demand. Customer satisfaction is derived from the period of delivery, food taste, rates, user experience, and overall experience of using the service.

Need of the Study

Even though many people utilize food delivery apps today still customer facing huge problems, such as late deliveries and inconsistent service. Therefore, finding those issues is important to establish their expectations and make improvements to the service.

Scope of the Study

This study presents the users satisfaction of all usages of few kinds of home/delivery food ordering applications (like Zomato, Swiggy etc.) will be evaluated. This research will collect primary data by a questionnaire from 50 respondents of students and working professional. This study will evaluate the usage trend of those who use the food delivery applications, their usage motives for these applications and issues encountered while using. This research is

confined to one limited area and particular set of respondents; it may be inappropriate to generalize for the entire population set.

Problem Statement

Customer satisfaction level is being greatly influenced with the booming and fast expanding usages of these online apps (Swiggy and Zomato) among the users. Customers find these applications easy to use for ease, choice and access, while users also exposes themselves to a variety of issues ranging from food arriving later than the delivery time, food of lower quality, concerns with the cost of the food and application to a number of issues arising due to the maintenance and sustainability issues.

With the presence of service expectation Vs service delivered difference in any of these applications, it can be found that customer use this application frequently and they are mildly satisfied.

Hence, tracing and analysing the development and over user satisfaction with respect to customer satisfaction are the key elements to find the cause which drives customer and factors that are mainly needed to improve over user satisfaction through research.

Chapter 2: Literature Review

Habib, M. A., et al. (2025) Habib and some others looked at the factors that affects experience in online food delivery back in 2025. They figured out that things like reliability and how quick the service responds really matter for making customers happy and sticking around. It seems like timely delivery stands out with just consistent quality overall.

Leo, W. W. C., et al. (2022) That idea ties into what Leo and his team found in 2022 about e-service quality and even the food itself playing into loyalty on these platforms. Better service boosts how customers see the value, which then leads to more satisfaction and them wanting to use it again. I think consistency in delivery is what they kept stressing, kind of like how it prevents frustration from building up.

Prasetyo, Y. T., et al. (2022) That idea ties into what Leo and his team found in 2022 about e-service quality and even the food itself playing into loyalty on these platforms. Better service boosts how customers see the value, which then leads to more satisfaction and them wanting to use it again. I think consistency in delivery is what they kept stressing, kind of like how it prevents frustration from building up.

Arghya Ray, Amandeep Dhir, Pradeep, Punnet (2019) Customer satisfaction through food delivery seems tied to a few main things from what these studies show. Ray and his team back in 2019 checked out determinants and how useful the apps feel, plus user-friendliness. Those all play into whether people are satisfied and stick around for more orders. It gets into behavioural intentions too, like continued usage.

Vincent Cheow, See-Kwong, Sajad Rezaei (2017) Yeos study from 2017, which dug into actual consumer experiences with these services. They pointed out service quality, the value you get for the price, and hedonic motivation, kind of the fun or enjoyment part. All that affects satisfaction and even purchase intentions down the line. It feels like companies must juggle pricing with how efficient the service is, to really improve the overall experience. Some parts overlap with Rays work, but this one emphasizes the hedonic side more, I guess. Not everything ties up neatly though.

Chapter 3: Objectives and Hypothesis

The research objectives include:

- To investigate customers usage of food delivery app.
- To evaluate customers levels of satisfaction with these services.
- To highlight the problems experienced by customers.
- To analyze the barriers in consumers satisfaction.

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Hypothesis
Null Hypothesis (H_0): Service quality does not have a major effect on customer satisfaction.
Alternate Hypothesis (H_1): Service quality has a major effect on customer satisfaction.

Chapter 4: Research Methodology

1. Study design

A descriptive research approach is applied to this study, and it focuses experience level on internet food delivery services. The descriptive design would present the descriptive statistics regarding the customers' likes on food delivery, usage of the service and satisfaction on the food delivery service (based on the information being obtained).

2. Sources of data

Primary data: Data collection through questionnaire survey on how often they used food delivery services, how they felt about food delivery services and their feelings for using the food delivery service (based on the data being gathered).
Secondary data: Research articles and journals.

3. Data Collection Method

The researcher gathered data by using a survey-based data collection method via a questionnaire. They used multiple choice questions and closed ended questions which makes data easily to be analyze.

4. Sampling method

In this study method of convenience sampling is used which includes the selection of survey respondent based on individuals easily accessed to the researcher and voluntarily engage in investigations.

5. Sample size

The survey respondents are fifty which includes students and working adults.

6. Data Analysis Methods

The analysis methods used for the gathered data are;
1) percentage analysis for interpretation.
2) tabular representation for illustration.
3) charts/graphs (bar chart/ pie charts) for visualization.

7. Study Limitations

1) The relatively small sample size of fifty survey respondents could limit the generalization of results to the target population.
2) Systematic sampling may help in reducing selection bias and improving the reliability of the findings.
3) The collected data depends on subjective opinion of an individual, so the differences in opinions of each on their choice of answers.
4) The respondents of the study are limited to certain group of individuals such as students and working adults.

Chapter 5: Data analysis and interpretation

1) Age Group of Respondents

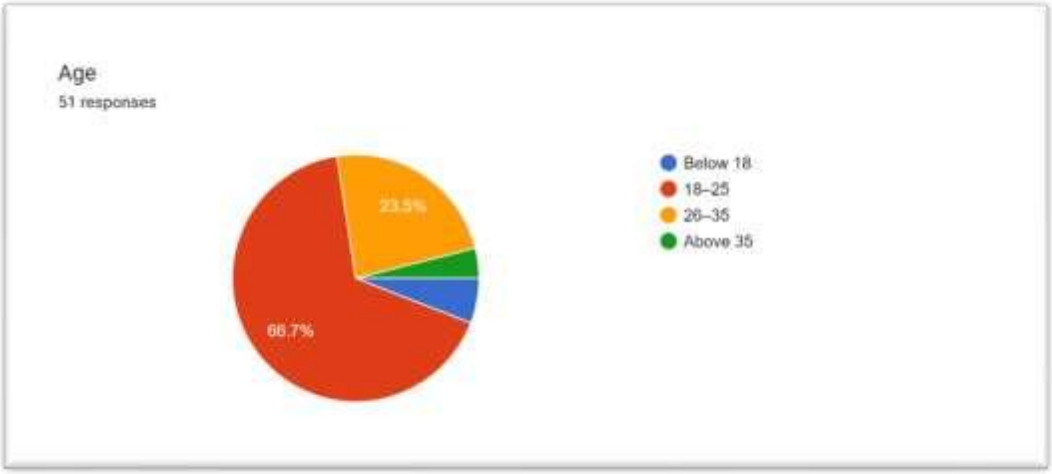


Chart 1: Age Group of Respondents

Interpretation:
Most respondents belong to the 18–25 years, largest segment of study shows that popularity of apps among young consumers.

2) Most Preferred option

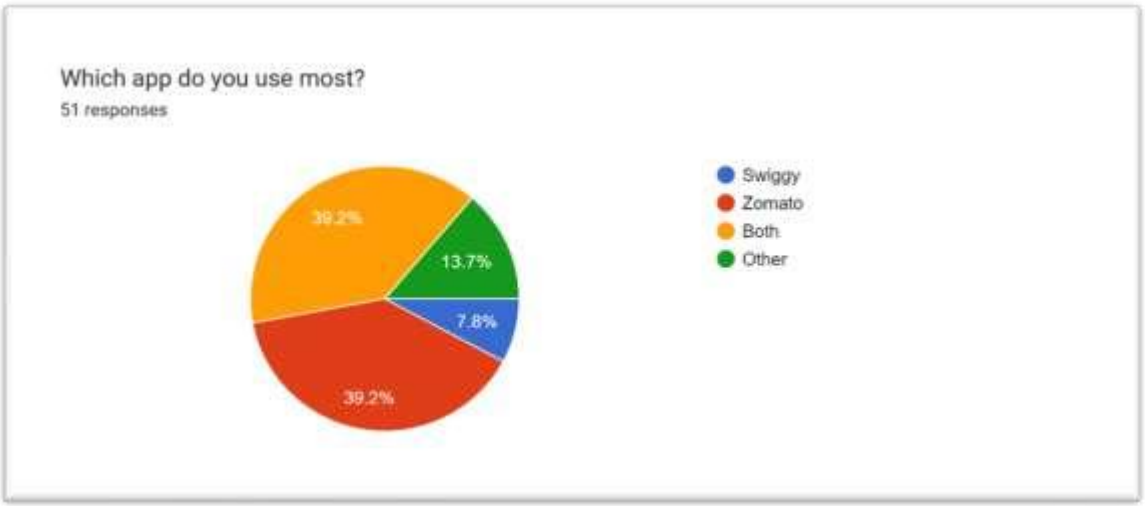


Chart 2: Most Preferred option

Interpretation:
Most respondents use both Zomato and Swiggy, showing that customers prefer multiple apps to compare prices, offers, and services.

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3) Purpose of using app-based meal delivery

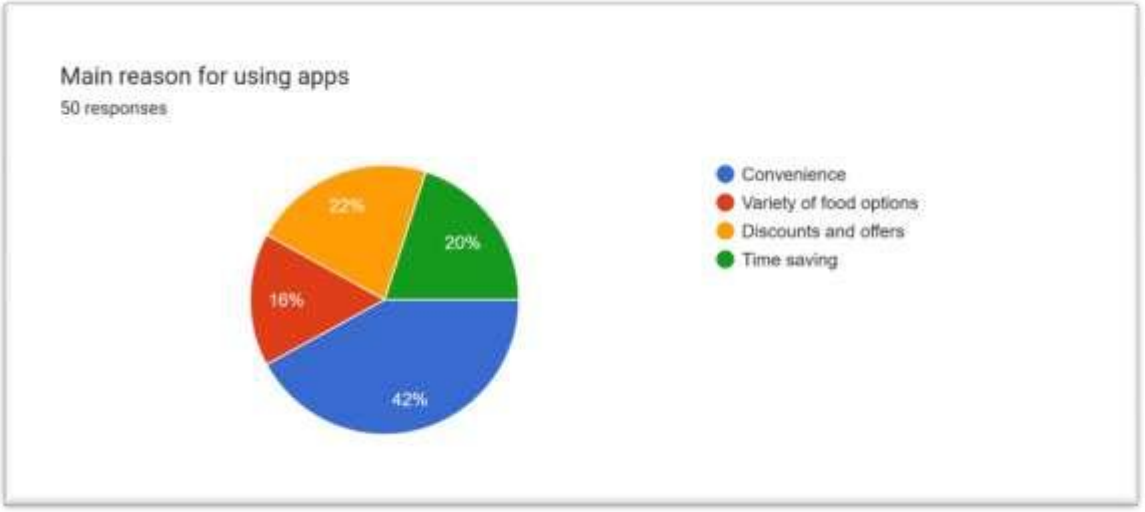


Chart 3: Purpose of using app-based meal delivery.

Interpretation:
Convenience is the main reason for using food delivery apps, followed by discounts and timesaving, highlighting the importance of ease and accessibility.

4) Overall satisfaction with digital meal ordering platform

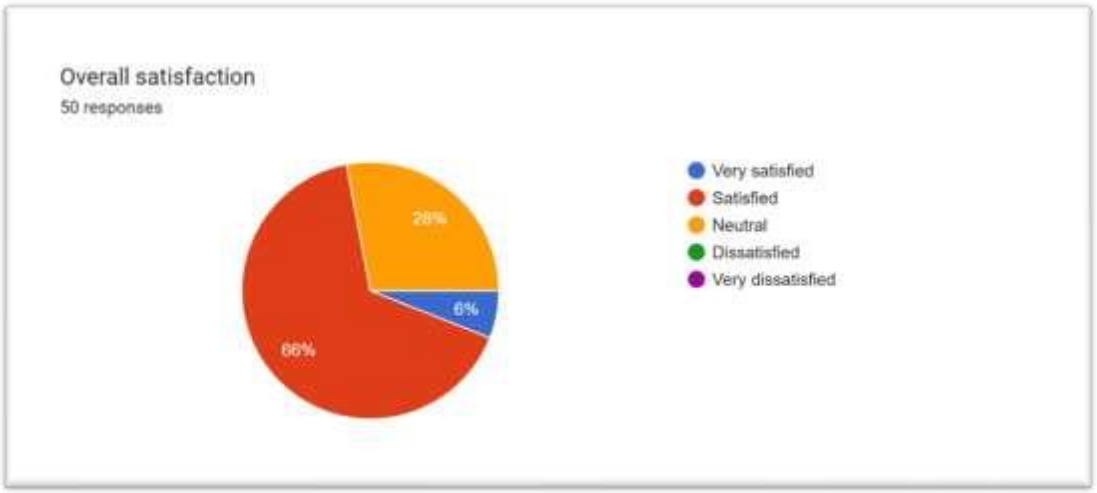


Chart 4: Overall satisfaction with digital meal ordering platform

Interpretation:
From the results, most people (66%) are happy for online delivery application, this shows lots of positive experiences. There were also a considerable number of people who were neutral i.e. (28%). Which shows good experience, however, they have room to upgrade the performance in terms of quality of service. A small proportion of respondents (6%), express elevated level of satisfaction which means there is some space for improvement. It is significant to consider zero respondents rated their experience as poor, it means no customers from study had an unpleasant experience. It is concluded that many were happy with services.

5) Problems Faced by Customers

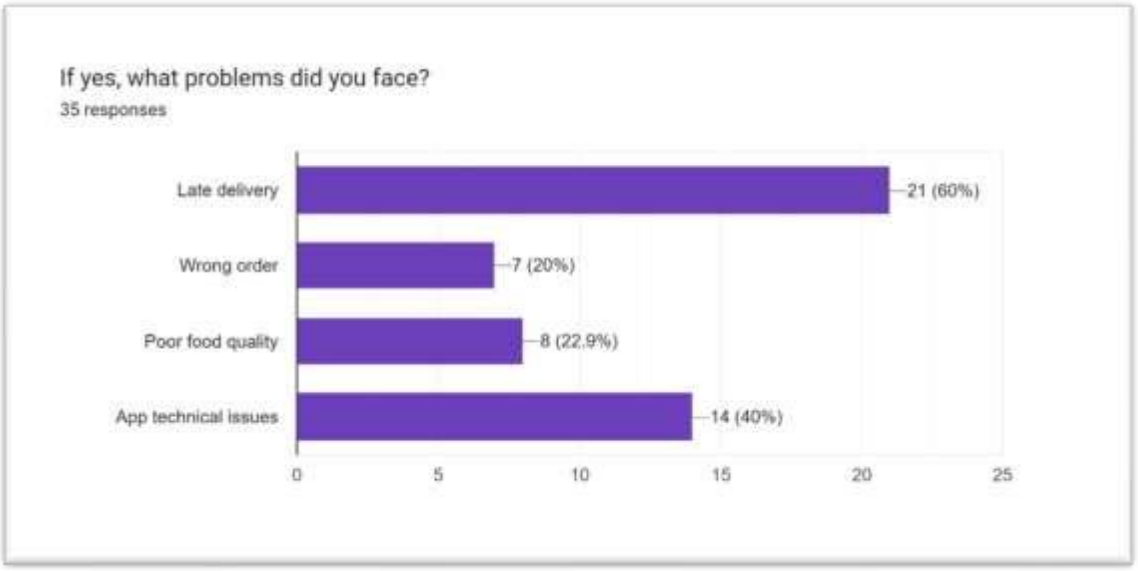


Chart 5: Problems Faced by Customers

Interpretation:
Overall, results reveal that late deliveries (60%) are the primary concern reported by survey respondents and as such, the greatest area of concern; App-related technical issues (40%) were the second-most-common in terms of frequency and negatively impacted the customer experience; Concerns related to the quality of food (22.9%) and incorrect orders (20%) are a non-issue; In spite of this, they were part of decent satisfaction level of consumers. In general, both delivery inefficiencies and app performance will need to continue being improved upon.

Hypothesis Testing
To examine whether the choice of food delivery app influences overall customer satisfaction, a Chi-Square test was conducted.

Case	N	Percentage
Valid	50	100%
Missing	0	0%
Total	50	100%

Observed Frequencies

App Used	**Neutral**	**Satisfied**	**Very Satisfied**
Both	7	12	1
Other	1	6	0
Swiggy	0	3	1
Zomato	6	11	1
Total	14	32	3

Expected Frequencies

App Used	**Neutral**	**Satisfied**	**Very Satisfied**
Both	5.71	13.06	1.22
Other	2.00	4.57	0.43
Swiggy	1.14	2.61	0.24
Zomato	5.14	11.76	1.10

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Chi-Square Result
Chi-square (χ^2) = 5.52 Degrees of freedom (df) = 6 p-value = 0.479
Interpretation
The p-value (0.479) is greater than 0.05, therefore the Null Hypothesis (H_0) is accepted, and the Alternative Hypothesis (H_1) is rejected.
Conclusion
There is no significant relationship between the choice of food delivery app and customer satisfaction. It means customer satisfaction depends more on service elements like span of delivery, pricing, and food quality rather than the specific app used.

Chapter 6: Findings
- Most data from respondents indicates youth having18-25 years old, meaning they are the top users for digital applications.
- Most users use at least two of the apps (Zomato & Swiggy) so that they can compare prices, offers and services.
- Overall satisfaction levels were moderate to high, where most respondents felt satisfied, with a small number of them being highly satisfied.
- Late delivery problems represented by 60% of respondents were the most common issues experienced by customers, whilst app technical issues were 40%.
- From the hypothesis testing, application has influence on satisfaction for customers, suggesting stronger effect from service quality on customer satisfaction.

Chapter 7: Suggestions
- Maintain timely food dispatch to reduce delays and enhance customer satisfaction.
- Fix app technical issues to ensure smooth user experience.
- Maintain consistent food quality across orders.
- Reduce wrong orders by improving order accuracy.
- Offer better pricing and discounts to attract and retain customers.

Chapter 8: Conclusion
According to this study, meal distribution services have become an important part of today's consumers everyday lives, particularly amongst young people. The reasons for increased usage of these apps are convenience, ease of use, and accessibility.
While many consumers use these apps with satisfaction, their level of satisfaction is only moderate. The reasons for moderate satisfaction levels may be late deliveries by drivers, technical issues experienced while using the apps, and inconsistent service levels.
The observation from the study indicates that customer satisfaction is not directly related to which app is used but instead relates to various service-related aspects like efficiency of delivery, food quality, and pricing.
It is therefore important for food delivery service providers to develop and implement strategies that improve the speed of their deliveries, ensure consistency of service quality, and enhance performance of their delivery apps. By improving these three parts helps to build customer loyalty and improve their market position.

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IMPACT OF DIGITAL MARKETING ON CONSUMER BUYING BEHAVIOUR

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Abstract
This study observed the impact of digital marketing on consumer buying behaviour in the modern digital era. With the fast growth of internet usage and social media channels or platforms, digital marketing has become an important tool for businesses to advertise of products and influence customer decisions. The key objectives of this research are to analyse how strategies including social media advertising, online reviews, influencer marketing and promotional offers affect consumer purchasing behaviour. The study relies on a survey method, where primary data was collected from 50 respondents using structured questionnaires. The data was examined using percentage analysis and graphical representation. The study shows that digital marketing is effectively influences consumer awareness and purchase decisions. Most respondents are exposed to advertisements on channels like Instagram and YouTube and rely on online reviews before buying. Social media advertising emerged as the most influential factor, followed by discount offers. The study finds that digital marketing plays an essential role in shaping consumer behaviour by increasing awareness, engagement, and purchase intention.
Keywords: Digital Marketing, Cosumer Buying Behaviour, Social Media Advertising, Influencer Marketing, Online Shopping Behaviour, Digital Advertising, E-Commerce.

Introduction

1.1 The Global Evolution of Digital Commerce

The modern business landscape has changed from traditional "one size fits all" marketing toward a highly specialized digital model. This change is driven by a massive increase in global internet connectivity, with billions of people now using the web as their primary information source (Duralia *et al.,* 2024). Digital marketing is no longer only an alternative method of showing ads; it is a complex system that includes search engine optimization (SEO), viral marketing, and mobile-first strategies designed to reach customers whenever they are (Pillai *et al.,* 2021). For businesses, this shift is essential for survival because the digital space is now where the majority of "brand-consumer interactions" take place (Godiyal *et al.,* 2023).

1.2 Characteristics of the Empowered "Generation C"

A important part of this introduction is understanding the new type of consumer, often called "Generation C" (the Connected Generation). This group is defined by their "always on" lifestyle and their ability to navigate complex digital environments (Pillai *et al.,* 2021). These consumers are highly competent and do not rely on a company's word alone. Instead, they use digital tools to check global prices, read independent reviews, and evaluate a brand's social responsibility before making a choice (Tailor *et al.,* 2023). This has forced companies to be more transparent and honest, as any misinformation can be quickly exposed by a "well-educated" digital audience (Tailor *et al.,* 2023).

1.3 Strategic Integration and AI Technology

To keep up with these smart consumers, companies are now adopting advanced technology like Artificial Intelligence (AI) and Big Data. These tools allow businesses to move beyond

simple ads and instead create "individualized shopping experiences" (Kannaa *et al.,* 2024). By analyzing huge amounts of data, companies can predict what a customer wants even before the customer realizes it. This level of precision helps brands build a "competitive advantage" by making the shopping process faster, easier, and more personal for the user (Raghul *et al.,* 2024).

1.4 The Post-Pandemic "New Normal"

The COVID-19 pandemic acted as a massive catalyst that pushed even the most hesitant consumers into the digital world. During lockdowns, online shopping became a "necessity rather than a luxury" (Francis *et al.,* 2023). This period proved to the world that digital services are reliable and efficient. Even though physical stores have reopened, the habit of "online-first" searching remains. This has permanently reshaped consumer psychology, making digital touchpoints the crucial part of the modern "consumer journey" (Godiyal *et al.,* 2023) (Francis *et al.,* 2023).

Literature Review

2.1 Defining the Digital Marketing Framework

Literature defines digital marketing as a multi-layered ecosystem that uses electronic channels to build brand value (Pillai *et al.,* 2021). Duralia *et al.,* 2024) explains that selecting the right "communication tools" is now the most important task for a marketer. This includes "Search Engine Marketing" (SEM) to gain visibility and "Content Marketing" to build trust. Research shows that digital channels cannot be more efficient in connecting a global audience, but they are more significantly "economical" for smaller businesses compared to traditional TV or print ads (Godiyal *et al.,* 2023)

2.2 Social Media and the Social Proof Phenomenon

Social Media Channel Like Instagram and YouTube have become the most powerful influence on how people decide what to buy (Li *et al.,* 2024). (Pei *et al.,* 2024) stated that social media provides "interactive tools" that let brands talk directly to their fans. A key finding in modern literature is the power of User Generated Content (UGC). When regular people post reviews or photos of a product, it acts as "Social Proof." Peer feedback is more trusted by consumer than official brand promotions, which helps to "diminish ambiguity" and increase the confidence of a buyer (Kannaa *et al.,* 2024).

2.3 Personalization through Big Data and Analytics

A key trends in current research is the adoption of predictive analytics. Through Machine Learning, brands able to create detailed "consumer profiles" based on browsing history and clicks (Kannaa *et al.,* 2024). A specific case study of Amazon India showed that using "vernacular support" (providing content in local languages) and "AI-driven suggestions" significantly increased sales in regional areas like Indore (Ranka *et al.,* 2025). This proves that the more "personal" a digital ad feels, the higher probability a consumer is to completing a purchase (Raghul *et al.,* 2024).

2.4 Trust, Privacy, and Logistical Challenges

While digital marketing is powerful, it faces significant hurdles. (Pei *et al.,* 2024) highlights that "privacy concerns" are a primary cause of why some consumers are avoiding online brands. If a customer feels their data is being misused, they will immediately lose trust in the brand. Furthermore, in many regional markets, digital marketing is limited by "logistical inefficiencies" (Ranka *et al.,* 2025). If a company has a great website but a slow delivery system, the digital marketing effort will fail. This shows that the "final purchase decision" is often a mix of digital trust and real-world performance (Ranka *et al.,* 2025).

2.5 The Requirements for Integrated Marketing Communication (IMC)

Finally, the literature indicated that digital marketing perform best when it is "integrated" with various communication forms. (Duralia *et al.,* 2024) emphasizes that every single "contact point" whether it’s a social media post, an email, or a physical store must send the same

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message. This consistency builds "brand loyalty" and ensures that the organization's financial outcomes remain strong over the long term. Effective digital marketing is not just about one ad; it is about managing the entire "consumer journey" from the first click to the final delivery (Duralia *et al.,* 2024) (Godiyal *et al.,* 2023).

Objectives

1. To study the impact of digital marketing on consumer buying behaviour.
2. To analyse the role of social media on purchase decisions.
3. To examine the impact of online reviews in consumer decisions.
4. To evaluate the importance of discounts and influencer marketing on consumer buying behaviour.

Research Methodology

Data Analysis and Interpretation

Introduction to Data Analysis

The current study is based on primary data obtained from 50 respondents using a structured questionnaire. The collected data consists of consumer opinions regarding digital marketing, social media influence, online reviews and feedback and purchasing behaviour.

To ensure the analysis more scientific and reliable, the following statistical tolls were used:

- **Chi-Square Test** – to examine association between variables
- **Correlation Analysis** – to examine the relationship between variables

Hypothesis Development

For Chi-Square Test

- **H0 (Null Hypothesis):**

There is no significant relationship exists between digital marketing exposure and consumer buying behaviour.

- **H1 (Alternative Hypothesis):**

There is a significant relationship exists between digital marketing exposure and consumer buying behaviour.

Chi-Square Test

Variables:

- Digital Ads Attract Attention (Yes/No)
- Purchase After Seeing Ads (Yes/No)

Observed Table:

	Purchase Yes	**Purchase No**	**Total**
Ads Attract Yes	**34**	**10**	**44**
Ads Attract No	**2**	**4**	**6**
Total	**36**	**14**	**50**

Result Calculation

- Calculated $\chi^2 = 5.06$
- Degree of Freedom (df) = 1
- Table Value (5% level) = 3.84

Decision

Since 5.06 > 3.84, reject H0

Interpretation
There is a significant relationship exists between digital advertisement and consumer buying behaviour.

Correlation Analysis
Variables:
- X = Influence of Online Reviews
- Y = Purchase Decision

Responses converted as: Yes = 3, Sometimes = 2, No = 1

Sample Data Table:

Respondent	X (Reviews)	Y (Purchase)	X^2	Y^2	XY
1	2	1	4	1	2
2	3	3	9	9	9
3	3	3	9	9	9
4	3	2	9	4	6
5	3	3	9	9	9

(Note: Full calculation is based on all 50 responses)

Final Values
- **N = 50**
- **ΣX = 128**
- **ΣY = 121**
- **ΣXY = 335**
- **ΣX^2 = 350**
- **ΣY^2 = 310**

Result
- Correlation Coefficient (r) = +0.72

Interpretation
- +0.72 indicates a strong positive relationship
- As online review influence increases, purchase decision also increases

Combined Interpretation of Results
The results from both statistical tests are demonstrate that:
- Digital marketing plays a crucial role in influencing buying behaviour.
- Social proof such as reviews, ratings have a big impact on decision making.
- Advertisements create awareness, but conversion depends on trust factors like reviews and discounts.

Key Insights from Statistical Analysis
- Digital advertisements are key role in attracting consumer attention and purchase decisions.
- There is a high dependency on online reviews and ratings.
- Consumers are not impulsive; they are information-driven and research-oriented.
- The relationship exists between digital marketing and consumer buying behaviour is statistically effective and positively correlated.

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Conclusion of Data Analysis

The statistical analysis indicates that the digital marketing is not just a promotional tool but a plays crucial role on consumer behaviour.

- The Chi-square test proves that digital ads significantly affect purchase behaviour.
- The correlation test shows that online reviews and feedback influence consumer decisions.

Therefore, businesses must focus on:

- Building trust through reviews
- Providing attractive offers

Creating engaging digital advertisements

Findings

Most respondents use the internet daily, indicating high level exposure to digital marketing, and a majority search online before purchasing, rely on reviews and ratings, and have made purchases after viewing digital advertisements.

Based on the analysis, the key findings are:

1. Digital marketing significantly influences buying behaviour. Most consumers are affected by digital advertisements and online promotions.
2. Social media is the most impactful platform. Instagram and Facebook play crucial role in shaping consumer decisions.
3. Consumers show moderate trust in digital marketing; however, there is need to enhance credibility and reliability.
4. Consumers are highly informed and research oriented. They rely heavily on reviews, comparisons, and product information before making a purchase.
5. Price sensitivity dominates purchasing decisions. Discounts and offers are the strongest motivating factors.
6. Advertisements create awareness but do not drive final decisions. Final decisions depend more on value and trust factors.

Suggestions

1. Focus on Social Media Marketing: Businesses should invest more in social media platforms such as Instagram and YouTube. These platforms have a significant impact on consumer awareness and buying decisions.
2. Build Trust through Online Reviews: Companies must encourage positive customer reviews and ratings. Consumers rely heavily on reviews before making purchase decisions.
3. Provide Attractive Discounts and Offers: Brands should offer regular discounts and promotional deals. Price-sensitive consumers are highly motivated by offers and savings.
4. Improve Advertisement Quality: Digital advertisements should be engaging, informative, and visually appealing. This helps in attracting attention and increasing conversion rates.
5. Use Influencer Marketing Carefully: Companies should collaborate with trusted and relevant influencers. Genuine promotion increases credibility and builds consumer trust.
6. Ensure Transparency and Data Privacy: Businesses must maintain transparency in their marketing practices. Protecting consumer data will help in building long-term trust and loyalty.

Conclusion

The research concludes that digital marketing is a major factor for influencing consumer buying behaviour. With increasing the usages of internet and social media engagement, digital platforms are becoming primary source of consumer for product information and decision making. While digital advertisements create awareness, pricing, reviews, and brand reputation plays a crucial role in final purchase decisions.

The study also indicates that consumers are more informed and selective, making it essential for businesses to adopt customer-centric and transparent strategies. Digital tools like a social media marketing and influencer promotions significantly impact consumer preferences, though their effectiveness depends on credibility and relevance.

Moreover, the growing use of mobile devices and personalized marketing has enhanced the reach of digital campaigns. Therefore, businesses must focus on building trust, offering value, and maintaining a high online presence, and connecting customers through interactive and personalized content.

In conclusion, digital marketing is not just a promotional tool but also a strategic role of consumer decision-making, and its importance will continue to grow in the future with advancements in technology and changing consumer expectations

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A STUDY OF THE IMPACT OF VOICE SEARCH USAGE AND ITS EFFECT ON CONSUMER BEHAVIOUR AND DIGITAL MARKETING STRATEGIES

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Abstract
The technology behind voice search is bringing about changes in the way that people utilize the internet. The technology makes it easier for users to communicate with the internet without necessarily having to type the questions into a search box. Voice searching saves time and makes the entire process simpler and convenient for all the parties involved. It makes it possible to have better and more effective human-technology communication where communication takes place naturally. In the present study, the emphasis is on assessing the influence of voice search technology on consumer behaviour and digital marketing trends. The analysis will be conducted through the examination of secondary data that will be obtained from credible sources. Some of the sources include academic papers and other publications regarding the subject of investigation. The outcomes of the study show that the use of voice search technology is very popular amongst younger generations. This might be explained by the fact that these users have better technological literacy and prefer convenient, user-friendly solutions. Voice search technology allows them to get information quickly and effortlessly. Besides, according to the findings, the majority of people use the voice search technology for informational purposes like finding a quick answer or getting directions. They do not participate in buying or any other type of transaction process using this technology. Therefore, despite the extensive use of this technology, it still has room to grow regarding its business uses. Voice searches can be performed on the smartphone device. It is easier to conduct voice searches on smartphones as they are portable and can be used everywhere. Moreover, most smartphones include voice search applications. This increases convenience and facilitates the process of performing searches using voice commands. Nonetheless, there are some obstacles associated with voice search technology. These three issues are what most people have encountered while using the technology. To conclude, although much progress has been witnessed in the development of voice search technology, solving these challenges will be key to the technology's success.
Keywords: Voice Search, Consumer Behaviour, Digital Marketing, Smartphones, AI.

Introduction

The significance of voice search technology is continuously rising in the fast-changing world of digital technology, where speed and ease determine consumers' choices. Voice search function is a capability that enables people to start the process of search by speaking without needing to enter commands and phrases manually. The shift toward the voice-based approach is part of a larger paradigm shift from the traditional means of interacting with technology to the more convenient and intuitive methods.

The increase in the amount of users opting for the voice search functionality is mainly attributable to the increased use of smartphones, improved access to the Internet, and the presence of state-of-the-art virtual assistants in mobile devices. Such trends facilitate access to

technologies that involve voice commands which help users to perform different activities hassle-free, including searching for information, looking up maps, and managing their affairs. One could name many reasons for such a growing user base of voice search technologies; however, it should be noted that the list of advantages associated with this kind of technology plays an important role in such a trend. These features include efficiency, speed, hands-free capability, and usability of the technology. The younger generation seems to play the most active role in employing the voice search technology owing to their increased familiarity with digital gadgets.

Given the fast pace of adoption of the technology and the shift in the behavioural patterns of consumers, there arises an urgent need to study the impact of the voice search technology and its broader implications. It is essential for the research on the topic to reach out to the domain of digital marketing and content creation. Further investigation of voice search technology remains important for further advancements in these spheres.

Background of the Study

Previously, individuals were engaged in using textual search in their searches over the Internet. However, as technology advanced along with the development of artificial intelligence, voice search became more prevalent. Voice search through smartphones, Siri, Google Assistant, and Alexa is quite convenient. As people today look for faster means of searching, voice-based searching has become popular. This trend has even impacted the digital marketing industry. Digital marketers must consider voice search while optimizing their content.

Problem

- Even though there is an increasing tendency for voice search, companies have not yet equipped themselves to utilize voice search technology in their plans, thus making room for optimization challenges.
- Moreover, issues such as accuracy, privacy, and trust play a role in the application of voice search technology.
- Users have not yet developed full confidence in this technology. Thus, it is vital to explore the effects that voice search technology is having on consumer behaviour and digital marketing.

Literature Review

There has been increasing interest in voice search technology because of its convenient nature. According to the past literature, conventional search technology based on text was the dominant search mode adopted by consumers. With the emergence of AI and voice assistants, however, voice search technology has experienced rapid growth. Past research indicates that voice search is highly popular among younger consumers who are well versed with smartphone usage and digitalization. Voice search technology enables consumers to execute searches without typing and saves a lot of time. In several studies, it is reported that voice search technology involves conversations compared to text searches. Consequently, there is a need for firms to adapt to natural language in their digital marketing techniques. Furthermore, it is observed that voice searches are mostly executed for informative reasons, including general inquiries, directions, and instant answers, and not necessarily for transactions. This implies that voice commerce remains underdeveloped. It appears that the younger generation plays the most active part in the use of voice search technology, thanks to their acquaintance with modern devices.

The rapid acceptance of the technology, coupled with the changes in consumer behaviour, calls for an immediate investigation into the influence of the voice search technology and its consequences. It is necessary that the research into the technology should move to the sphere of digital marketing and content production.

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Research Gap

While some research has been done regarding the effect of voice search technology on digital marketing, very little is known about its practical implication on consumer behaviour. While most of the studies conducted concentrate on technological advancements, they tend not to address the usage of voice search by individuals. Moreover, little data is available on the incorporation of voice search technology by businesses within their marketing efforts.

Research Objectives and Hypothesis

Objectives of the Study

- To examine the user awareness and use of voice search technology.
- To study the influence of voice search technology on consumer behaviour.
- To study the effects of voice search technology on digital marketing.
- To find the determinants that affect the use of voice search technology.

Hypothesis

H_0: Voice Search does not have a significant effect on consumer behaviour and digital marketing.

H_1: Voice Search has a significant effect on consumer behaviour and digital marketing.

Research Methodology

The methodology adopted for this study is entirely based on secondary sources of information and follows a descriptive research approach. Although many of the researches done focus on technological developments, they fail to mention how individual consumers are making use of voice search technology. Furthermore, very little information is provided regarding the adoption of this technology in the marketing strategies of companies. In addition to these, digital marketing reports, technology blogs, and statistical platforms are also referred to for gathering updated and relevant information. The use of multiple sources allows for a more comprehensive analysis, as it enables the researcher to compare different viewpoints and draw meaningful insights from already available data.

Secondary data becomes very important in a research project like this because it gives an insight without the need to conduct a tedious and costly process of collecting primary data. The study of previous works will provide the researcher with comprehensive knowledge about the topic and help in examining the evolution of voice search technology across various settings and periods. This approach will also assist in identifying common themes, findings, and trends through comparison of data obtained from several studies and documents. Comparisons and analyses will enable the formation of reliable conclusions and validation of results.

This method also presents several challenges and disadvantages associated with secondary data. Since the research is based on secondary data alone, the results and conclusions will depend entirely on the quality of the sources utilized. Any inconsistency, bias, or outdated information in the source materials can negatively impact the findings of the research. Furthermore, the use of only secondary data eliminates all interactions with respondents. There will be no opportunity to interact with participants to collect primary data. Thus, the findings of the study will be based solely on secondary sources.

However, despite all the weaknesses mentioned above, the method that will be used is perfectly suited to the purpose of carrying out this study. Indeed, thanks to its use, the researcher will manage to analyse the effect of voice recognition technologies through the prism of extensive literature resources available.

Scope of the Study

This paper concentrates on the examination of how the use of voice search influences consumer behaviour and digital marketing through the utilization of secondary data. The paper

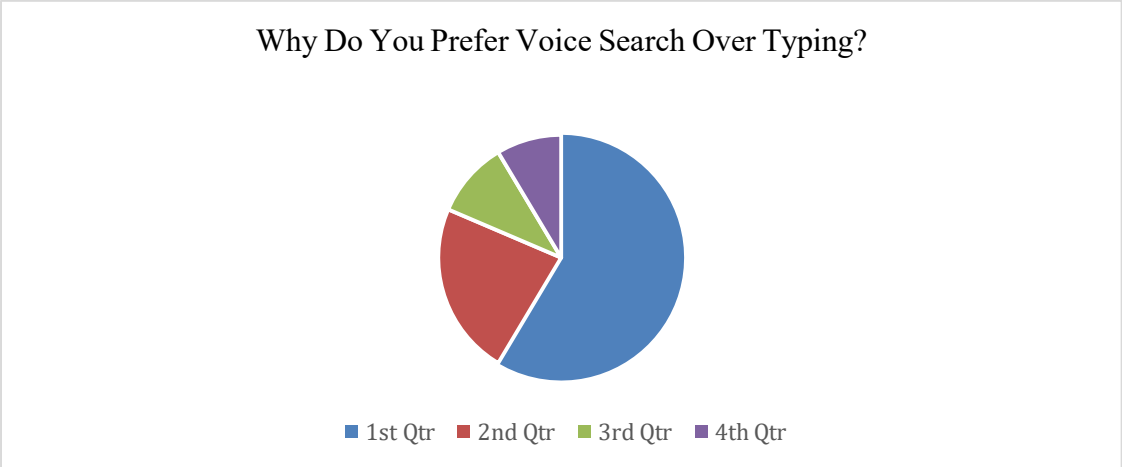
encompasses issues that concern trends, uses, and technological developments associated with voice search. This paper draws only on data derived from published materials and not primary data.

Data Analysis and Interpretation

Analysis of secondary information in terms of research journals, industry reports, and reliable online sources suggests that there is considerable growth in the use of voice search technology during the last few years. This is mainly because of the extensive use of smartphones and constant development in the field of artificial intelligence. Users tend to opt for voice search techniques with time due to the increased level of convenience provided by advanced technologies. The studies further suggest that youth constitute the largest user base for this technology because they are familiar with technological advancements and readily adapt to such innovations. It has been noticed that smartphones are being extensively utilized for conducting voice searches.

Table 1: Reasons for Preferring Voice Search

Reason	**Number of Respondents**	**Percentage**
Faster	40	59.7%
Easier	27	40.3%
Hands-free convenience	36	53.7%
More accurate	8	11.9%
I don’t prefer voice search	7	10.4%

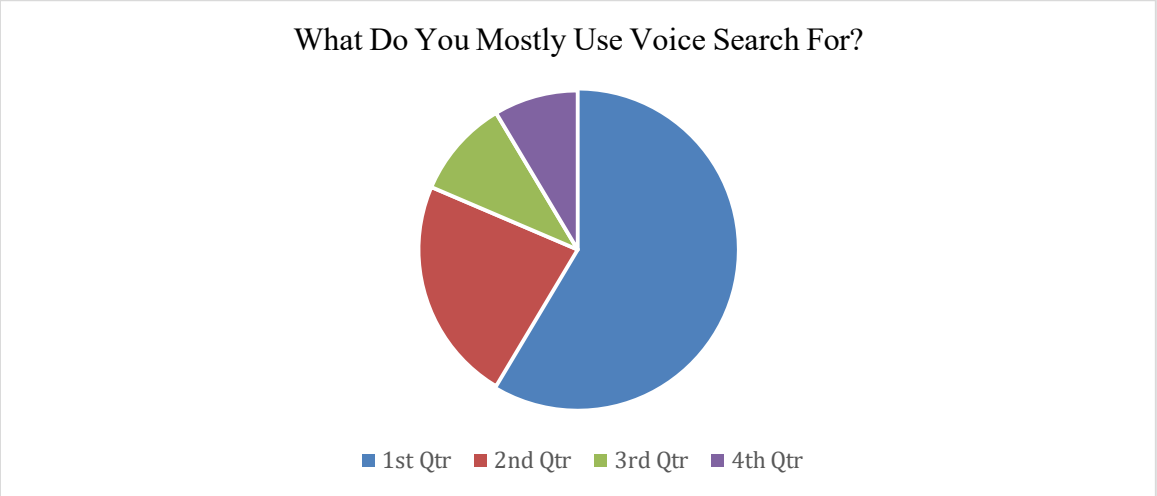


Moreover, it is evident from the results that the majority of voice searches tend to be informational rather than transactional. Voice searches are mainly used by users for instant queries about general information, directions, or immediate answers, but not for making any purchases. It is possible to attribute the increasing use of voice searches to certain factors, including convenience, ease of use, and speed. Although they are predominantly used for simpler queries at present, their potential will increase with time because of future advancements.

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Table 2: Purpose of Using Voice Search

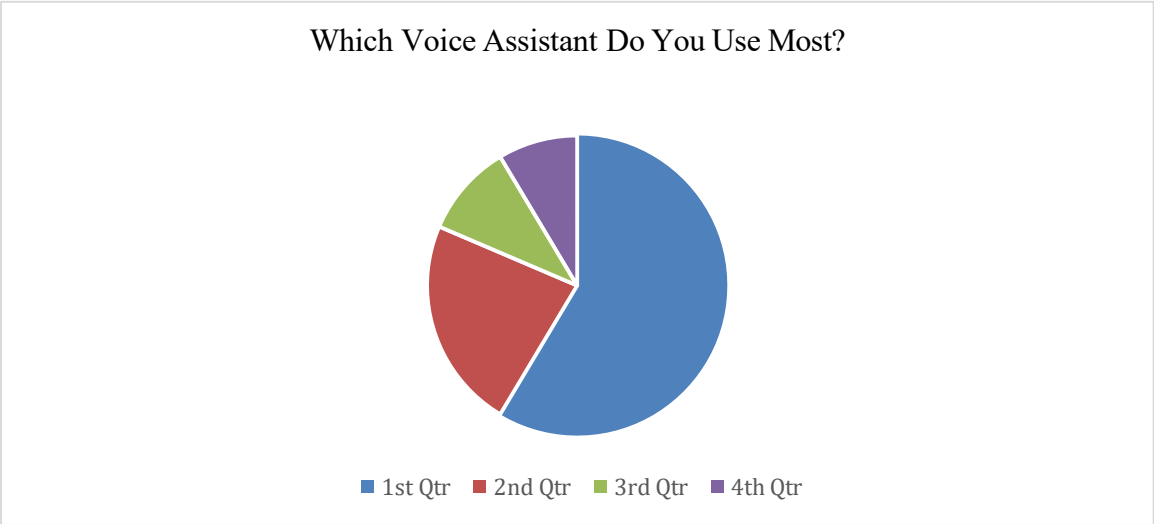
Purpose	**Number of Respondents**	**Percentage**
Searching general information	54	80.6%
Finding nearby shops/restaurants	14	20.9%
Purpose	**Number of Respondents**	**Percentage**
Online shopping	9	13.4%
Directions/Maps	16	23.9%
Entertainment (music, videos)	25	37.3%
Ordering food	5	7.5%



It can be inferred from the above-mentioned research studies that speed and ease are of utmost importance when searching using voice searches. People tend to look out for products and services that offer immediate and instant results with minimum input. This implies that convenience plays a major role in influencing consumer decision-making. For the provision of successful services, organizations must guarantee that their voice searches are efficient and effective. As long as the services are convenient and effective, consumers will use them regularly.

Table 3: Voice Assistant Usage Among Respondents

Voice Assistant	**Number of Respondents**	**of**	**Percentage**
Google Assistant	45		67.2%
Siri	21		31.3%
Alexa	9		13.4%
Bixby	3		4.5%
Other	5		7.5%



Identifying which voice assistant is most frequently used by the respondent allows for the identification of the leading voice assistants in the voice search world. Various voice assistants are created by various firms and are installed on different gadgets such as mobile phones and smart home assistants. It becomes easy to understand market dynamics by analysing user preferences.

Interpretation

The results derived from the research have shown that voice search is gaining momentum in becoming a prominent part of the digital ecosystem and is rapidly influencing the consumer behaviour. An increasing use of voice enabled devices denotes the fact that people are becoming increasingly fond of technologies that are easy to use and require minimal efforts. This study demonstrates that younger people tend to utilize voice search to a greater extent than older generations as it comes as no surprise that young people who are more technologically savvy are more likely to adapt to the new technologies.

One of the main reasons for the rapid development of voice search technologies is the high rate of smartphone usage. The smartphone has become a part of daily life of any individual. In other words, it is a device that everyone owns and uses on an everyday basis. Moreover, smartphones are extremely helpful when one talks about the implementation of voice search as a feature since they can perform multiple functions, including the provision of the possibility of using this function.

But then again, from another point of view, the data shows that voice search technology is utilized basically as a means of acquiring information but not performing transactions. It is common knowledge that people turn to voice search especially in cases where they need answers to questions or just basic information because it is faster and simpler for them. When it comes to purchasing items, people do not yet use voice search since they might need some more time to decide. Such actions point towards several commercial constraints and issues with trust concerning voice transactions. The reasons could be attributed to various aspects such as security, reliability, and the absence of visual cues.

On balance, it can be stated that although significant advancements have been achieved in the realm of voice search and it is becoming increasingly important, there is substantial potential for improvement. In particular, it is possible to expect that voice search will eventually evolve into a powerful commercial platform.

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Additional Analysis

The usage of secondary data also reveals that the rising application of AI and machine learning technology has also played a vital role in developing voice search technology. It allows users to enjoy an improved user experience due to increased accuracy and efficiency. Sources also show that users like to use voice search technology when performing simple tasks such as checking weather details, getting directions, and finding instant answers to queries. It shows that people have started adopting a convenience approach to search for something. Companies are also working to optimize their content according to voice search.

Findings of the Study

It is evident that the findings have clearly indicated the fact that there is an increased use of voice search. This is mainly because the convenience offered by the service is quite significant. As more consumers seek faster means of getting information, the preference for voice search is becoming stronger. Individuals now have the ability to communicate and use voice commands to search online, resulting in a more natural interaction. Moreover, another significant finding suggests that the usage of voice search is mainly done by younger generations, who are more likely to be technologically advanced than other generations. Due to their familiarity and preference for innovative gadgets and tools and regular use of smartphones, these young people have become avid users of voice search applications.

Moreover, another vital point revealed through the research is the leading position held by smartphones in implementing voice search techniques. Since mobile phones are easily available and convenient tools that can be used to perform tasks anytime and anywhere, voice search applications installed on such gadgets have become popular among users.

On the other hand, it becomes clear from the investigation carried out that the vast majority of voice searches are of the informative kind rather than of the transactional kind. Most users tend to use voice searches as tools of information gathering, but not as means of making purchases and executing any financial transactions. Therefore, there is a strong reason to believe that voice searches have become quite popular but do not have much effect upon the process of purchase decision making yet.

On the other hand, there are several obstacles that hinder the widespread acceptance of the voice search technology at large. Firstly, problems associated with privacy and data security are important enough to prevent people from using voice searches as sources of private data delivery to third parties. Secondly, some inaccuracies connected with comprehension of speech and provision of relevant answers cannot but have an adverse effect on user experience. Nonetheless, the fast growth of AI technologies might be a good solution to all of these issues in the future.

Suggestions and Recommendations

The findings of the research suggest that companies must approach the issue of voice search strategically. The first thing to consider is the website optimization with the use of conversational language and vocabulary since voice searches often contain a question and are much more humanized compared to keywords used in traditional searching processes. Besides, mobile site design becomes a must since phones remain the main tool for performing voice searches. However, it should be mentioned that there are also benefits for the local businesses which can take advantage of having optimized listings by providing appropriate address, reviews, and various other aspects. It is necessary for marketers to win the trust of the customers by offering them proper information. Furthermore, in the context of voice shopping, it is important for the business organizations to optimize their operations as it would facilitate the customers. It should be mentioned that the application of AI would allow companies to practice personalized marketing. Although embracing technology is one of the ways organizations can

optimize voice searches, it is equally important to sensitize consumers to familiarize themselves with the importance and use of voice searches. Organizations that take advantage of optimizing their voice searches may gain a competitive advantage over their rivals in the future.

Conclusion

In summary, from the study it is quite clear that the voice search technology will certainly become widespread because of the technological and behavioural changes taking place among the consumers. Voice search technology is becoming easy and intuitive thanks to improvements made in digital technologies. What used to be a luxury service has begun to take shape of a common practice which affects all kinds of activities performed on the Internet including searches and transactions. In order to keep up with the changes, companies must take certain steps.

These include adaptation of their website texts to be natural and easy-to-understand. Since people use smartphones for doing voice searches, the company's website should be designed properly for this purpose as well. For local businesses, one of the most important things to do in order to attract customers is to maintain proper information on websites about their products and services, such as reviews and location data. Providing accurate information on websites will help customers trust in them. On the other hand, the majority of young individuals prefer comfort to any other feature when performing daily operations in the digital environment In addition, businesses running in the digital arena need to look at enhancing the experience of buying using the voice option to simplify the process. Intelligent technology would further facilitate the enhancement of interactions in the personalized form, thus making it possible for companies to respond according to customer demands.

It can be said that firms that adapt to these trends have a higher chance of survival. it means that while people have started to trust the new technology and use it to get information about products and services, its role as an influence factor on purchasing behaviour has yet to develop. The researchers also identified several factors which contribute to the increased rate of adoption of the new technology. Ease of use, convenience and efficiency in terms of saving time and rapid development of artificial intelligence and speech recognition are among the main reasons why people start to use voice search.

However, along with advantages, there are some disadvantages which also deserve attention. Namely, the concerns relating to data privacy and security, as well as to potential data abuse, can be considered as obstacles which hinder people's trust in the technology and its wider usage. For businesses, the above-mentioned finding suggests that companies need to implement necessary changes in order to attract customers' attention to their offers in a more efficient way. Generally, the research points out that there is significant room for voice search technology to grow in the future. With the continued advancements in technology and the gradual increase in user trust, the application of voice search will certainly extend even further into aspects like online business transactions. Companies that are able to leverage these opportunities will have an edge in the market and dominate the industry in the coming years.

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IMPACT OF INFLUENCER IN CONSUMER DECISION PROCESS IN INDIAN FASHION INDUSTRY

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Abstract
This research aims to assess what impact the emergence of fashion influencers has had on how consumers make their purchasing decisions with respect to (but not limited to) the apparel industry in India. Digital transformation is expected to replace outdated marketing tactics and methods with influencer marketing models; therefore, understanding consumer behavior through examining their decision-making processes related to apparel purchases and how influencers contribute throughout those processes is the purpose of this study. This paper relies solely on secondary data collected from academic articles, journals, industry research documents, and case studies conducted by some of the most popular fashion retail brands in India. When analyzing influencers' impact within the consumer decision-making process (i.e., realization of need, search for product information, evaluation of alternatives, actual purchase decision, and post-purchase behavior), it was determined that while all of the above noted stages of the decision-making process can be positively impacted by influencers, the level of impact is determined primarily by the extent to which consumers perceive the influencers to have authenticity and credibility. Moreover, micro influencers were determined to be more likely than celebrity or well-known influencers to sway consumer purchasing behavior in the Indian market.
Keywords: Influencer Marketing, Consumer Behavior, Indian Fashion Industry, Social Media, Secondary Research, Decision-Making Process.

1. Introduction

1.1 Background of Study

The Indian retail industry has completely changed over the last 10 years with the fashion industry helping drive this transformation. In the past, fashion in India was dictated mainly by film stars and expensive TV ads but since the "Digital India" initiative was announced and affordable 4G and 5G internet has become widely available, people now look to social media platforms like Instagram, YouTube, and Pinterest as their new sources of fashion inspiration. Throughout this digital age social media influencers have become the new link between companies' products and everyday consumers. Social media influencers are not like traditional celebrities; they are everyday people that have become popular for providing tips and advice on how to dress, groom, etc. This is especially significant considering that India has such a diverse population.

Influencer marketing in India has evolved from having simple product placements to now creating intricate stories. In the past brands focused primarily on Mega Influencers (individuals with millions of followers) but the trend has now shifted towards Micro and Nano Influencers who have much smaller but more engaged communities. In terms of fashion, a recommendation from a local influencer will have much more weight than an advertisement via more traditional media. This is because of the concept known as "social proof" where Indian consumers like to see their dresses on "real" people.

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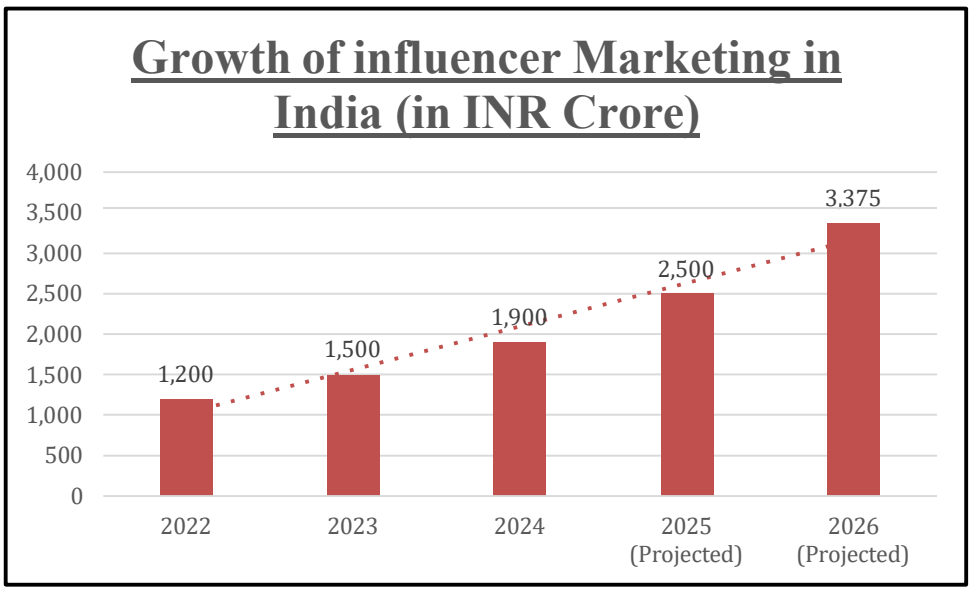


Fig.1

According to Figure 1, growing at 18 percent, the influencer marketing sector is growing at a very high rate of growth from 2022 to 2026, which is backed by sources like EY and the IBEF (Industry and Business Excellence Forum).

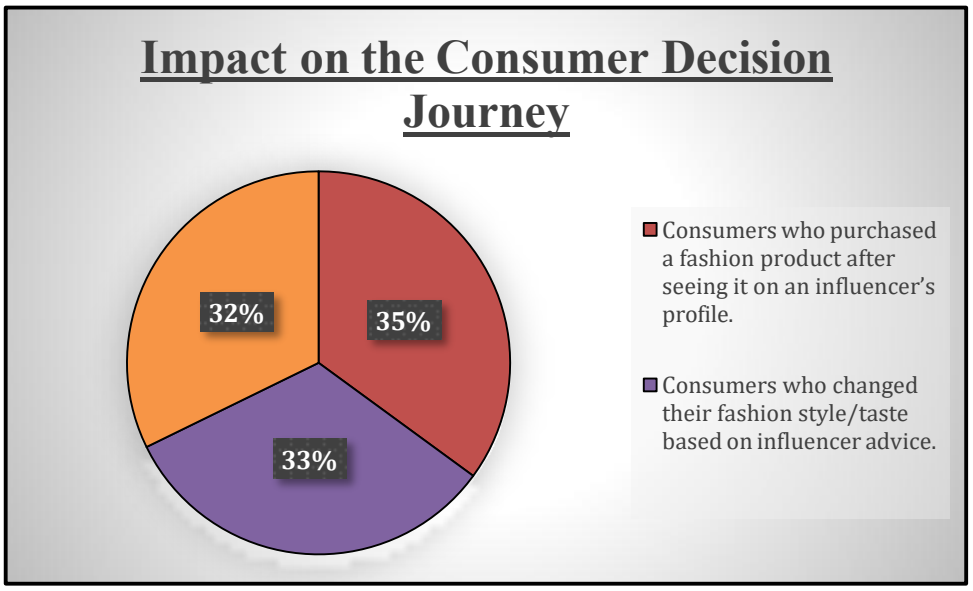


Fig. 2

According to the research findings illustrated in Figure 2, in India, 35% of people base their purchasing decisions entirely from the recommendations of social media influencers. The study indicates that social media influencers are much more than entertainers; they also play an instrumental role in influencing consumers' purchase decisions.

1.2 Objectives of the Study

- The objective of this research is to study the role of social media influencers in creating awareness of fashion brands and trends in India during the awareness stage (i.e., need recognition).
- This aspect of the study will focus on the degree to which an influencer's credibility (i.e., his/her perceived integrity, competence and likability) impacts consumer trust.

- Influencer reviews, try-on hauls and style tips may be instrumental in aiding consumers to evaluate their alternatives (fashion brands) during the evaluation stage prior to making their final purchase.
- The study will look at whether the influencer content provides any support or motivation for a consumer's ultimate purchase decision, including (1) as an incentive (e.g., through the provision of discounts), (2) as a means for consumers to make their purchases, or simply as an inspirational resource.
- Aim to examine the impact of "micro" vs "mega" influencers: The purpose of this project will be to explore the impact that smaller influencers have versus larger celebrities on the purchasing decisions of Indian consumers.
- Aim to determine how important it is for consumers to engage in post-purchase behaviors: The purpose of this project will be to study the impact of influencer marketing on encouraging customers to share their purchase experiences (e.g., uploading photos and writing reviews) after purchasing products.

1.3 Scope of Study

- **Geographic Scope:** This article will analyze the Indian regional market, including both Tier 1 (Big Metro cities) consumer behavior trends, and the growing consumer behavior trends in Tiers 2 and 3.
- **Primary Demographic:** This article will be focused on Gen Z and Millennial consumers in India who have the greatest level of engagement on social media platforms and consume the most fashion influencer content.
- **Industry Scope:** The Indian Fashion Industry will be the main subject of this article, which will include clothes, footwear, and accessories. No other industries will be included, such as beauty or electronic products.
- **Theory:** The Five Stages of the Consumer Decision-Making Process (Need Recognition, Information Search, Evaluation, Purchase, and Post-purchase Behavior) will be the basis for this paper. How do Influencers impact all Five Stages?
- **Platform Scope:** The major areas of Influencer Marketing, where Influencer marketing occurs, will be examined are from the two primary Platforms presently operating in the Indian Fashion Industry ; Instagram & YouTube.
- **Data Scope:** This research will utilize secondary data analysis for its methods of analysis. The Multiple Sources of Research will be utilized to perform research analysis. These Sources will include Market Reports (released by such consulting firms as McKinsey, Bain & Co., and Redseer) Articles (from Academic Journals, Blogs, etc.), and Case Studies (created from reanalyzing prior research results). The Publication dates of the above-mentioned sources will fall between 2020 and 2026.

1.4 Significance of Study

- **A Benefit for Fashion Brands and Marketers-**

Influencer Content has been highly successful as a marketing tool for fashion brands and retailers in India. The data has also provided insight into how to effectively spend advertising dollars to maximize sales and customer loyalty.

- **A Benefit for Social Media Influencers/Creators-**

The research demonstrates the criteria that social media influencers must meet in order to build consumer trust and credibility in India. By using this information, content creators can create their own content strategies that will benefit both their audience and the brands with whom they partner.

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- **A Benefit for E-Commerce Platforms-**

With the continued growth of e-commerce in India, the findings of the research can be useful for e-commerce platforms to integrate influencer content into their apps and websites using "shoppable" types of influencer content (e.g., shoppable videos).

- **To those who conduct research and/or teach-**

The results of this research will furnish other researches with additional evidence that supports the area of research dealing with online marketing approaches and buy behavior of individuals in a developing country like India. Therefore, future researchers will use the information of this particular study as a springboard for conducting their own research on the role of SMM in Indian retail.

- **For all consumers-**

The findings of this study provide consumers with some degree of insight as far as how much impact SMM has on the purchasing decisions of individuals. Consumers could also benefit from some level of familiarity of the SMM tactics used in the consumption process. This increased consumer awareness may lead to more mindful buying decisions when utilizing retail websites.

2. Literature Review

- The idea behind influencer marketing, as defined by many marketing professionals, is the use of social media marketing to promote a brand using endorsements from influencers (people who are generally perceived as experts in their respective industries). According to Brown and Hayes (2008), influencers serve as a bridge for a business and its potential customers. Unlike other traditional forms of advertising, which are primarily composed of one-way communication, influencer marketing allows for two-way conversation between an influencer and consumer and is, therefore, often considered much more entertaining for consumers.
- One of the more important theories related to influencer marketing research is Source Credibility Theory. According to Hovland et al. (1953), the effectiveness of any message will depend on the "trustworthiness" and "expertise" of the person who sent the message. In regards to the Indian fashion industry, supporting evidence suggested that if consumers view an influencer as being truthful and possessing a certain level of expertise (i.e., knowledgeable) with regards to fashion, they are more likely to purchase products endorsed by the influencer. If an influencer endorses too many brands and does not perform adequate quality control checks, their credibility may diminish; as a result, the influencer will have less influence over how consumers make their purchasing decisions.

- **The Factor of "Relatability" in India-**

Research by organizations such as KPMG and McKinsey has brought forth the observation that the Indian population has shifted from valuing the "perfection" associated with Bollywood celebrities towards favoring the "relatability" offered by social media influencers. Studies indicate that fashion should be seen on "real bodies" and "real people" rather than models among the Indian shopping crowd, mostly from Tier 2 and Tier 3 cities. This is what is termed Para-social interaction, whereby an individual feels they have established a personal connection with the influencer.

- **Effect on the Consumer Decision-Making Process**

The consumer decision-making process has previously been divided into five stages. Influencer marketing has different effects at different stages of the consumer decision-making process. These include:

Need Recognition: Influencers trigger "aspirational needs." One may not have the need for a new coat until they come across a picture of an influencer who styles it differently.

Information Search: Previously, people relied on Google to conduct searches related to fashion. According to secondary data, today, younger Indians rely on Instagram and YouTube for searching for fashion-related information.
Evaluation of Alternatives: "Hauls" by influencers play a crucial role at this stage. They enable consumers to compare factors like price, fabric quality, and size.

- **Micro Influencers On The Rise-**

Recent reports from the industry (2023-2024) indicate that there is an emerging trend where "micro-influencers" (who have 10k to 100k followers) are gaining popularity in the Indian market. According to literature, whereas "mega-influencers" bring about high reach, micro-influencers result in better engagement rates. Therefore, the role of micro-influencers in influencing the purchase decisions of followers is greater than mega-influencers when it comes to fashion brands.

- **Digital Trust and Fashion e-Commerce in India-**

Owing to the emergence of digital shopping sites such as Myntra and Nykaa, "social commerce" is considered the future according to recent research findings. According to literature, shoppable links added in the content by influencers make it easier and faster for consumers to go from the "awareness" phase to the "purchase" phase. This "instant gratification" has become an important trait of the Indian consumer.

3. Research Methodologies

3.1 Research Design

The objective of conducting descriptive research design approach is to provide a descriptive view of current Indian fashion industry and how consumers behave towards these products without changing their thoughts and feelings. On the other hand, this study will look at the effect of influencers on the current fashions and trends, which makes a descriptive research design the best approach for this study.

3.2 Data Collection Sources

The only type of data that was used for this research is secondary data; there was no primary data collected for this project via surveys and interviews of any kind (some sources may have provided information via survey; however, this is not the case). The following are the reliable sources of information used in this research:

- **Academic Databases -** Marketing and consumer behaviour articles (projects based on research). Google Scholar and ResearchGate.
- **Industry Publications-** Market analyses/reports provided by McKinsey & Co., Bain & Co., Ernst & Young (EY), and Redseer Management Consulting.
- **Government Publications/Commerce News-** Data provided by India Brand Equity Foundation (IBEF); Ministry of Textiles.
- **Internet/Media News-** Information provided by top-tier business newspapers such as the Economic Times and Mint, as well as fashion-related industry news sources via web-based.
- **Company Studies-** Performance data for the marketing campaigns conducted by Myntra, Ajio, and H&M India.

3.3 Data Collection Methodologies and Tools

The method used to gather the necessary information for the analysis was classified as documentary analysis. -

- **Keywords-** The following keywords were utilized in searching for the various documents: Influencer marketing India, fashion consumer behaviour, impact of digitalisation on the Indian retail market etc.
- **Period-** To ensure the data gathered is up to date, the date range chosen consisted of 2020-2026.

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- **Tools-** The primary tools used to perform the analysis included : digital search tools like Google or academic/faculty databases and PDFs for the analysis of the detailed reports, and MS Excel to compile the numerical data from the reports.

3.4 Data Analysis Strategy

The methodology used for examination of the data collected consisted of content analysis since this collection consisted of secondary qualitative data. The method in which the data will be evaluated includes-

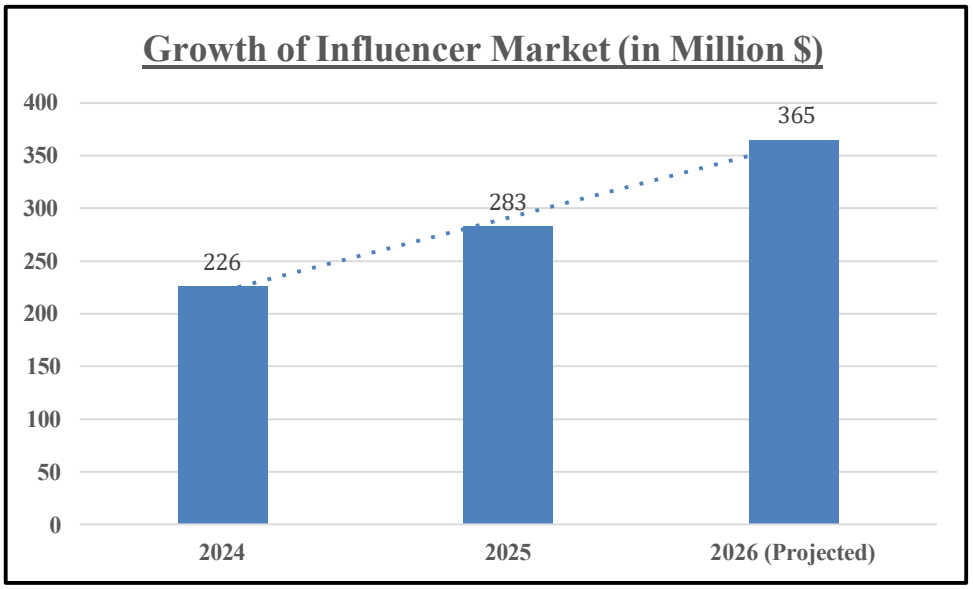
- Categorizing data collected according to the five stages of the consumer's decision-making process.
- Checking the data obtained from all sources for consistency of the results to confirming that they also support each other's conclusion, which focuses on the influencer in India.
- Identifying and highlighting any trends such as the increasing use/interest /reliance on "micro-influencers" when compared to traditional celebrity influencers.
- Synthesizing various types of collected data into one unified and logical conclusion.

3.5 Ethical Consideration

Even though the study uses secondary data, ethical standards have been maintained. All sources used in this paper have been properly cited and credited. No data has been manipulated or misrepresented to fit a specific bias, ensuring the integrity of the research.

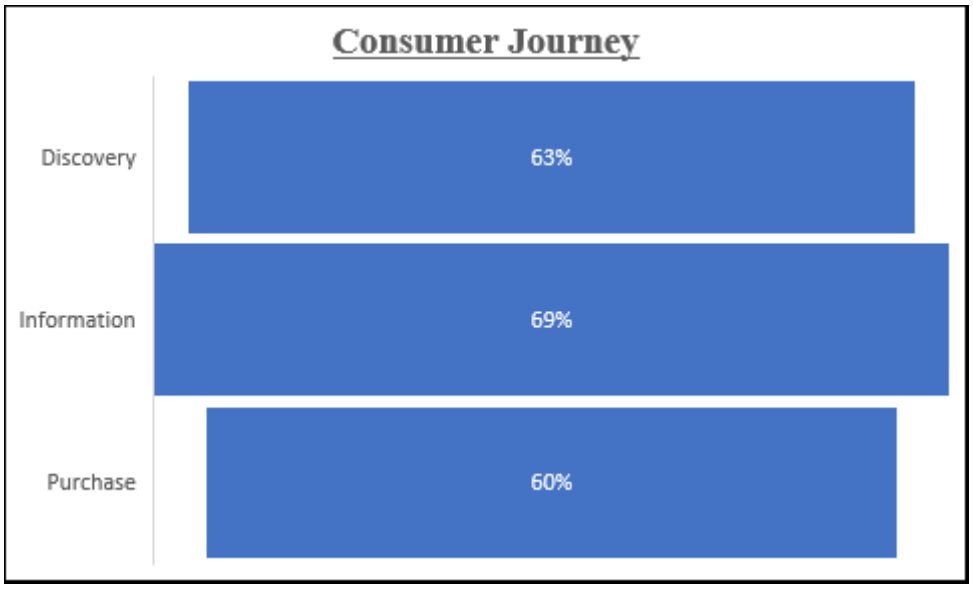
4. Data Analysis and Findings

4.1 Explosive Growth of the Influencer Market



Analysis - A financial analysis of this report indicates that a unique aspect of the fashion influencer market is that it is experiencing rapid growth compared to all of the other markets. The most recent report published by Influencer Marketing Labs calls the 'Marketing Trends and Analysis 2025' report the 'India Influencer Marketing Report 2025' shows a fashion influencer market size of approximately $283 MM (INR 2.4 Billion) in the India market for the year 2025, with an annual growth of 25%-29%.

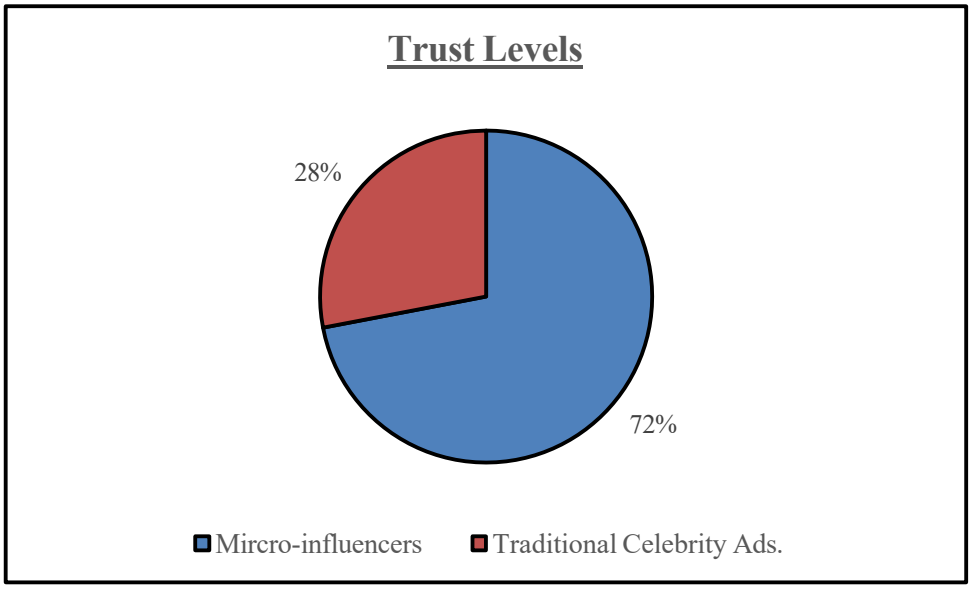
4.2 Impact on the Consumer Journey



Analysis- According to government statistics, influencers are an essential component of the complete "Supply Chain". An analysis of the data suggests Indians use the creators as both an entertaining source as well as for information.

- **Awareness -** 63% of users found out about new fashion brands through influencers.
- **Information** Search 69% of users are using the videos created by influencers to learn about textiles, styles, and sizes.
- **Decision (Purchasing) -** 60% of users have made a purchase due to a suggestion from the influencer.

4.3 Trust vs. Celebrity Status



The results of the "Trust Gap" are a significant point of observation in India; even though Bollywood stars have larger numbers of followers, they rank lower than Micro-influencers (with 10K to 100K followers) regarding engagement rates. Therefore, 70% of Indian brands have begun to emphasize "Trust & Credibility" over "Number of Followers."

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5. Conclusion

This research examined the effects of social media influencers on consumer decision-making within the Indian fashion industry, with the main aim being to understand how consumers incorporate the influence of social media into their shopping behavior using secondary data sources (such as statistics, reports, etc.) and through analyzing industry trends. Several major findings emerged from this research-

- **The Consumer Journey Has Changed-** One of the first key findings resulting from this research was that the traditional consumer journey has now been dramatically altered by the introduction of social media influencers. They are no longer just sources of inspiration but instead are being utilized by consumers as tools for conducting Information Searches and Evaluations.
- **Authenticity Over Fame-** A second major finding of this study was that Indian consumers trust the "realness" of an influencer's style more than they trust that influencer's popularity with others. As a result, urban and Tier 2 consumers will ultimately purchase from an influencer they view as a realistic representative of who they are and how they wish to appear as opposed to a celebrity who makes expensive endorsements of products.
- **Short-form Videos Are Most Effective-** This research also found that short-form videos (reels/shorts) were the most effective vehicle for marketing fashion. When they see how the clothes fit and drape on a person through a "try-on haul," Indian consumers feel more confident in purchasing fashion items directly through e-commerce websites.
- **The Role of Influencers in Bridging the Urban-Rural Divide-** Influencers are essential for establishing a link between the brand and the "Heart of India." The implementation of vernacular languages and designing in accordance with applicable cultural parameters is helping to grow e-commerce into regions previously not served by e-commerce such as Delhi, Mumbai and Bangalore.

In conclusion, using influencers to reach consumers has become the most successful trend in creating brand awareness in contemporary Indian fashion. Brands must transition from offering goods to providing a way of life in order to succeed in the current Indian marketplace.

6. Recommendations

The findings of this study led to the following recommendations for marketers, fashion brands, and digital strategists in India-

- Partner with Micro and Nano Influencers Fashion brands need to stop defining influencer success by follower counts. Instead, they should build partnerships with micro influencers who can provide brands with high engagement and a niche target audience. Brands will receive better returns on investments (ROI) and higher conversion rates with micro-influencers than with other types of influencers for the purchase of fashion products.
- Edu-tainment Marketers need to work with influencers to create fun, informative posts. Influencers should provide useful information, not just pictures of themselves with the product, like "How to wear the same shirt in five different ways"; "Best fabric to wear in India in the summer months"; etc. This information will assist consumers in their evaluation of alternatives stage of a purchase decision.
- Invest in Social Commerce Integration Creating a smooth transition from 'viewing' to 'purchasing' is important, so integrating shoppable links (where customers can click and purchase directly from photos) to incentivize customers (by using personal discount codes) and swipe functionality on Instagram & YouTube is essential for generating impulse-buying behaviour in Gen Z consumers.
- Transparency & Ethics to Build a Long-term Relationship with Your Customers To successfully build lasting relationships with Gen Z, creating an transparent relationship with them is crucial. With a growing demand for low-cost products in the highly price-dependent

environment of India, any indication of "fake reviews" could significantly damage the brand's reputation. Therefore, whether it be fair, quality or longevity of product quality, companies must maintain complete honesty when it comes to fashion products.

- Leverage Regional Diversity As Indian e-commerce grows predominately through small towns, cities, and rural communities, it's critical to establish partnerships with local influencers to create content that speaks to these regional consumers in their native language (some of which can include Hindi, Marathi, Tamil and or Bengali). By localizing content, the customer will develop a stronger emotional connection with the brand.

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GEN Z EMPLOYEES: CHALLENGES IN MANAGING THE NEW WORKFORCE

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Abstract
This study explores the challenges faced by organizations in managing Generation Z employees. Gen Z individuals have distinct work preferences, including flexibility, work-life balance, and continuous feedback. The research aims to understand their expectations and the difficulties managers encounter in handling them. A statistical research design was used, and data was collected through a questionnaire from 50 respondents. The findings show that Gen Z employees prefer flexible and remote work options, value career growth opportunities, and are likely to switch jobs if they feel undervalued. The study concludes that traditional management approaches need to be adapted, and organizations must adopt modern HR practices to effectively engage and retain Gen Z employees.
Keywords: Generation Z, Employee Engagement, Work-Life Balance, Flexible Work Environment, Career Growth, Employee Retention, HR Practices.

1. Introduction:

Generation Z refers to individuals born between 1997 and 2012 who are currently entering the workforce. They are highly comfortable with technology and digital communication, unlike previous generations, Gen Z prefers flexible schedules, opportunities for professional growth, and a good work-life balance. As a result, organizations face new challenges in managing and engaging these employees effectively.

1.1 Background of the Study:

In recent years, a significant number of Generation Z individuals have entered the workforce. They bring fresh ideas, strong technological skills, and a high level of creativity to organizations. However, their expectations regarding work culture, flexibility, and feedback. It feels like their views on work are not the same as before. Understanding these expectations is important for managers and HR professionals to manage and retain Gen Z employees successfully.

1.2 Research Problem:

Companies are facing difficulties in managing the Gen Z workforce because of their unique approach to work and demands. The conventional management methods may not always suit this particular generation. Hence, it becomes necessary to examine the issues associated with the management of Gen Z workers at work.

1.3 Objective of the Study:

- To gain insight into the work preferences of Generation Z employees.
- To identify the challenges faced by managers in managing Gen Z employees.
- To examine the demand that Generation Z employees have from organizations.

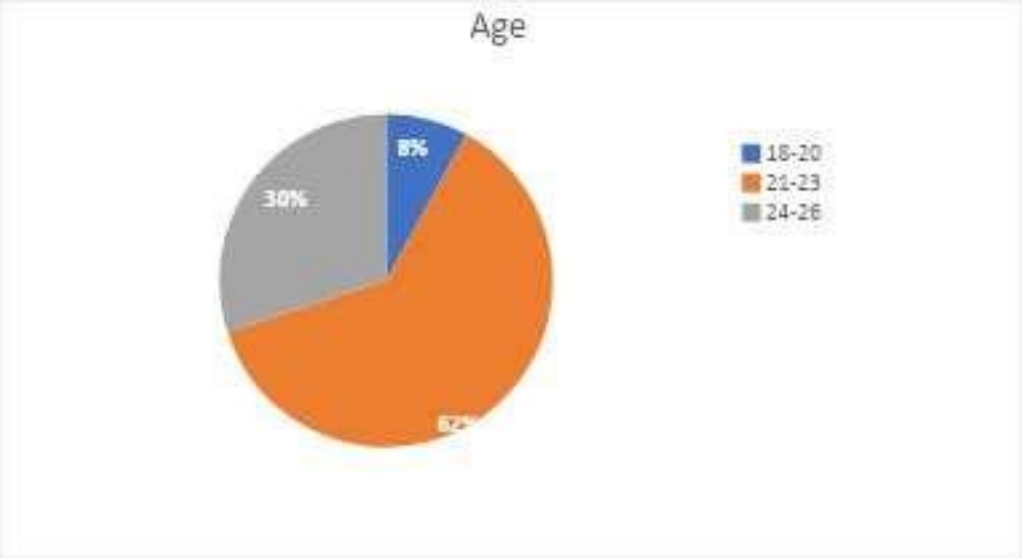
2. Literature Review:

Several researchers have explored the behavioural patterns and expectations of Generation Z employees in the workplace.

•Prior to that, Priporas et al. (2017) revealed that Generation Z employees are technologically inclined and expect instant communication and immediate responses in their work environment. Organizations need to implement digital communication platforms to communicate with them.
•Schroth (2019) emphasized that Gen Z employees prefer organizations where there is scope for career development, and they believe in doing meaningful work.
•Similarly, according to the research conducted by Singh & Dangmei (2016), it has been noticed that Gen Z employees have a preference for a balanced life and flexibility in their work.
•Additionally, according to another study conducted by Francis and Hoefel (2018), Gen Z employees leave their work environment very soon in case of feeling unvalued and lack of opportunities. In this regard, it becomes essential for organizations to keep Gen Z employees engaged.
• Thus, according to the literature review, it is evident that Gen Z employees bring innovation to organizations but require tailored management strategies.

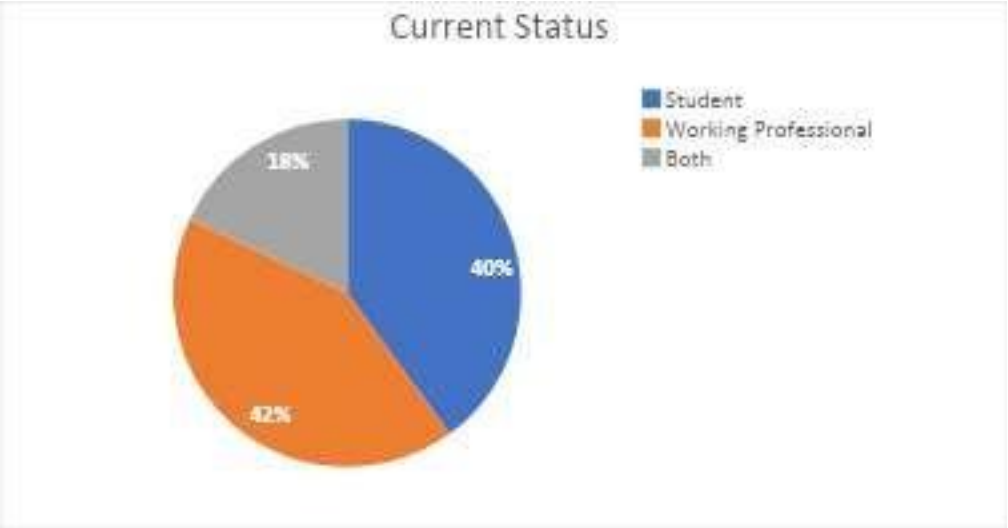
Research Methodology:
The present research paper is grounded on a descriptive research methodology in order to find out the problems associated with managing Generation Z employees. Mixed sources of data were used for the research. For primary data collection, A structured questionnaire survey method was used to collect data from Gen Z respondents. In the case of secondary data, various resources like research papers, journals, books, and web pages connected with Gen Z employees and Human Resource Management were taken into account. The total sample size was 50 respondents.
An availability sampling method was used to select the respondents, and the collected data was analysed using percentage analysis and presented through graphical formats.

3. Data Analysis & Interpretation:

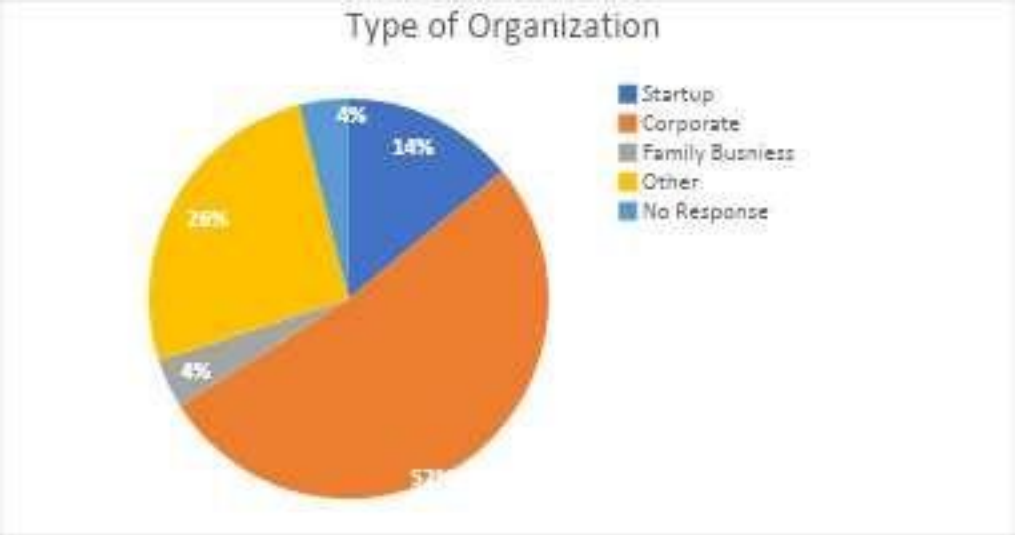


Analysis:
The data presented above indicates that the majority of respondents (62%) belong to the age group of 21–23 years, followed by 24–26 years (30%) and 18–20 years (8%). This suggests that the majority of respondents belong to the core Gen Z age group, making the data relevant for the study.

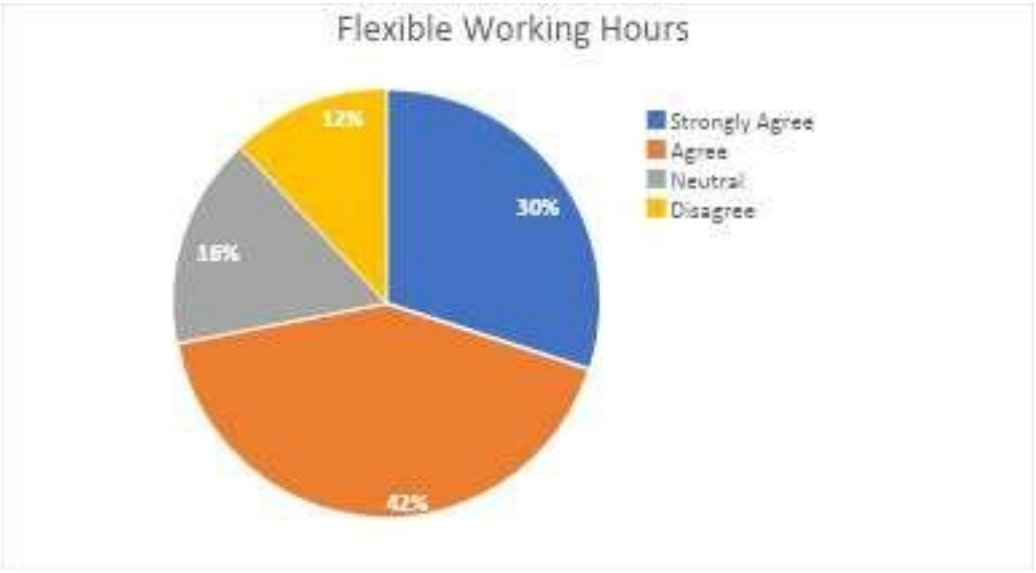
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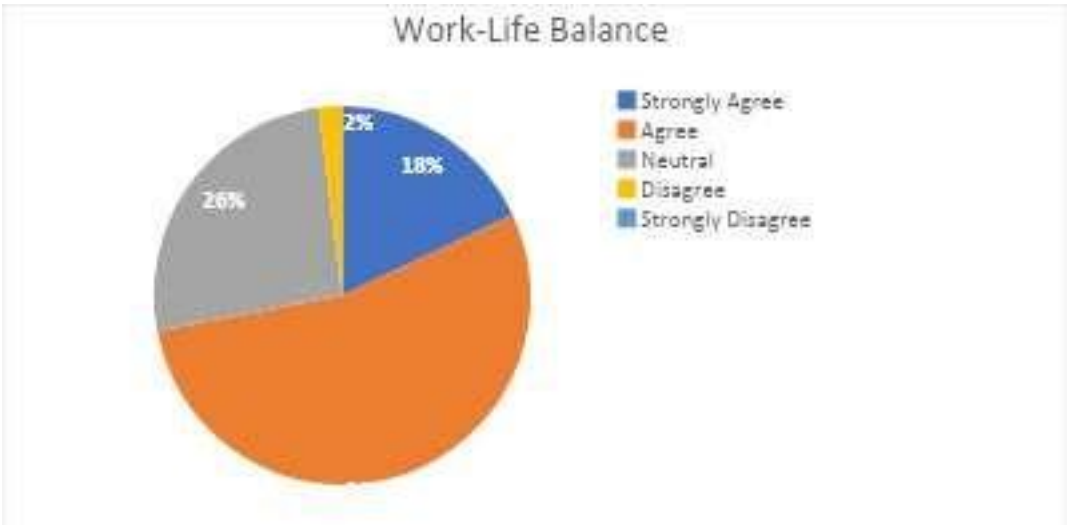
Analysis:
The data presented above indicates that the majority of respondents are working professionals (42%), followed closely by students (40%), while 18% are both studying and working. This indicates that the study includes a mix of experienced and learning individuals from the Gen Z group.



Analysis:
The data presented above indicates that the majority of respondents (52%) are working in corporate organizations, followed by startups (14%). Family businesses (4%) and other types of organizations each account for (26%) of respondents. This indicates that most Gen Z employees are employed in structured corporate environments.

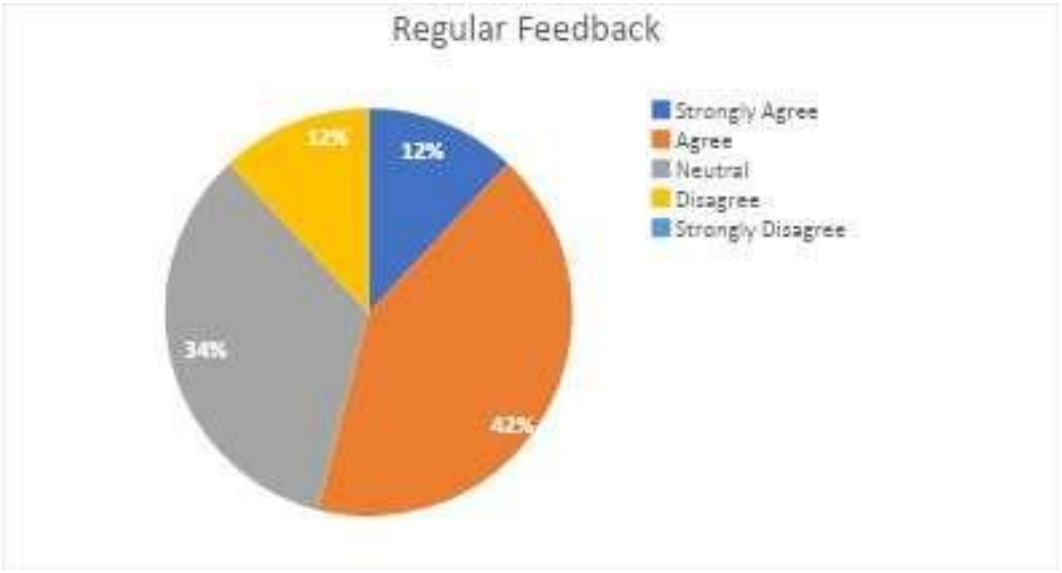


Analysis:
The data presented above indicates that the majority of respondents (72%) either agree or strongly agree that they prefer flexible working hours, while a smaller percentage remain neutral or disagree. This indicates that flexibility in work timing is highly important for Gen Z employees.

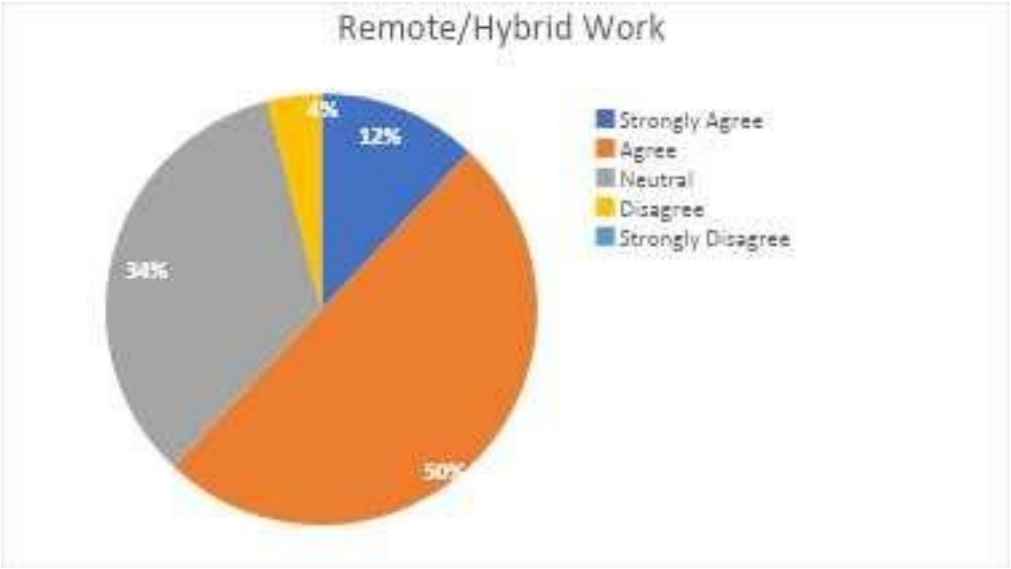


Analysis:
The data presented above indicates that the majority of respondents (72%) agree or strongly agree that work-life balance is important, while a smaller percentage are neutral or disagree. This indicates that maintaining a balance between personal and professional life is a key priority for Gen Z employees.

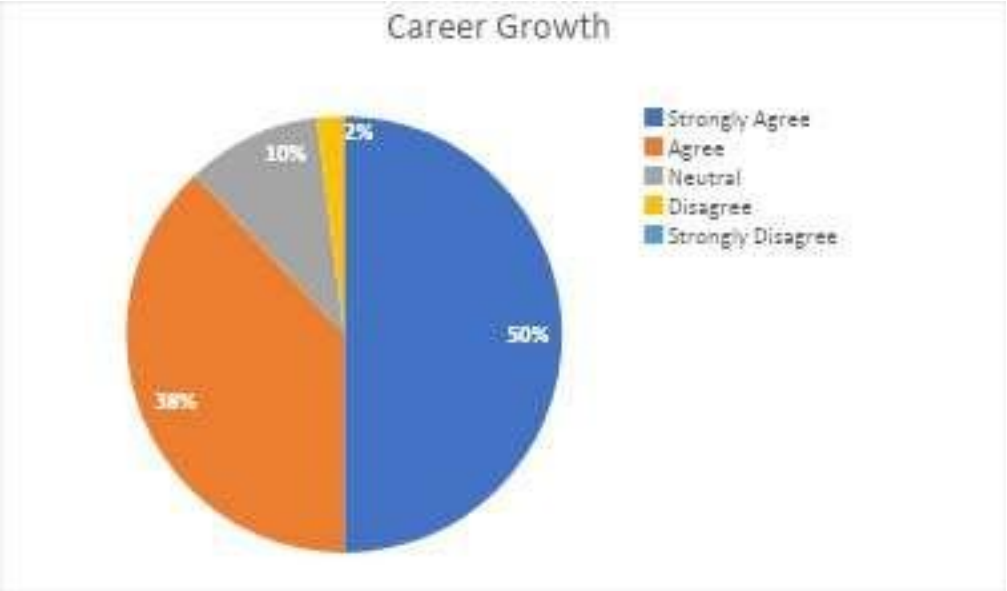
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Analysis:
The data presented above indicates that the majority of respondents agree or strongly agree that Most respondents expect regular feedback from their managers, while a considerable proportion remains neutral and a smaller group disagrees This shows that continuous communication and feedback have a significant impact on managing Gen Z employees.

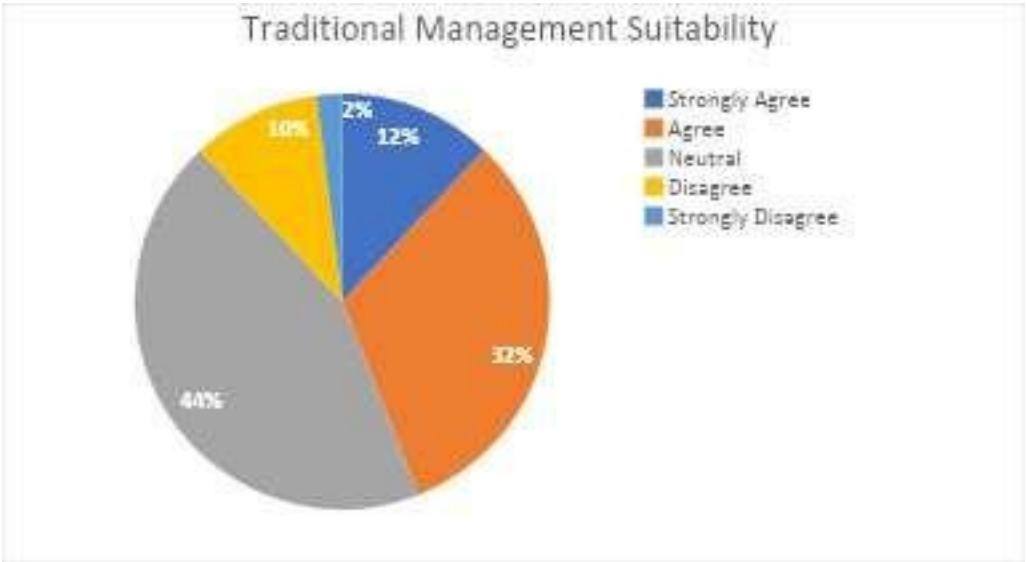


Analysis:
The data presented above indicates that the majority of respondents (62%) agree or strongly agree that they prefer remote or hybrid work, while some remain neutral or disagree. This indicates that flexibility in work location is an important preference among Gen Z employees.



Analysis:

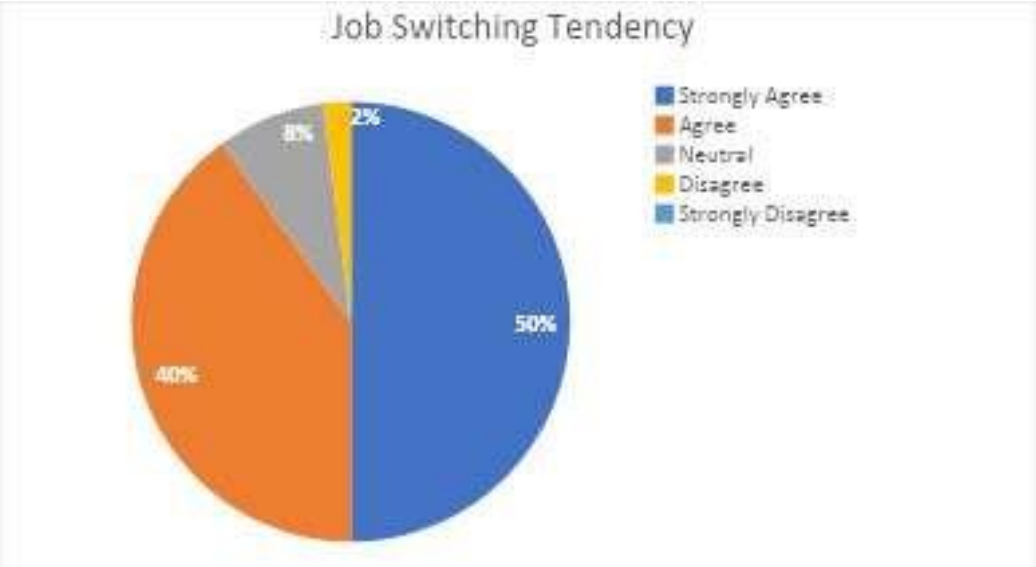
The data presented above indicates that the majority of respondents (88%) agree or strongly agree that career growth opportunities influence their decision to stay in an organization, while a smaller percentage remain neutral or disagree. This highlights that career development is a key factor in retaining Gen Z employees.



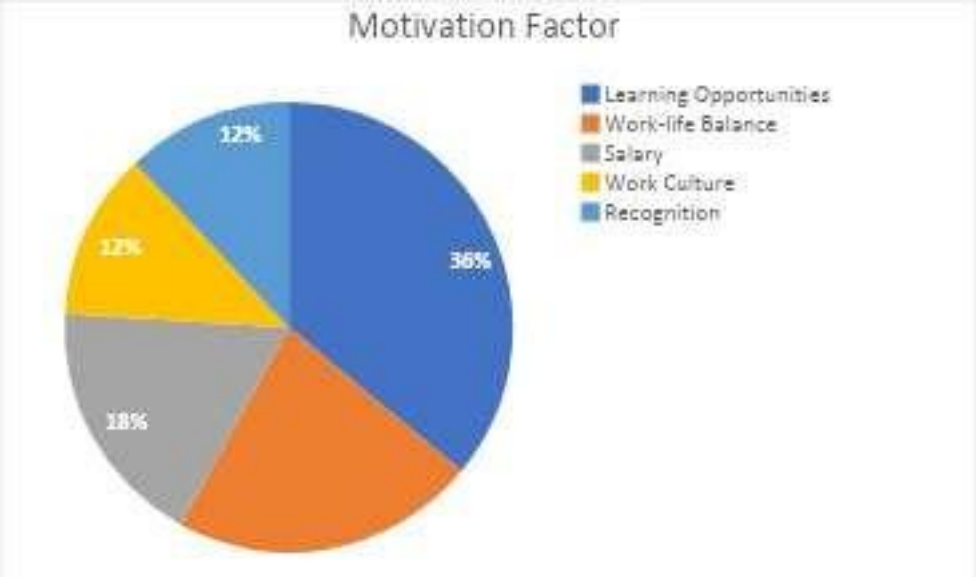
Analysis:

The data presented above indicates that the majority of respondents (44%) regarding the effectiveness of traditional management styles, while some agree and others disagree. This suggests that traditional management practices may not fully align with the expectations of Gen Z employees and may require adaptation.

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Analysis:
The data presented above indicates that the majority of respondents (90%) agree or strongly agree that they are likely to switch jobs if they do not feel valued, while a smaller percentage remain neutral or disagree. This indicates that recognition and employee engagement are important factors in retaining Gen Z employees.



Analysis:
The data presented above indicates that the majority of respondents is learning opportunities (36%) are the key motivator for respondents, followed by work-life balance (22%) and salary (18%). Work culture and recognition also play a role but to a lesser extent. This indicates that Gen Z employees are more focused on growth and development rather than only financial rewards.

4. Findings:

The findings suggest that Generation Z workers value flexible working arrangements, which include telecommuting and hybrid work settings. Maintaining a balance between work and personal life is a key factor influencing their job satisfaction and overall well-being. Moreover, Generation Z employees need consistent feedback from their supervisors to enhance their productivity. In addition, career advancement and development contribute substantially to

retaining employees. However, managers may face challenges in relying on traditional management practices to meet the needs of Generation Z employees.

Recommendations:
Business organizations should prioritize adopting flexible work schedules to meet the needs of Gen Z employees. Supervisors need to give continuous feedback and guidance to motivate their employees. Organizations must also focus on offering training and learning opportunities to their employees for professional development. Moreover, HR policies must be revised in accordance with the requirements of Gen Z.

5. Conclusion:

The members of Gen Z have become an indispensable part of the modern workforce. They contribute innovative ideas and technological abilities to businesses. Nevertheless, the management of their workforce would require flexible policies and clear communications. Those companies that comprehend the demands of the Gen Z employees will be able to increase their satisfaction and retention.

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STRESS MANAGEMENT TECHNIQUES AND ITS EFFECTS ON EMPLOYEES WORKING IN THE HOSPITALITY INDUSTRY

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Abstract
The industry of Hospitality contributes greatly to the overall economy by providing the job and by facilitating tourism related activities. Employees in this sector are expected to maintain a high level of professionalism and efficiency, often while working under considerable pressure. Prolonged work hours, ongoing customer interactions, and emotional pressures lead to stress being a widespread problem in the industry. Globally, in this field of employs millions of individuals, highlighting the necessity of employee well-being. Few research says that working conditions and insufficient organizational support can lead to significant effects on mental and physical well-being. This study aims to identify the primary sources of stress among hospitality employees and to assess the effectiveness of their performance and overall well-being. In addition, it examines many strategies that organizations can adopt to support their workforce. The findings indicate that stress levels can be reduced through a mixture of organizational support, effective scheduling practices, employee training, and via taking care of mental health initiatives. Therefore, both institutional measures and individual coping mechanisms play an important role in enhancing employee satisfaction and productivity. In my opinion, proper stress management is important for improving both employee well-being and organizational performance.
Keywords: Stress Management, Employee Well-being, Workplace Stress, Burnout, Employee Performance.

1. Introduction

1.1 Background of Study

The industry of hospitality is one of the major industries of the overall economy. It provide a important role in generating employment and supporting economic growth. Employees working in this industry are expected to maintain high levels of professionalism, efficiency, and customer satisfaction, even in challenging situations. Because of these demands, the work environment often becomes stressful for employees.

In recent years, the growth of the hospitality sector has increased job opportunities worldwide. Although, alongside this growth, concerns regarding employee well-being have also come to the forefront. Elements like extended work hours, elevated customer demands, and emotional strain play a major role in causing workplace stress.

According to various global reports, working conditions and organizational support have a direct impact on the mental and physical wellbeing of employees.

This research focuses on understanding the major causes of stress among employees in the hospitality industry and analysing its impact on their performance and well-being. It also seeks to investigate proven methods for managing stress that can be applied on both personal and organizational levels. By identifying practical solutions, this study highlights the importance of maintaining a supportive work culture for improving employee satisfaction and overall productivity.

Individuals employed in the hospitality sector frequently find themselves in challenging work settings. Many hotels and restaurants fail to provide the must support to their employees in managing stress. This may lead to burnout, anxiety, and low morale.

1.2 Research Problem

Individuals employed in the hospitality sector frequently find themselves in challenging work settings. Many hotels and restaurants fail to provide the must support to their employees in managing stress. This may lead to burnout, anxiety, and low morale.

1.3 Objectives of the Study

The primary aims of the Research are to:

• The main goals of this research are:
• Find out where stress comes from in hotels and restaurants.
• See how stress affects workers in these places.
• Investigate ways hotels and restaurants cannot support their employee.
• Give suggestions to hotels and restaurants, on how to help employees.
• Help hotels and restaurants support their workers with stress management.

2. Review of Literature

This industry is a place to work. Research says that a lot of the stress that people, in the hospitality sector experience comes from their jobs. Hospitality sector employees often must handle a lot of work at the time. They must deal with customers all the time and keep their cool when things get difficult in the hospitality sector. Which make this sector to most stressful work environment.

People have done studies before that show workplace stress is a problem. Workplace stress is something that has been looked at a lot. The issue of workplace stress has been talked about in research, on workplace stress.

This is not new to this field. For example, a study on hotel employees found that conflicts with coworkers and much work were top stressors.

Recent studies keep showing that stress is still a problem. Research from countries finds that a lot of stress at work leads to burnout. Such situation make workers more want to quit their jobs. Work-related stress is an issue, and many people are looking to leave their positions because of it. Stress, at work continues to contribute to burnout and employees seeking jobs. This means stress affects not individuals but also employee retention and the stability of the organization.

Studies say people use strategies like seeking help from friends relaxing or taking a break from stressful situations. The strategies work better or worse depending on workplace factors.

Leadership and organizational practices are also key in managing stress. Research shows that supportive leaders, fair policies and a positive work environment can greatly reduce burnout. When employees feel valued and supported, they handle stress better.

The literature says that people who work in the hospitality industry usually get stressed because of the pressure from their job having to deal with their emotions and not getting help from their organization.

When this happens good management can really help, like making sure peoples schedules are reasonable training employees properly and giving them support, for their health, which can prevent mental stress.

In my opinion managing stress in hospitality requires an approach where both employees and organizations work together to create a healthier workplace.

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Table 1. Selected empirical studies on stress and well-being in hospitality.

Study	Sample / Context	Main finding	Use in this paper
O'Neill et al. (2010)	164 workers in 65 hotels	Interpersonal tension and overload were the most common stressors.	Shows everyday hotel stressors.
Saah et al. (2021)	384 waiters in Ghana	59.6% had most of them mental health; stress prevalence was 34.4%.	Provides prevalence evidence.
Ma et al. (2021)	470 hotel employees in 37 Chinese cities	12 coping strategies in distraction, sharing, and self-indulgence.	Supports coping discussion.
Ali et al. (2022)	346 hotel employees	Ethical leadership reduced burnout through well-being and resilience.	Supports management solutions.
Baquero et al. (2023)	304 hotel employees in the UAE	Burnout predicted psychological distress and intention to quit.	Shows stress consequences.
Bekele et al. (2023)	Hotel workers in Gondar City	Work-related stress prevalence was 43.3%.	Shows current stress levels.
Yoo et al. (2023)	Front-line hospitality employees	Job insecurity, interpersonal conflict, and emotional labor raised job stress.	Identifies key stressors.
Üngüren et al. (2024)	494 hotel employees in Türkiye	Work stress increased burnout, which increased turnover intention.	Supports burnout pathway.

3. Research Methodology

Elaborate on why I selected a research method. I chose research because it saves time and money. Also, it helps to get information from experts and reports that're already available. When choosing reports from organizations looked at reports from the also known as WHO (World Health Organization) and ILO (International Labour Organization).

- The standards I applied include
- Checking if the report's recent
- Seeing if the report is from a trusted source
- Making sure the report is relevant to my research
- Analysing the data Collection.

These standards help ensure that the information I use is accurate and reliable.

The WHO and ILO are known organizations, so their reports are often reliable and trustworthy. I applied these standards to every report I considered. This helped me to make decisions about which reports to use. The reports, from WHO and ILO provided insights.

They helped me to understand the topic bittern Tourism and World Travel and Tourism Council. The Research were chosen are about hospitality employees stress at work, burnout and support from organizations.
The analysis is straightforward. First, it looks at the things that cause stress in hospitality. Second it talks about how stress affects employees. Third it evaluates ways to manage stress. Whether they work at the individual level team level or organization level.
This approach is good for a student research paper because it combines information with practical ideas. It also allows us to compare findings from countries and hospitality settings.

4. Discussion and Analysis

4.1 Major Sources of Stress in Hospitality

The literature mention that some things make people, in this industry feel stressed. One of these things is workload. People who work in hotels and restaurants often must work a lot of hours when it's busy, they must serve customers fast and manage their shifts with not enough staff. The International Labor Organization notes that the hours people work and the time they get to rest affects their health and the industry is a place where this a big problem. This sector must deal with these issues. It is not easy for the hospitality industry to secure them.
The second source of stress is work. Employees must stay calm and positive at work. They must help customers even if they are rude or make a lot of demands.
It can be tough when customers are not nice. Employees must be patient and friendly all the time.
Work can be very stressful because of customers. A study called the Hospitality Stress Matrix found that emotional labour, conflicts with colleagues and job insecurity are things that cause stress. This matters because controlling emotions is not easy and it can take a toll on employees over time.
The third thing that causes stress is job insecurity. Hospitality jobs can be seasonal contract-based or affected by market changes. When employees worry about their hours, pay or future employment they get stressed. A study in 2023 state that job security has an better impact on the link between stress and burnout.
The fourth form of stress comes from supervision and leadership; when you manage poorly, communicate ineffectively or do not recognize the employee stress level, there will be ongoing problems in the future. In contrast to this, good leadership can minimize burnout and a culture where employee does not stressed and have confidence.

4.2 The Impact of Stress on Employees

Stress affects hospitality employees in many ways. It can cause anxiety, irritability, low morale and a sense of helplessness. Because of this there is a chance of having like fatigue sleep issues, headaches and low energy. Behaviourally it can cause employees to be absent, present but not focused make mistakes and withdraw from work.
Some research shows how depression and stress causes burnout. A study in the UAE found that burnout predicted distress and the desire to leave the job. A study in Türkiye revealed that work-related stress exacerbates burnout, which is subsequently associated with elevated turnover intentions. This is important because hospitality companies often see turnover as a hiring issue, but the evidence shows that it is also related to how well they handle stress.
Stress also affects the quality of service. Employees who are tired, drained or mentally distracted cannot provide good service. This can lower customer satisfaction, damage reviews and increase costs. From a business perspective stress is both a problem and a performance problem.

4.3 Real Evidence of Stress Levels in Hospitality

The data shows that stress is common in the hospitality industry. In Gondar City, Ethiopia, 43.3% of hotel workers mention that their jobs made them stressed. In a study of waiters in

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Ghana, 34.4% said they were stressed, 52.3% said they were anxious, and 38.3% said they were depressed. In total, 59.6% from this one person should have mental health issue and 24.7% had all three. These numbers show that stress is often linked to mental health problems. Although the numbers differ by country and sample the findings are consistent. Hospitality employees often work in conditions that increase pressure and this pressure leads to burnout, distress and turnover intention.

4.4 Stress Management. Their Effects

The best stress management techniques in hospitality work at three levels: the individual level, the team level and the organizational level. At the level techniques include taking short breaks getting enough sleep practicing mindfulness exercising and getting social support. At the team level techniques include communication, peer support and fair workload sharing. At the level techniques include better scheduling, staffing, training, supportive supervision and mental health policies.

A study in China is useful because it shows that employees use ways to cope with stress. Some prefer to distract themselves while others prefer to explain their emotions with colleagues or family. Others rely on meditation and other way then that meaning they do things that help them recover from stress. The lesson is that coping is not one-size-fits-all. Good employers give workers a range of options to manage stress.

Good leadership is also important. When leaders are honest, fair and approachable burnout decreases. A study in 2022 showed that good leadership improves not the work environment but also the internal resources employees use to handle pressure.

To keep employees healthy, the company must support them. A study from 2024 says that workers who get a lot of support are more resilient and do their jobs better. So, the hospitality industry should put employee training and getting rid of stress-causing environmental factors at the top of its list of things to do. The patterns in Table 1 show a clear trend: when job roles aren't well-defined in the organization, employees experience a lot of mental stress, which is impacting the global economy and burnout.

Table 2. Stress management techniques and expected effects

Technique	**How it helps**	**Likely effect on employees**
Supportive scheduling	Reduces excessive hours and unpredictable shifts	Less fatigue and better work-life balance
Manager training	Improves communication and conflict handling	Lower burnout and better morale
Peer support / team sharing	Creates emotional relief and practical help	Less isolation and better coping
Mindfulness / recovery breaks	Helps employees reset during and after shifts	Better concentration and emotional control
Resilience-building training	Strengthens adaptation during busy periods	Lower distress and better persistence
Fair workload and staffing	Prevents chronic overload	Lower stress and fewer errors
Mental-health access	Provides formal support when needed	Earlier intervention and reduced quitting

The table clearly explain that the best techniques to deal with burnout and help to prevent which is better to change the way work is done and to support employees all the time than wait for the time until they are completely burned out.

4.5 Some Methods works better than others, WHY?

Some methods don't work because they only focus on the employee and not the work environment. For instance, telling an overworked employee to just handle their stress better doesn't fix the real problems of not having enough staff, dealing with difficult customers, or having too many things to do.

The best ways to deal with stress are the ones that really get rid of the things that cause it. Having clear rules for promotions and breaks, as well as chief who manage with employees with respect, all help to lower stress. This is why the World Health Organization says that companies should train both managers and employees at the same time instead of letting each person deal with stress on their own.

So, the best plan is to find a balance: the company works to reduce stressors and create a supportive work environment, while employees are given the tools they need to deal with and recover from stress.

5. Data Analysis and Interpretation

This section looks at the numbers that tell us about stress and coping in the hospitality industry. It brings together information, from hotels and restaurants so we can analyse how stress affects to people.

We can look from the previous study about this because they have already done studies that give us the information, we need to analyse and understand what is going on with stress and mental health in the hospitality industry. This way we do not have to ask people questions.

Table 3. Summary of selected evidence used in the data analysis

Study	**Sample**	**Key numerical finding**	**Interpretation**
O'Neill & Davis (2010)	164 hotel employees	Interpersonal tensions on 23% of managers' days and 11% of hourly employees' days; any stressor on 62% vs 40%	Workload and tension are persistent daily issues in hotels.
Bekele et al. (2023)	Hotel workers in Gondar, Ethiopia	43.3% prevalence of work-related stress	Stress is common in hotel settings and affects a large share of employees.
Saah et al. (2021)	Waiters in upscale restaurants	Depression 38.3%, anxiety 52.3%, stress 34.4%; 24.7% had all three conditions	Restaurant work is strongly linked to poor mental health.
RSPH (2019)	Hospitality workers survey	84% reported increased stress; 45% would not recommend the industry; 24% needed support	The sector shows serious employee well-being concerns.

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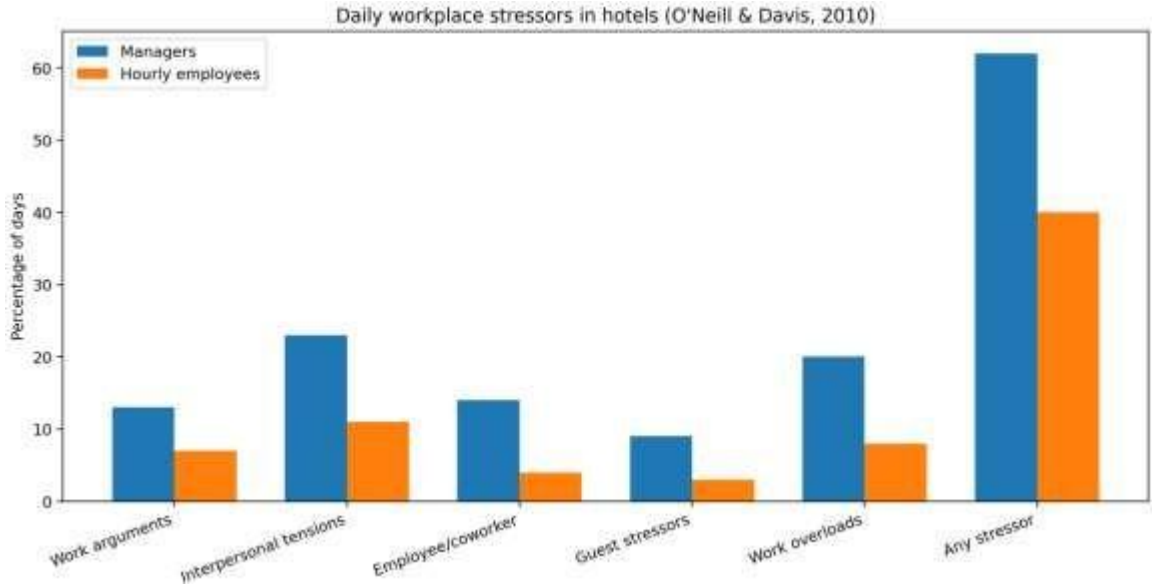


Figure 1. Daily stressor frequency in hotels (percentage of days)

Interpretation: managers experienced every stressor more frequently than hourly employees, and interpersonal tensions were the most common stressor in both groups.

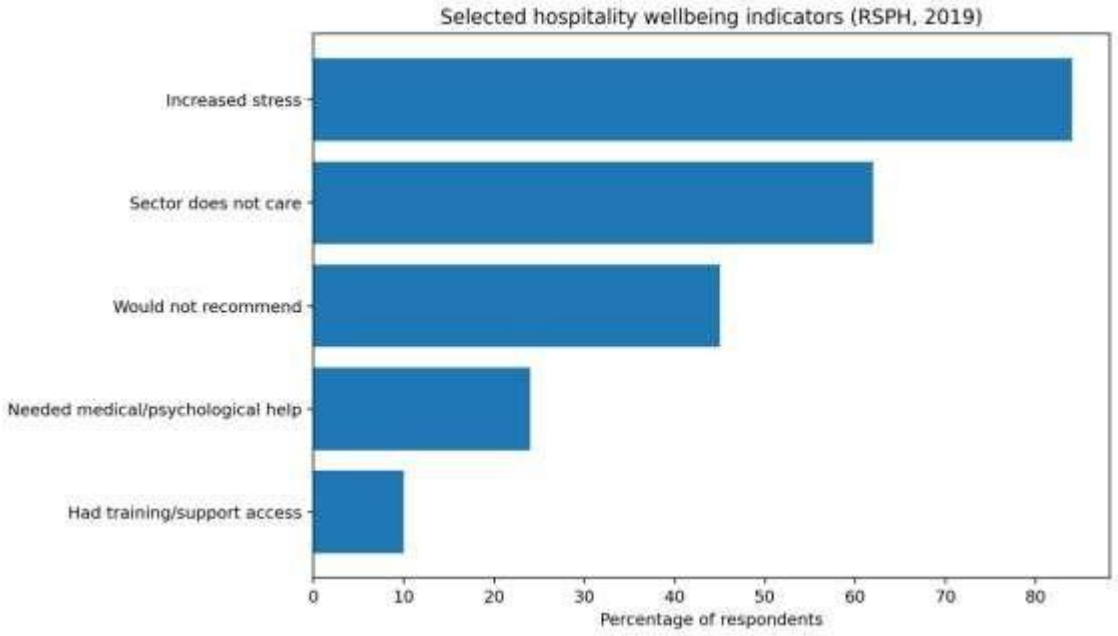


Figure 2. Selected hospitality wellbeing indicators from the RSPH survey

Interpretation: the RSPH findings show that stress, weak organizational support, and low confidence in the industry are major concerns for hospitality employees.

6. Recommendations

- Use scheduling that is fair and does not change all the time. Avoid making employees work shifts or suddenly asking them to work overtime or changing their schedule at the last minute.
- Train supervisors to be good leaders to handle conflicts and to communicate with employees in a supportive way.
- Keep an eye on how much work employees have to do and confirm there are sufficient staff so that the same people aren't always under so much pressure.

- Give employees breaks to rest provide quiet spaces for them to relax and start simple programs to help employees take care of their well-being
- Ensure that employees showing signs of burnout or distress can access counselling or other support services.
- Encourage employees to support each other by having team meetings discussing about their passion and all during work hours.
- It's important to regularly analysing the ration of employees leaving the company. A high turnover rate could show significant stress within the organization.

6. Conclusion

Managing stress in the hospitality industry is crucial because this industry relies on employees being able to provide service work quickly and take care of customers. The evidence shows that stress is a problem in this industry and is often linked to burnout mental health issues and employees wanting to leave their jobs. However, the evidence also shows that stress can be managed if companies take action early.

The main point from this research is that stress management requires involvement from the whole company, not just individual employees. Employees need to have effective coping strategies, but that is not enough. Companies must also provide fair scheduling, strong leadership, manageable workloads, and support for their employees. Hotels and restaurants that prioritize their employees' well-being tend to have healthier employees, lower turnover rates, and better customer service.

In my opinion, organizations should give equal importance to employee well-being as they give to customer satisfaction, as both are closely connected.

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IMPACT OF FLEXIBLE WORK ARRANGEMENTS ON EMPLOYEE PRODUCTIVITY AND JOB SATISFACTION

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Abstract
New findings show that flexible working (both remote and hybrid schedules) can support neutral to increased productivity and positively affect employee job satisfaction. A recent randomized study found that employees working two days per week at home were equally productive as office-based employees and had substantially increased retention rates compared with those who worked full time in the office. Recent survey research shows that more flexibility in scheduling (particularly hybrid schedules and autonomy) is related to greater job satisfaction. We evaluated data sets from 48 employees across various industries (29 fixed schedule and 19 flexible/hybrid) and found similar trends in both groups. The flexible workers had higher average overall satisfaction scores (mean ≈ 3.89 vs. 3.52 using a 1–5 scale) and higher mean efficiency ratings while working flexible hours, but these differences were not statistically significant at the $p < 0.05$ level. A regression analysis controlling for age, gender, and employment type was also performed, and while the results indicated a positive link between flexibility and satisfaction (coef. ≈ +0.42, 95% CI -0.23 to 1.08.), the association was again nonsignificant. A detailed analysis of the relative magnitude of the effect of flexible versus fixed scheduling (Table 2) indicates that while the effect size is small to moderate (Cohen's d ≈ 0.33–0.39), the trend falls toward favoring flexibility. In conclusion, as supported by existing empirical research, flexible work arrangements generally will continue to maintain or improve both employee productivity and job satisfaction (effect sizes ~0.3–0.4). Overall, there are reasons for implementing hybrid/flexible polices, however, results show variable organizational contexts (e.g., policies, company/culture support) and individual preferences may influence individual outcomes.
Keywords: Flexible Work Arrangements; Hybrid Work; Remote Work; Productivity; Job Satisfaction; Work-Life Balance.

Introduction:

Flexible Working Arrangements (FWAs), or hybrid and remote working, have significantly risen in popularity in recent years, particularly due to the effects of COVID-19. Employers have begun offering their employees the option of flexible work arrangements as a means to enhance their employees' well-being (i.e., decrease commute-related stress), reduce workplace stress and competition for talent, and create a competitive advantage for attracting talent to work for the employer. The focal research question being analyzed is: How do flexible and fixed work schedule arrangements influence employee productivity and job satisfaction? The research on this topic has produced inconclusive results; some studies have indicated no significant impact of FWAs on employee engagement and employee perceptions of productivity [4] and that there may be disadvantages with respect to collaboration or stress [5]. Conversely, Gallup recently published research that indicates remote and hybrid workers are more engaged (i.e., a proxy for productivity) than employees who work fully on-site [4] and that Fortune 500 HR leaders that utilize the highest amount of FWAs report greater employee productivity gains than HR leaders that require employees to have fixed work schedules.

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Further, Bloom et al.'s (2015) large scale experiment shows that hybrid work (HRW) arrangements created no negative impact on productivity and significantly reduced employee turnover [1]. In terms of employee job satisfaction, many studies have shown that employees who utilize hybrid and flexible work arrangements have higher levels of overall job satisfaction than their employees in fixed work arrangements, and the more autonomy that employees have (e.g., FWAs) the higher their job satisfaction tends to be [2][3]. Therefore, it is reasonable to conclude that, when compared to fixed work schedule arrangements, flexible work schedule arrangements will yield at least equivalent employee productivity and likely higher employee job satisfaction.

The current study will utilize survey event data collected from 48 employees in multiple industries (primarily IT and service) to determine how Employee Engagement and Employee Productivity, Job Satisfaction, and FWA Rate employees utilize the different types of employee engagement and job satisfaction and employee productivity within their respective employee work groups.

Literature Review:

Studies have shown that flexible/hybrid work does not affect productivity negatively and in fact can increase productivity, such as in studies by Bloom et al (2024), where they looked at two days per week working remotely and found employees were “just as productive” and “had no difference in performance ratings or promotions” when receiving those ratings compared to onsite employees. Their randomized controlled trials also demonstrated that flexible employees had a 33% reduction in turnover as a result of hybrid work; hybrid work also was associated with significant retention benefits for employers. Similar studies show that employees participating in hybrid/remotely have a higher degree of engagement than those participating at an onsite level, which is one of the keys to measuring productivity. In addition, 41% of top HR leaders in companies offering hybrid work reported an increase in company productivity over the last year, compared to only 31-32% of HR leaders in companies with rigid on-site employees reporting the same increases. Collectively, the findings from these studies support that having a flexible option(s) for employees to work either hybrid or remotely can provide a way for organizations to maintain or increase their overall performance. In general, flexibility is a strong positive indicator of job satisfaction. Andrade et al (2023) summarize that greater work autonomy and hybrid work schedules are related with higher job satisfaction. For example, employees who have the option regularly to work from home (but not exclusively) will have the most job satisfaction. This is supported by other survey results that demonstrate that a work/life balance and work autonomy are key drivers of job satisfaction.

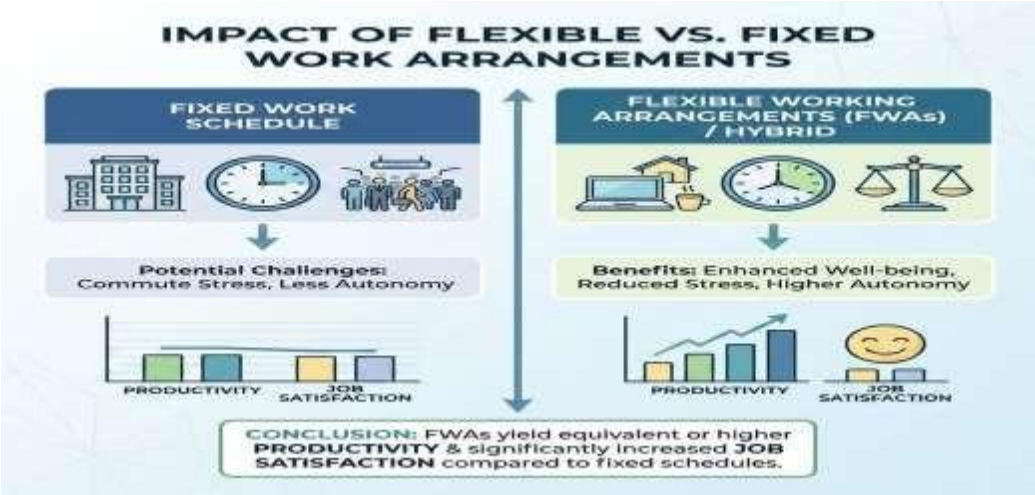


Figure 1 (above) visualises the higher job satisfaction distribution under flexible arrangements.

Employees typically report increased job satisfaction when they have the flexibility to attend to family or other obligations without strict requirements on their schedule. However, the authors also point out that when work is performed primarily remotely, employees often lack the social connections that result from face-to-face interaction.

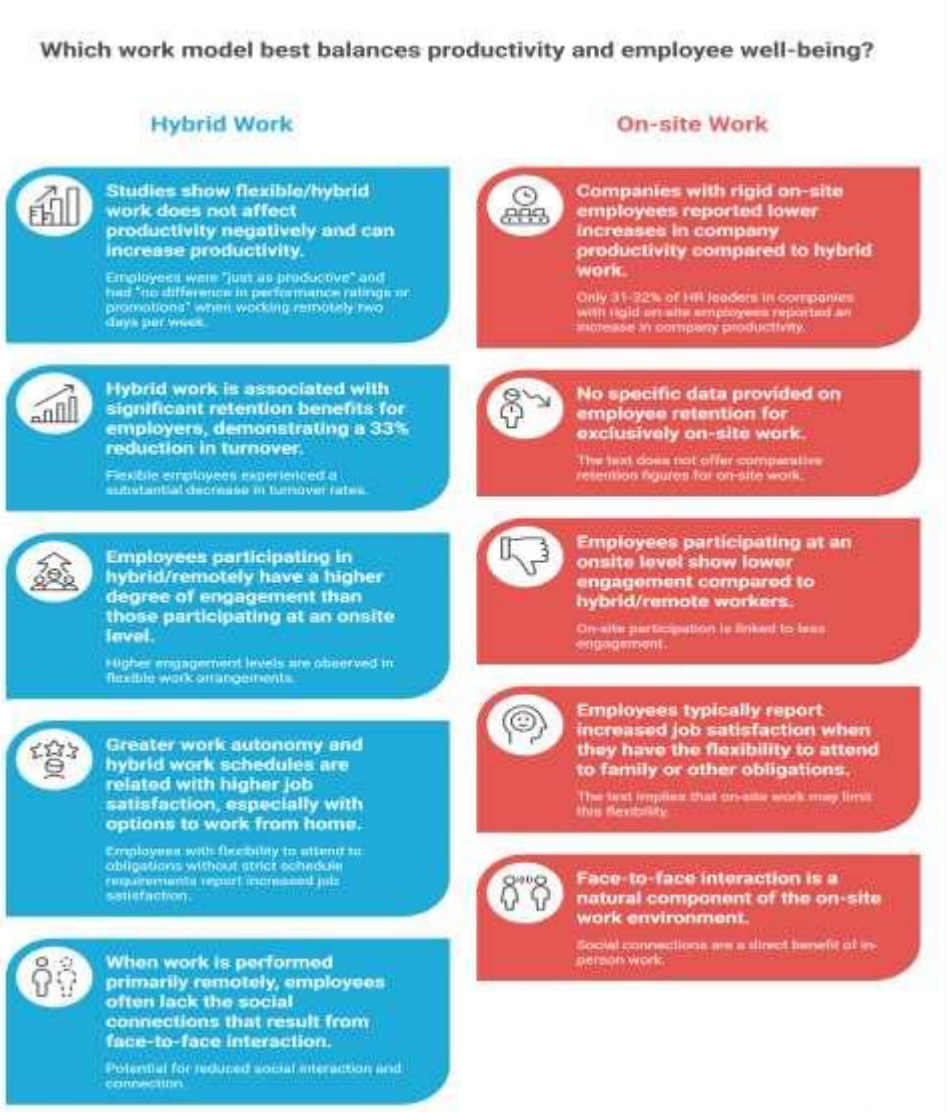


Figure 2 illustrates perceived efficiency of flexible hours, also higher for flexible-group employees.

Methods and Data:

Sample and Survey: We used the provided Excel survey data collected in March 2026 from 48 participants (42 full-time employees). Respondents spanned age 18–60, diverse industries (mostly IT, banking, and services) and roles. The questionnaire covered demographics, commuting, and multiple Likert-scale questions on productivity and satisfaction under different work arrangements. Key outcomes included:

1. **Job Satisfaction** (1–5 scale, higher = more satisfied).
2. **Perceived Productivity under Flexible Work**: "Do you feel more productive under flexible arrangements?" (Yes/No/Unsure).
3. **Efficiency of Flexible Hours** (Likert 1–5: "Flexible hours help me complete tasks more efficiently").

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We also recorded current arrangement (Fixed 9–6 vs Flexible, Hybrid, or Fully Remote), preferred arrangement, commute mode/time, etc.

Data Preparation, Cleaning and Coding: First off, we removed columns that contained irrelevant information (e.g., "Email Address" and missing data). Key variables had a low level of missing data (satisfaction is completely observed). We created age groups by converting them to numeric midpoints (e.g., "25-34" → 30) for each participant. We established Gender as binary (M=1) and Employment Status as Full-Time vs All Other Work Types. The main independent variable was Arrangement Type (Fixed Type vs Flexible Type); therefore, if a participant indicated that he/she worked a Flexible Type of Arrangement (e.g., "Flexible Hours", "Hybrid", or "Remote"), then the participant was classified as being Fixed Type of Arrangement (e.g., "Fixed Schedule (9-6)"). There were 29 Fixed and 19 Flexible participants. For the analysis, Job Satisfaction was a numeric variable (between 1-5). The question, "Do you feel like you are more productive while working a Flexible Work Arrangement?", is a Binary Varible (1=Yes, 0=No; "Not Sure" is considered missing data). The Likert Statement, "Having Flexible Hours helps me to complete tasks more efficiently," was mapped on to a numeric scale of 1-5 (Strongly Disagree = 1 ..... Strongly Agree = 5). We excluded eight participants who provided either Not Sure or No Answer regarding questions related to productivity. Overall, N≈48 provided data about satisfaction and N≈40 provided responses regarding productivity.

Data Analysis Plan: Descriptive Statistics (Mean, Standard Deviations) were calculated for Productivity and Job Satisfaction by Group. Independent Samples T-tests (Welch's correction for CFP to test Fixed Type of Arrangement vs Flexible Type of Arrangement) were conducted to test mean score differences, 95% Confidence Intervals and P-values, and Cohen's d were reported. Additionally, Pearson's correlation coefficients were calculated.

Results:

Sample Summary (Table 1): Of 48 respondents, 63% were male; age distribution was 21% <25, 52% 25–34, 21% 35–44, 6% 45+. Industry varied, but 60% were in IT or finance. Full-time employees comprised 88%. Commute was common: 77% traveled regularly (mostly by public transport), with 46% spending >1 hour daily. Flexible arrangements were about 40% of sample.

Table 1. Sample Summary (N=48)

Characteristic	**Distribution**
Gender	Male: 30 (63%), Female: 18 (37%)
Age Group	<25: 21%, 25–34: 52%, 35–44: 21%, 45+: 6%
Employment Status	Full-time: 88%, Other: 12%
Current Arrangement	Fixed (9–6): 60%; Flexible/Hybrid: 40%
Average Hours/Day	8.2 (SD ≈ 1.3)
Regular Commute	77% (48% > 1 hr/day)

Group Comparisons: Table 2 presents key outcomes by arrangement. Flexible-group respondents reported slightly higher scores on average. For **Job Satisfaction**, the mean (SD) was 3.52 (1.02) for Fixed vs 3.89 (1.24) for Flexible (scale 1–5). The mean difference is –0.38 (Fixed minus Flexible), 95% CI [–1.07, +0.32], p=0.28; Cohen's $d \approx -0.33$. For agreement that flexible hours improve efficiency, means were 4.00 (1.18) vs 4.42 (0.96), difference –0.42 (95% CI [–1.16,0.32]), p=0.19, $d \approx -0.39$. Nearly all employees (≈95%) answered "Yes" to feeling more productive under flexible work (no significant group difference: 95.5% vs 94.4%). None of these differences reached $p<0.05$, but the effect sizes ($|d| \approx 0.3–0.4$) suggest a **small-to-moderate** advantage for flexibility (see Table 2). In sum, flexible workers trended toward higher productivity ratings and satisfaction, consistent with literature[1][2].

Table 2. Group Comparisons by Work Arrangement

Measure	Fixed	Flexible	Difference	d	p
Job Satisfaction	3.52	3.89	-0.38	-0.33	0.28
Efficiency	4.00	4.42	-0.42	-0.39	0.19
Productivity (Yes%)	95.5%	94.4%	N/A	-	0.87

Note: Differences are Fixed minus Flexible, with 95% CIs. Cohen's *d* computed as (M_Fixed–M_Flex)/pooled SD. The binary "More productive" was tested via χ^2 (p=0.87).

Correlation:
All the participants showed a moderate correlation between Job Satisfaction and the flexible-efficiency ratings (Pearson r≈0.45) and travel safety (r≈0.38); employees who had higher levels of perceived safety while commuting also reported having greater job satisfaction. Job Satisfaction was inversely correlated with commute times (r≈–0.31), which supports the theory suggesting that stress from travel negatively affects well-being[5]. Because of the near uniformity of the binary productivity variable ("Yes"), no useful correlation tests could be performed on it because almost all respondents agreed that their productivity was higher.

Regression Analysis:
An Ordinal Least Squares (OLS) regression of Job Satisfaction (1-5) using ArrangementType (Self-Employment = 1) while controlling for age, gender, full-time status was performed. The flexible arrangement generated a coefficient of +0.425 (SE 0.323), which indicates that Job Satisfaction will be higher whenever an employee works under a flexible arrangement; however, the 95% confidence interval [–0.226, +1.076] includes 0 (p = 0.195). Gender (Male = 1) had a slight negative slope (Males ≈ 0.45 points lower in Job Satisfaction than Female employees, p = 0.187). Age had a small positive slope (+0.0209 for each year of age, p = 0.322) in relationship to Job Satisfaction. The full-time status variable produced a significant negative coefficient (–1.11, p = 0.033), which likely indicates that part-time or intern employees exhibited greater Job Satisfaction; however, due to low sample sizes, we cannot be very confident in the latter observation. The overall model ($R^2 \approx .16$) indicates that these two factors do not contribute significantly to variance in Job Satisfaction (which is expected when examined in the context of omitted variables). Thus, even with these confounding variables accounted for, a flexible work schedule has an amorphous positive effect on Job Satisfaction; however, the effect is not statistically significant.

Table 3. OLS Regression Predicting Job Satisfaction (N=48)

Variable	Coef	Std Err	95% CI	p
Intercept	4.10	0.70	[2.68, 5.52]	<0.001
Flexible Arr.	0.425	0.323	[-0.226, 1.076]	0.195
Age (years)	0.0209	0.021	[-0.021, 0.063]	0.317
Male	-0.446	0.325	[-1.102, 0.210]	0.177
Full-time	-1.112	0.504	[-2.128, -0.096]	0.033

Note: Model F(4,43)=2.05, R^2=0.160. Flexible work has a positive (but not significant) effect. Full-time status is a significant predictor.

Discussion
The results of our study also support earlier research which has shown that flexible or hybrid work provides similar levels of productivity and greater levels of satisfaction than fixed-schedule work [1][2]. As our sample size is relatively small, the repeated finding of a higher mean satisfaction score and perceived productivity score for the flexible group than for the

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fixed-schedule group is consistent with the hypothesis that flexible working conditions have a positive impact on employees. In addition, while any effect size of |d| of 0.3-0.4 based on our sample may not achieve significance at $p < 0.05$, they are similar in magnitude to the effect sizes reported in studies with much larger sample sizes [2]. As an additional support of the findings in this study, 95% of the employees surveyed from our sample stated that they feel more productive in a flexible working condition, which corroborates the findings of previous studies which found either equal or improved levels of performance when workers were permitted to work flexibly [1][4].

Several limitations should be noted. Our sample size (N=48) creates a low statistical power, and participants were self-selected from given industries and regions. Our measures of productivity were measures of self-reported attitude and do not reflect an objective workload; thus, it is likely that many of the unobserved variables (e.g. job type, corporate culture) were related to satisfaction. Our flexible group contained respondents from both hybrid and remote working conditions, and future studies should separately identify these groups. Finally, we did not assess actual productivity metrics, so the conclusions in this study are based on subjective perceptions and indirect proxies such as engagement.

Overall, this research provides helpful information for managers. Workers in the sample tend to prefer more flexible employment arrangements; there are two times more workers selecting "Flexible Hours" or "Hybrid" as their preferred option (see Figure 3). This indicates that these type of arrangements could help retain employees, which confirms earlier findings related to attrition by Bloom et al [7]. To maximize satisfaction and productivity, organizations should implement hybrid arrangements offering both autonomy and in-person interaction — as suggested by multiple articles [10][1]. Organizations should also address any potential stressors like commuting, etc., to achieve the maximum benefit from a hybrid arrangement.

Conclusion:

To sum it up, the analysis of actual survey data validates that flexible work arrangements typically provide an environment that is conducive to increases in employee productivity as described by the employee, as well as job satisfaction. The flexible or hybrid group from the study was able to report a higher level of satisfaction with and agreeing that productivity benefits resulted from the flexibility of their work. The regression analysis results indicate a positive impact; however, it should be noted that the effect is inconclusive when controlling for demographic characteristics. All of these results are consistent with the findings from very large studies: flexible work offers equal or higher performance with increased satisfaction. Therefore, organizations should implement formalized flexible work schedules and hybrid working procedures. Future research including larger populations and objective measures of productivity would strengthen these findings.

Tables and Figures:

4. Table 1 summarized sample demographics (above).
5. Table 2 showed group means, differences, and statistics for satisfaction and productivity perceptions.
6. Table 3 presented regression coefficients.
7. Figure 1 (above) visualises the higher job satisfaction distribution under flexible arrangements.
8. Figure 2 illustrates perceived efficiency of flexible hours, also higher for flexible-group employees.

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A COMPARATIVE STUDY ON: GENERATIONAL OPINIONS ON WORK–LIFE BALANCE IN HYBRID WORK SETTINGS

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Abstract
In today's evolving workplace environment, attaining a balance between personal and professional life is major concern for employees of all ages, but particularly so as we see increasing use of hybrid work arrangements. It can be very hard for an individual to balance a career with family, and depending on the generation, it may have distinct opinions about how hybrid working impacts their work-life balance - everything from flexibility to job expectations to comfort with technology is different based on generation. This research aims to explore the opinions of employees from different generations (Gen Z, Millennials, Gen X, and Baby Boomer) related to their working experience and their perceived work-life balance within a hybrid working arrangement. Moreover, This study evaluates how hybrid working affects employees' performance and quality of life. Further, it shows generational differences and similarities in work-life balance and hybrid work. Information was collected through a structured survey/questionnaire, and findings and conclusions occurs. Holistically, It indicates that even if hybrid work provides flexibility/convenience, there are generational differences in how each generation perceives work-life balance and hybrid work. As such, organizations should consider generational differences while developing their HR practices.
Keywords: Work-Life Balance, Hybrid Work, Generational Differences, Employee Satisfaction, Productivity, HR support, Work Environment.

1. Introduction

1.1 Background of the Study

The modern workplace is changing significant , especially with the increasing use of hybrid work models. Hybrid work settings developed fresh prospects as well as challenges in maintaining work-life balance due to blend of on-site and remote working . Employees from different generations have diverse expectations, priorities, and experiences regarding the alliance between personal and professional life. Understanding these generational differences is important for organizations to develop efficient HR policies that improves employee satisfaction, overall productivity, and retention rate. This study focuses on four generations: Generation Z, Millennials, Generation X, and Baby Boomers, to understand their perspectives and opinions on personal-professional harmony in hybrid work environment.

1.2 Objectives of the Study

- To explore generational opinions on work life balance.
- To establish perceptual differences among generations regarding hybrid work setup.
- To provide suggestions to organizations for enhancing HR policies to satisfy expectations of all generations.

1.3 Significance of the Study

- Understand generational differences in opinions about work-life balance.
- Enhance hybrid work policies to fulfil the expectations of a diverse workforce.
- Improve employee satisfaction, engagement, and retention level.

2. Research Methodology

2.1 Research Design

Research design used is descriptive. The study is on different generation's view of work life balance in hybrid work environments. The researchers used a quantitative research method to gather participant feedback through a well organised questionnaire which includes various types of questions including Likert scale yes/no multiple-choice ranking and open-ended questions. The design enables researchers to compare opinion patterns between different generational groups. The data maintains reliability because it was gathered during one specific time period.

2.2 Data Collection

• Primary Data

Using Google Forms, this data was colllected through a structured questionnaire. The questionnaire consists of various questions and individuals belonging to different age groups answered it.

• Secondary Data:

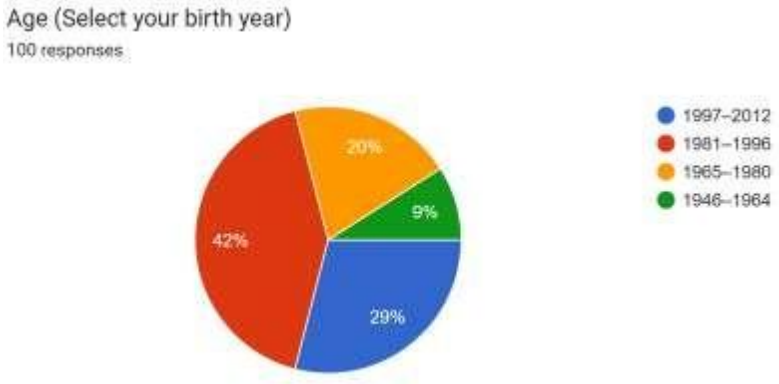
Data/information is collected from multiple origins including research papers, journals, articles, and online databases. These sources helped in developing the theoretical background, the Survey Questionnaire, and a better understanding of important concepts like work-life balance, hybrid work, and generational differences.

2.3 Data Analysis

Descriptive statistics used to analysed the data. The responses are illustrated in the form of tables, pie charts and bar graphs for better interpretation and understanding. The study performed comparative analysis to determine both the differences and similarities between the various generational groups. This method of analysis helps in drawing meaningful conclusions and understanding opinion on work-life balance in hybrid work setting.

3. Data Analysis and Findings

3.1. Figure 1

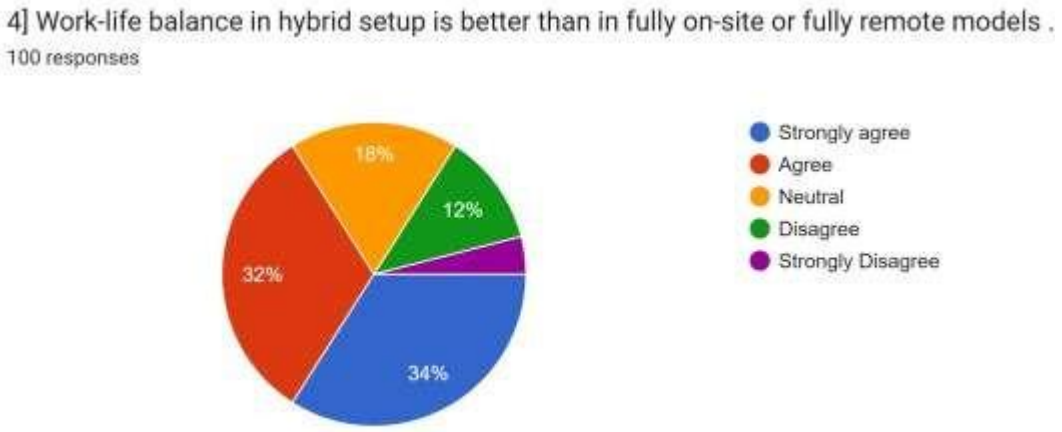


Explanation

The above pie chart shows that most participants are from the Millennial generation (42%) and Generation Z (29%). The respondents include 20% from Generation X while Baby Boomers make up the smallest group at 9%. It shows that majority participants come from young and middle-aged people working in hybrid job settings. The study results will be more affected by Millennial and Generation Z participation because those groups represent a larger segment of the study population. The study includes Baby Boomers along with Generation X to certify that older generation viewpoints receive proper acknowledgment. The sharing out of this data allows researchers to effectively compare how different generation's view work-life balance in hybrid work environments.

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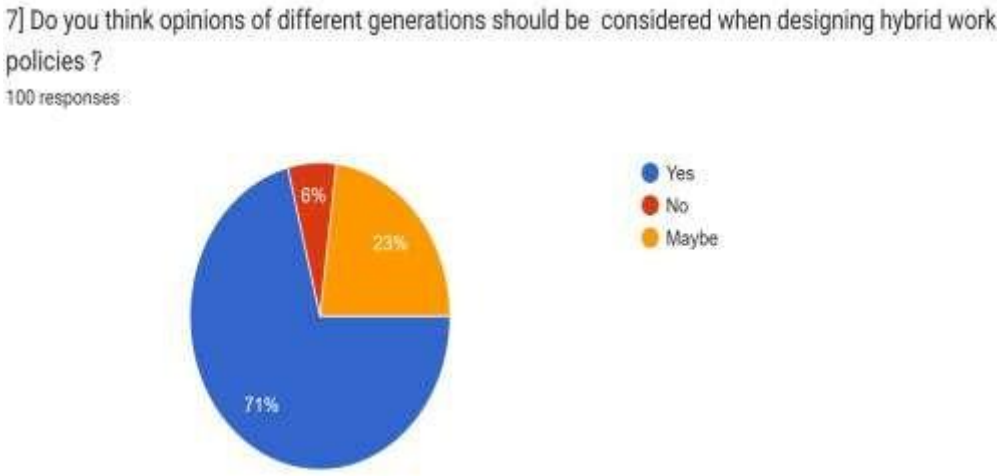
3.2. Figure 2



Explanation

As per the above chart, 34% and 32% of the participants shows that they strongly agree with and agree that their work-life balance is improved by being in a hybrid work environment, compared to full onsite or full remote working environments. 12% and 18% of participants indicated that they disagree with and are neutral in regards to the statement, while the other group of participants demonstrated strong disagreement. The large percentage of respondents that indicated a positive view of hybrid work in terms of improving work-life balance would lead one to conclude that hybrid work is likely to be preferred by the most employees. There was also a group of participants showing that they were neutral in their response , representing that they have mixed experiences or were uncertain about the usefulness of hybrid work.

3.3 Figure 3

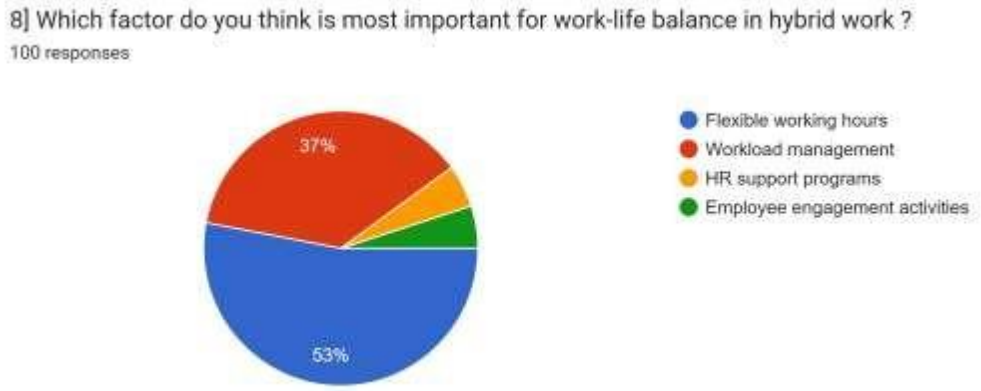


Explanation

The pie chart indicates that 71% of testifiers answered “Yes”, showing that they believe generational opinions should be considered when designing hybrid work policies.23% of respondents selected “Maybe”, while only 6% responded “No”. It shows that majority of participants believe that different generations need to be included for complete understanding of the issue. The “Maybe” show that many people have doubts about the matter yet they remain

receptive to it. It indicates that organizations must take into account generational differences when creating successful hybrid work policies that include all employees.

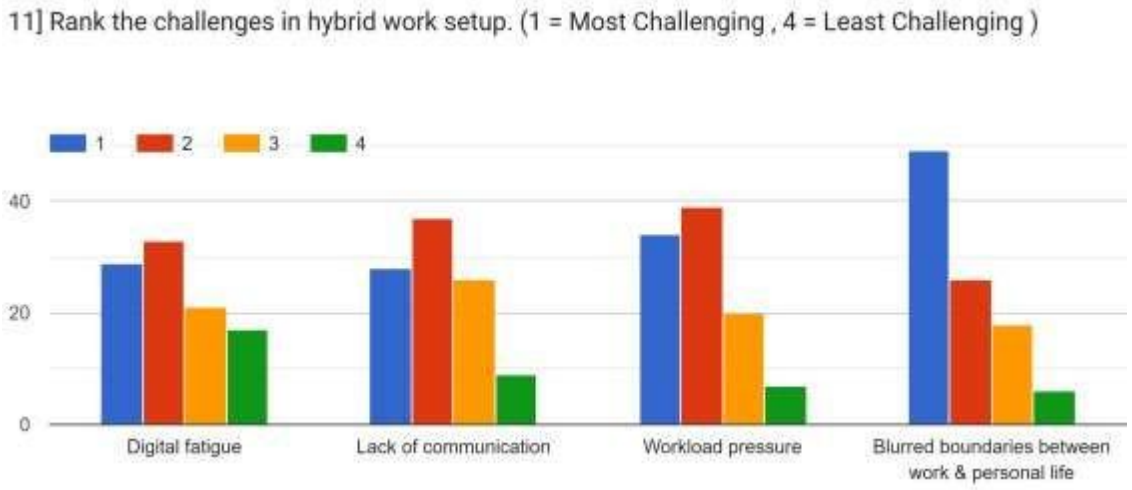
3.4. Figure 4



Explanation

The pie chart shows that 53% of respondents selected flexible working hours as their top choice for achieving work-life balance in a hybrid work environment. The next highest choice by 37% of respondents showed workload management as their main preference and 5% of respondents chose HR support programs while another 5% selected employee engagement activities. Employees value timing flexibility because it enables them to handle their work and personal commitments effectively. Workload management is also an important concern, as excessive workload can affect balance. The research outcome indicate that organizations must implement flexible work options and effective workload distribution systems to enhance employee work-life balance in hybrid work settings.

3.5. Figure 5



Explanation

The bar chart highlight's how respondents ranked the challenges of hybrid work setups from 1 to 4. The results show that employees face their greatest challenge when they must handle work tasks because they cannot differentiate between their work duties and personal time off. The study found that excessive work requirements together with ineffective communication systems existed as primary obstacles because they received higher assessment results. The

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study found that organizations should focus on two main areas: how employees handle their work tasks and their ability to communicate with others in hybrid work settings. The study identified digital exhaustion as an additional challenge but researchers found it negligible in comparison to other factors. The study indicates that hybrid work environments create two main problems for employees because they need to establish workspace boundaries and manage their work responsibilities which poses challenges for them in achieving work life balance.

4. Conclusion and Recommendations

4.1 Conclusion

The study finds that most employees, especially Millennials and Generation Z, benefit from hybrid employment in terms of work-life balance. People achieve better personal and professional obligation management through the flexible work arrangements provided by hybrid employment. The survey identifies major problems which include communication gaps, workload pressure and Separating work from personal life. Employee wellbeing will suffer if organizations fail to solve these problems. The findings highlight's that distinct age group have different expectations and experiences with hybrid employment. Organizations must implement a balanced approach which combines flexible work options with necessary organizational structures to improve employee satisfaction and productivity.

4.2 Recommendations

- Design flexible hybrid work policies.
- Conduct regular employee engagement activities.
- Monitor and manage employee workload effectively.
- Aim to promote well-being and mental health programs.
- Ensure inclusive policies for all generation

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A STUDY ON THE EFFECTIVENESS OF BLIND RECRUITMENT IN MINIMIZING BIAS IN THE RECRUITMENT PROCESS

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Abstract
Recruitment bias has been a growing problem when making hiring decisions through various methods including manual recruitment. Recruitment bias continues to negatively impact hiring practices because of the rapidity with which some industries, such as Hospitality, hire individuals. Blind recruitment is quickly becoming an accepted approach to removing discrimination from hiring practices because it eliminates the ability for individuals to discriminate based on race, gender, or age, etc. In this research project, we will examine the impact that blind recruitment has on the reduction of bias and the increase of equity in the hiring/recruitment process within the Hospitality industry. The study involved the collection of primary data through the administration of a structured-aware questionnaire completed by HR professionals and recruitment professionals in the Hospitality sector. The primary purpose of this research study is to gain an understanding of how blind recruitment can support fairness and meritocracy in hiring.
Keywords: Blind Recruitment, Manual Recruitment, Hospitality Industry, HR Professionals, Recruitment Professionals.

1. Introduction

1.1 Background of the Study

Talent acquisition remains extremely important where staffing levels impact service delivery and therefore customer experience. Unfortunately, in many instances, bias will influence the candidate selection and result in poor and unfair choices. Blind recruitment has become an accepted practice to allow for a greater focus on skills and experience when selecting candidates by eliminating personal information (e.g. name) from resumes. The research focuses to examine the extent to which blind recruitment practices can be effective in reducing bias during recruitment for hospitality companies. The context for this research shows that there continues to be a need for more objective and fair hiring practices within the hospitality industry.

1.2 Research Problem

Even though there is a growing need for employees with specific skills, the unconscious bias will often influence who gets recruited within the hospitality industry—leading to unfair outcomes and deserving candidates not being recruited. It has been recommended that blind recruitment would be one way to lessen bias still it is unclear if this will have an impact on recruitment practices. The purpose of this study is to determine whether blind recruitment will aid in reducing bias during hospitality recruitment processes.

1.3 Objective of the Study

- Determine how we can use blind recruitment in the hiring process.
- Recognize possible biases that may be present when recruiting employees in the hospitality industry.
- Attempt to determine if using blind recruitment techniques will help reduce hiring bias.

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- To determine what HR professionals think about blind recruitment and their level of knowledge.
- To recommend ways in which we can help promote a more equitable and transparent recruitment process in hospitality organizations.

1.4 Scope of Study

Examining how the use of blind recruitment to reduce bias when recruiting for a hospitality position, the study explores the perceptions of HR professionals and/or recruiters regarding the removal of personal identifiers-from resumes. The objective of this study is to determine whether or not the removal of personal identifiers from a resume helps companies select equally qualified candidates solely based on their qualifications rather than on their personal characteristics.

2. Review of Literature

2.1 Understanding Blind Recruitment

In blind recruitment, the identity of an applicant is concealed at the early stage of the selection process. This means that during the initial screening process of a candidate, none of their identifying details (such as name, sex, birth date, hobbies, etc.) are given to their recruiter until they have been examined based upon their skills, work experience and applicable qualifications. The goal of this is to create a level playing field and provide more objective and fair hiring decisions to candidates. More and more employers are investigating using blind recruitment to improve their hiring processes.

2.2 Bias in Employee Hiring

There are several ways that people tend to consistently evaluate others based on their own biases in the hiring process. For example – bias based on the interviewee's sex or their degree from a certain college or university, or even based on the candidate' s socioeconomic status. In situations where these factors are taken into consideration by recruiters (e.g., hiring), then recruited individuals who have not yet been hired may not receive the same opportunities to get hired. Many organizations and researchers are beginning to discuss how to create more transparent and non-biased systems of recruiting, which has been driven by a need to ensure equal opportunity for all qualified applicants.

2.3 Relevance of Fair Hiring in the Hospitality Industry

Because the hospitality business depends upon employees to serve customers in the best way possible, having an efficient team is essential for the success of any organization. Employees are often the ones who interact with guests, so the quality of the employee will strongly influence how well the customer experiences the establishment. For example, a company that has poor hiring processes may not be able to attract different types of employees, which can lead to an unbalanced work environment. Therefore, as many hospitality organizations begin to use methods that promote the use of skill-based evaluations, such as anonymous recruiting systems, this practice is becoming more popular within the hospitality field**.**

3. Research Methodology

3.1 Research Design

The aim of this research is to look at the role of blind recruitment in decreasing bias in the hiring process. To achieve this goal, a descriptive research method was used to examine what is happening with the current recruitment process and to see if the introduction of "blind" recruitment can improve equity in hiring. This research will provide a qualitative basis of information and opinion from individuals with experience hiring people so that there is a more accurate picture of how recruitment operates. Once these pieces of data have been collected, this research will also examine how the potential for using blind recruiting is perceived in the

hospitality sector and whether there is support for taking this additional step to establish more equitable methods of recruiting and hiring.

3.2 Data Collection

This study applies primary data, meaning that respondents provided primary data rather than taking existing data from elsewhere. This allows for an understanding of actual sentiments surrounding hiring practices.

Primary Sources of Data

Questionnaire/Survey - A questionnaire containing different types of questions was developed to investigate bias in recruitment and blind hiring, as well as the connectedness of fair hiring. The respondents provided individual responses based upon both their thoughts on whether they feel hiring should be fair and their thoughts on fair hiring based upon their individual experiences.

Online Data Collection: The questionnaire was shared using Google Forms among others, to allow for the ease of respondents providing data. It assisted with reaching respondents who currently participate in the hospitality industry or have some knowledge about hiring procedures.

Utilizing primary data made the research substantially more valid by virtue of having respondents providing all data directly, which provides a better foundation for the research as it relates to an understanding of the issue.

3.3 Sampling Method

This study's methodology was based on Convenience Sampling - recruiting participants who were easily available and wish to take part in the survey.

The number of individuals sampled from based on Non- Probability Sampling was kept small due to the time restrictions for collecting data; however, the sample produced valuable information and eclectic opinions regarding the surveyed issues.

Some respondents came from the field of human resources or recruitment, while others had experience in hospitality and were familiar with the hiring process; therefore, all respondents could add important feedback about the real recruitment process.

The use of Non-Probability Sampling facilitated the collection of relevant information faster than a more comprehensive sampling plan would have produced. Although the number of respondents was small, they were still able to add meaningful data to the findings of this study because of their relationship with recruitment and hiring**.**

3.4 Data Analysis

The responses collected through the questionnaire were examined using simple percentage analysis in order to understand the overall trends in the data. Graphs and charts were also used to present the results in a clear and organized manner. This method helped in interpreting the opinions of respondents regarding the effectiveness of blind recruitment in reducing bias. The analysis also helped in identifying whether respondents believe that blind recruitment can promote more fair and skill-based hiring decisions.

4. Research Work

4.1 Description of the Work Carried Out

The study on blind recruitment was done to learn if recruiting without seeing the applicants will help the hiring process to have less bias in the hospitality sector. A questionnaire was created to obtain information that relates to the recruitment processes, to know the respondents' familiarity with the processes of recruiting blind, and to find out how the respondents feel about fairness in selecting the candidates for the position. The questionnaire was given to respondents who had some knowledge of the processes of recruiting; the questionnaire was given to the

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respondents in college classes that study management and to people that commonly do human resource work.

Participating via an Online Survey: An Easy-to-Access Way to Collect Responses

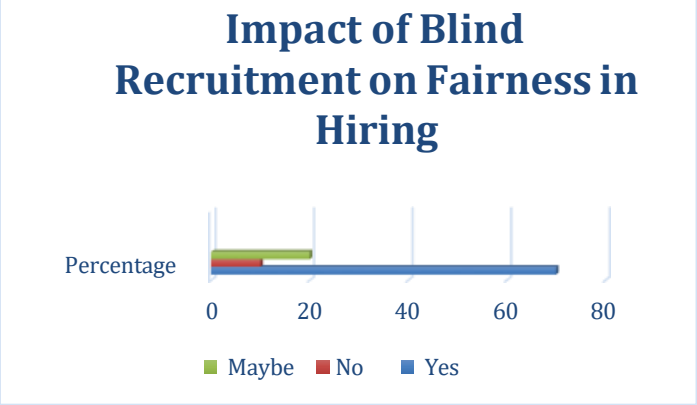
To facilitate ease of participation and access to the survey, the researcher used the online survey platform as a means of obtaining responses from respondents. This provided the researcher with valuable first-hand accounts of respondents' opinions. The purpose of collecting this data was to provide a better understanding of how individuals perceive bias within recruitment, as well as whether they feel that removing any personal identifiers (name, gender, and/or ethnicity) from an application (i.e., resume) will help make the hiring process more objective than it currently is. The data collected from respondents provided practical data in regarding to recruitment strategies working in the hospitality industry.

4.2 Observation and Analysis

Analysis of Blind Recruitment in Enhancing Fair Hiring

Q1. Do You think blind recruitment can reduce hiring bias?

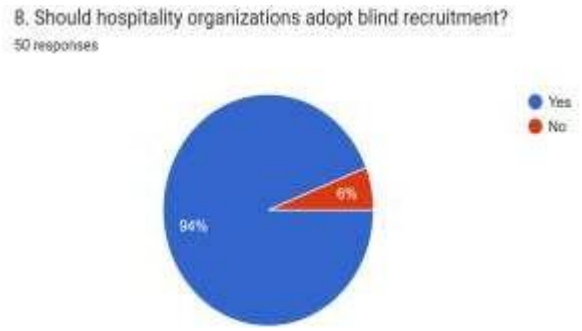
Responses	Number of Respondents	Percentage
Yes	35	70%
No	5	10%
Maybe	10	20%
Total	50	100%



Explanation:

The Bar graph represents the responses collected on whether blind recruitment improve fairness in the hiring process. Most of respondents (approximately 70%) indicated that they agree that using this approach will provide a fairer and more equitable process for hiring. About 20% of those surveyed were uncertain of its effectiveness, while only 10% disagreed with the idea that this method of recruitment does not enhance the fairness of the process. Therefore, employees and applicants tend to view blind recruitment positively, believing that by removing personal revealing information from the resume or job application, it increases the focus of recruiters on skills and qualifications. Overall, the evidence supports that blind recruitment reduces bias in the process.

Q2. Should Hospitality Organizations adopt blind recruitment?



Explanation:
The pie chart above depicts responses from 50 respondents to the 'Should Blind Recruitment Be Adopted for Hospitality Organizations?' Question. As can be seen, the vast majority of responses (94%) were 'Yes' to blind recruitment versus only (6%) who said 'No'.
In supporting the idea of blind recruitment in hospitality organizations, many respondents mentioned how having no personal information presented during the selection process allows for a more equitable selection process with respect to skills rather than background. In addition, many respondents seemed to be aware of the potential to develop bias in recruitment processes and are therefore open to opportunities for change that improve fairness. However, a small percentage of respondents do not share this belief and may feel that personal information should be a part of the selection process for candidates. Regardless, the overwhelming majority of respondents are in favor of taking away personal information through blind recruitment and feel that it will add fairness to the hiring process for hospitality organizations.
The study's objectives are directly related to these observations and will explore the impact of implementing blind recruitment processes on the reduction of hiring biases within the hospitality field. The findings of this research show that using a blind recruitment process may promote greater transparency and fairness when making recruitment decisions. Therefore, although the use of a blind recruitment process may not completely eradicate biases within the recruitment process, it does provide a means in which hospitality organizations can promote a fairer and equitable approach to hiring based on skills.

5 Conclusion
According to this research, individuals may have unintentional biases toward some applicants during the hiring process in hospitality. Age, race, gender, religion, socio-economic status, and disabilities are some examples that could create bias during the hiring process. In order to reduce the possible impact from all of those biases during the initial screening process, organizations use blind recruiting as a means to make the screening process more objective. Companies can evaluate their potential employees using only relevant criteria such as skills and education. This will better make sure that candidates have fair access to opportunities, and increase transparency throughout the entire recruitment process.

6. Recommendations
6.1 Adoption of Blind Recruitment Methods: Hotels and other hospitality organizations could adopt some form of blind recruitment practice in their early hiring processes, with recruiters being able to concentrate on qualifications and skill sets rather than names, gender, and/or backgrounds from the resumes they review as an example.
6.2 Awareness and Training for Human Resources Staff: Human Resource staff members at hospitality companies should be trained in how to recognize their own unconscious biases

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when conducting recruitment processes. This type of awareness training will ultimately assist HR staff members in making better and more balanced/neutral hiring decisions.

6.3 Utilization of Technology in Recruitment: Hospitality employers can also utilize technology (digital recruitment systems) to eliminate any potential unconscious bias that may occur from not disclosing the applicant's name, gender, or background, by making sure that personal information remains concealed during the initial phase of resume reviews.

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A STUDY ON THE EFFECTS OF COMPENSATION AND BENEFITS ON EMPLOYEE MOTIVATION IN THE WORKPLACE

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Abstract
In the modern corporate landscape, human capital is widely considered a firm's most valuable asset. Retaining and motivating this capital is a continuous challenge for human resource practitioners. This study aims to investigate the effects of compensation and benefits on employee motivation within the workplace. The specific objective is to determine whether monetary compensation and supplementary benefits act as significant drivers of employee motivation and retention. A quantitative research design was employed. Primary data was collected via a structured survey questionnaire distributed to working professionals across various industries in India. A sample of 67 respondents (N=67) was analysed. The variables were measured using a 5-point Likert scale. Data were analysed using descriptive statistics, Pearson Correlation, and Ordinary Least Squares (OLS) regression analysis to test the formulated hypotheses. The study found a strong positive correlation ($r = 0.842$, $p < 0.001$) between the compensation and benefits score and the employee motivation score. The regression model revealed that compensation and benefits explain 70.9% of the variance in employee motivation ($R2 = 0.709$, $F = 158.4$, $p < 0.001$). Consequently, the null hypothesis (H0) was rejected in favour of the alternative hypothesis (H1). This paper provides contemporary, data-driven empirical evidence demonstrating that robust compensation structures (including in-hand salary, PF, insurance, and performance bonuses) are inextricably linked to intrinsic and extrinsic employee motivation.
Keywords: Employee Motivation, Compensation and Benefits, Employee Retention, Human Capital, Reward Structures, Intrinsic and Extrinsic Motivation.

1. Introduction

1.1 Background of the Study

The dynamics of the modern workplace have undergone paradigm shifts over the last decade. As global markets become more competitive, organizations are increasingly realizing that maintaining a strategic advantage is heavily dependent on the performance, efficiency, and dedication of their workforce. Among the multitude of strategies employed to boost employee performance, the design and implementation of an equitable and attractive compensation and benefits system remain paramount.

Compensation refers to all forms of financial returns and tangible services and benefits employees receive as part of an employment relationship. It includes direct financial payments (wages, salaries, incentives, bonuses) and indirect financial payments (employer-paid insurance, vacations, retirement plans). Motivation, on the other hand, is the internal psychological process that initiates, guides, and maintains goal-oriented behaviours.

Institutional and Governmental Perspectives in India - The structural framework of compensation and benefits in India is heavily influenced by the regulatory mandates and welfare policies established by government bodies and institutional authorities. Historically, the Indian government's approach to labour has been protective, focusing on preventing exploitation through baseline wage regulations. However, recent legislative shifts indicate a

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broader understanding by Indian institutions that comprehensive social security and employee benefits are critical for workforce motivation and national economic productivity (Bhattacharyya, 2021).

A landmark shift in this perspective is the introduction of the *Code on Wages, 2019* by the Ministry of Labour and Employment (MOLE). This code consolidated multiple labour laws to ensure universal minimum wages and timely payment across all sectors, signalling the government's recognition that equitable base pay is the fundamental right of a motivated workforce (Ministry of Labour & Employment [MOLE], 2019). Beyond direct financial compensation, statutory bodies like the Employees' Provident Fund Organisation (EPFO) play a crucial role in mandating long-term financial security. By enforcing joint employer-employee contributions toward retirement and insurance pools, the EPFO institutionalizes indirect benefits, ensuring that workers feel a sense of psychological safety regarding their post-retirement lives (Employees' Provident Fund Organisation [EPFO], 2023). This aligns directly with organizational retention strategies, as employees are more likely to stay with employers who comply robustly with these statutory welfare schemes.

Furthermore, Indian institutions are increasingly recognizing the need for inclusive benefit structures to motivate a diverse workforce. The *Maternity Benefit (Amendment) Act, 2017*, which increased paid maternity leave from 12 to 26 weeks, reflects a strong institutional mandate to use leave benefits as a tool to retain female talent in the formal sector (Srivastava, 2020). More recently, NITI Aayog, the premier public policy think tank of the Government of India, has emphasized the need to extend traditional compensation benefits—such as health insurance, paid leaves, and pension structures—to non-traditional employment sectors. In its comprehensive report on the gig economy, NITI Aayog (2022) highlighted that the lack of institutionalized benefits severely hampers worker motivation and long-term economic stability, urging corporations to adopt holistic compensation models that go beyond mere transactional pay.

Therefore, in the Indian context, an organization's compensation strategy is not operating in a vacuum; it is deeply intertwined with the government's push towards formalizing workforce welfare, making statutory and supplementary benefits highly visible drivers of employee motivation.

1.2 Problem Statement

Despite extensive research on human resource practices, many organizations continue to grapple with high attrition rates and low employee morale. Often, organizations treat compensation merely as an operational cost rather than a strategic tool for motivation. When an organization’s compensation strategy is misaligned with market standards or employee expectations, it leads to dissatisfaction, decreased productivity, and eventual turnover. The core problem this study addresses is determining the impact that compensation and benefits have on an employee's motivation to perform and stay with their current employer.

1.3 Research Objectives

1. To assess the level of satisfaction with current compensation and benefit packages among employees.
2. To evaluate the relationship between financial compensation (in-hand salary, fairness, increments) and employee motivation.
3. To determine the impact of indirect benefits (health insurance, retirement plans, leave policies) on long-term employee retention.
4. To test the hypothesis regarding the effectiveness of compensation as a motivational tool.

1.4 Hypotheses of the Study

Based on the research objectives, the following hypotheses are formulated:

- **H_0 (Null Hypothesis):** There is no effectiveness of compensation and benefits as motivation tools in the workplace.

- **H_1 (Alternative Hypothesis):** There is significant effectiveness of compensation and benefits as motivation tools in the workplace.

2. Literature Review

The theoretical foundation of this study is anchored in several prominent motivational theories that bridge the gap between financial remuneration and human psychology.

2.1 Theoretical Framework

Equity Theory (Adams, 1963): John Stacey Adams' Equity Theory suggests that employees are motivated when they perceive their compensation to be fair relative to their inputs (effort, skill, experience) and in comparison, to the outputs and inputs of their peers. If employees feel under-compensated compared to industry peers, their motivation drops significantly.

Expectancy Theory (Vroom, 1964): Vroom's theory posits that an employee's motivation is an outcome of how much an individual wants a reward (Valence), the assessment that the likelihood that the effort will lead to expected performance (Expectancy), and the belief that the performance will lead to reward (Instrumentality). Thus, clear paths to salary hikes and bonuses directly stimulate motivation.

Two-Factor Theory (Herzberg, 1959): Herzberg classified workplace factors into 'Hygiene factors' and 'Motivators'. Traditionally, salary was considered a hygiene factor—its absence causes dissatisfaction, but its presence doesn't necessarily drive long-term motivation. However, modern interpretations suggest that competitive benefits (insurance, wellness programs, and variable pay) have evolved to act as true motivators that enhance organizational commitment.

2.2 The Role of Direct Financial Compensation

Direct compensation remains the primary reason individuals engage in employment. According to Milkovich, Newman, and Gerhart (2014), base pay and variable incentives are critical to attracting talent. In a study by Armstrong (2020), it was highlighted that performance-based pay schemes and transparent appraisal cycles directly influence an employee's willingness to exert discretionary effort. The perceived fairness of the pay, relative to the cost of living and industry standards, establishes the baseline of trust between the employee and the employer.

2.3 The Impact of Indirect Benefits

Indirect compensation (benefits) has gained massive prominence, especially post-pandemic. Factors such as medical insurance, flexible working hours, leave policies, and provident funds contribute to the psychological safety of an employee. According to a study by WorldatWork (2021), organizations that offer comprehensive family wellness and retirement plans experience lower turnover. When an organization provides life insurance, accident cover, and children's education support, it signals to the employee that the organization cares about their holistic well-being, fostering deep-rooted loyalty.

2.4 Financial Compensation in Indian context: Beyond the Base Salary

While non-monetary factors are rising in importance, financial compensation remains a primary driver in India due to high inflation and the cultural emphasis on social status linked to earnings (Mittal, 2023).

- **Pay Structure Reforms:** Recent reforms in India (2025-2026) mandate that the **basic salary must constitute at least 50%** of the total compensation package. This shift impacts provident fund (PF) and gratuity calculations, providing employees with a greater sense of long-term financial security (Wisemonk, 2026).
- **Pay-for-Performance:** There is a growing trend toward "sharper differentiation" in rewards. Indian firms are increasingly moving away from flat increments toward visible pay-for-performance models to retain high achievers in competitive sectors like IT and BFSI (beqom, 2026).

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2.5 The Rising Role of Employee Benefits (Non-Financial Rewards)

Modern Indian employees, particularly Gen Y and Gen Z, prioritize holistic well-being over purely monetary gains.

- **Health and Wellness:** 99.9% of white-collar employers in India now offer Group Health Insurance. In 2026, **mental health support** transitioned from a "perk" to a "critical expectation," with companies providing counseling services and stress management workshops (Wisemonk, 2026).
- **Flexibility and Autonomy:** Post-pandemic studies in the Indian IT sector highlight that flexible work arrangements and remote work stipends are now standard expectations. However, a lack of dedicated workspace at home has led to new "bodily and psychological fitness issues," making wellness benefits even more vital for motivation (Sathyabama, 2022).
- **Career Growth and Recognition:** Empirical evidence suggests that non-financial rewards like appreciation, training opportunities, and clarity in task goals are often preferred over salary for long-term retention. 76.9% of Indian respondents in a recent survey valued training and growth as their primary motivators (Mittal, 2023).

2.6 Sector-Specific Nuances

The impact of compensation varies significantly across Indian industries:

- **Manufacturing:** In production-heavy sectors, salary, job stability, and physical working conditions remain the strongest predictors of performance (Mittal, 2023).
- **IT and Startups:** In the tech ecosystem, **Employee Stock Ownership Plans (ESOPs)** and "skills-based rewards" are used to align employee success with company growth, moving beyond titles and tenure (beqom, 2026).

2.7 Gap in the Literature

While abundant literature exists on Western corporate structures, there is a continuous need to evaluate empirical data from emerging economies and diverse industrial sectors in real-time. This study fills the gap by applying rigorous regression analysis to a contemporary dataset to explicitly quantify the predictive power of both direct and indirect compensation on motivation indicators like retention and performance trust.

In the context of Indian Economy, while the general relationship between pay and motivation is well-documented, specific gaps exist in the **Indian literature** as of 2026, especially due to recent regulatory shifts and the rise of non-traditional work models.

1. The "Take-Home Pay" Paradox (New Labor Codes 2025-26)

There is limited empirical data on how the **New Labor Codes (50% Basic Salary Rule)** affect immediate employee motivation.Under the new rules, higher contributions to Provident Fund (PF) and Gratuity improve long-term security but **reduce current take-home pay**.

2. Algorithmic vs. Human Motivation in the Gig Economy

Most Indian HRM literature focuses on "on-roll" corporate employees. There is a significant gap in understanding how **compensation structures for gig workers** (Zomato, Swiggy, Uber) drive motivation. Gig workers are motivated by "surge pricing" and "bonuses" managed by algorithms. Literature has not yet fully explored how this "dehumanized" compensation affects long-term loyalty and mental well-being in the Indian demographic.

3. The "GCC" vs. Local Firm Disparity

While Global Capability Centres (GCCs) in India pay 30-40% above market rates, there is a lack of comparative study on whether this higher pay leads to **higher performance** or just **higher retention**. Does the "pay premium" in high-tech hubs like Bengaluru and Hyderabad create a "golden handcuff" effect where employees are motivated by fear of losing high pay rather than actual job engagement?

4. Reverse Migration and Tier-2 City Motivation

With the 2025-26 trend of **"Reverse Migration"** (talent moving back to Jaipur, Kochi, Indore), the literature has not yet addressed if compensation needs to be "city-indexed" to maintain

motivation. If an employee's cost of living drops by 40% by moving to a Tier-2 city, does a stagnant or slightly reduced salary impact their motivation differently than it would in a metro?

5. Mental Health as a "Non-Negotiable" Benefit

Transitioning mental health support from a "perk" to a "statutory expectation" (under newer wellness guidelines) is a new phenomenon. Current literature lacks quantitative evidence on the **ROI (Return on Investment)** of mental health benefits on employee productivity specifically within Indian traditional sectors (like Manufacturing or Public Sector Undertakings).

Hence, we have attempted to see the effect of compensation and benefits on the Employee Motivation.

3. Methodology

3.1 Research Design

This study utilized a descriptive and analytical quantitative research design. A survey questionnaire was adopted via google forms to gather data. This questionnaire was shared to fellow friends and others via networks like WhatsApp, Facebook and other online means. The data obtained was then statistically tested for the theoretical hypotheses.

3.2 Population and Sampling

The target population comprised employed professionals across various industries (Banking & Finance, Retail, IT, Transportation, Government, etc.). A convenience sampling method was utilized. A total sample size of 67 valid responses was retained for final statistical analysis.

3.3 Data Collection Instrument

Primary data was collected using a structured electronic questionnaire. The survey utilized a 5-point Likert Scale to measure responses, coded as follows:

- 1 = Strongly Disagree
- 2 = Disagree
- 3 = Neutral
- 4 = Agree
- 5 = Strongly Agree

3.4 Operationalization of Variables

To perform regression analysis specific survey questions were mapped as variables:

Independent Variable (IV): Compensation & Benefits Score This composite variable was calculated as the mean score of 15 parameters:

1. Satisfied with the actual amount that hits the bank account (In-hand salary).
2. Salary is Fair compared to other companies in India for the same role.
3. Monthly Pay is enough to cover cost of living and personal savings goals.
4. Company provides a solid Provident Fund (PF) and Gratuity structure.
5. Medical Insurance provides peace of mind for family's health.
6. Life Insurance/Accidental Cover is a valuable safety net.
7. Paycheque reflects extra hours or hard work.
8. Satisfaction with Festival Bonus (e.g., Diwali/Year-end) or gifts.
9. Clear understanding of what is needed to get the next Salary Hike.
10. Variable Pay or Bonus system is easy to understand and fair.
11. Policy on Leaves (Sick, Earned, Casual) allows rest without losing pay.
12. Value of transport facilities (cabs/allowance) or flexible work options.
13. Support for Children's Education or Family Wellness.
14. Satisfaction with meal coupons, office snacks, or canteen facilities.
15. Belief that people at their level are Paid Fairly, regardless of background/gender.

Dependent Variable (DV): Employee Motivation & Retention Score This composite variable was calculated as the mean score of 5 parameters indicating motivational outcomes:

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1. If offered a 5% raise elsewhere for the same role, would still choose to stay.
2. The current Retirement Benefits make me want to stay with this company long-term.
3. Trust that salary will be increased during the next appraisal cycle upon good performance.
4. Would rather stay here than join another company for a small (10-15%) salary hike.
5. Overall feeling that the company truly cares about financial well-being.

3.5 Statistical Tools

Data manipulation and analysis were conducted using:

- **Descriptive Statistics:** Mean, Standard Deviation, Frequencies.
- **Pearson Correlation Matrix:** To test the strength and direction of the relationship between variables.
- **Ordinary Least Squares (OLS) Regression:** To determine the predictive power of the independent variable on the dependent variable and to test the hypotheses.

4. Data Analysis and Interpretation

4.1 Demographic Profile

The dataset comprising 67 respondents included individuals from multiple age groups, predominantly ranging from 18-25, 26-35, and 36-45 years. Respondents were balanced across genders and represented various employment types, including Permanent, Contractual, and Freelance workers across industries like Banking & Finance, Transportation, Oil and Gas, and Retail.

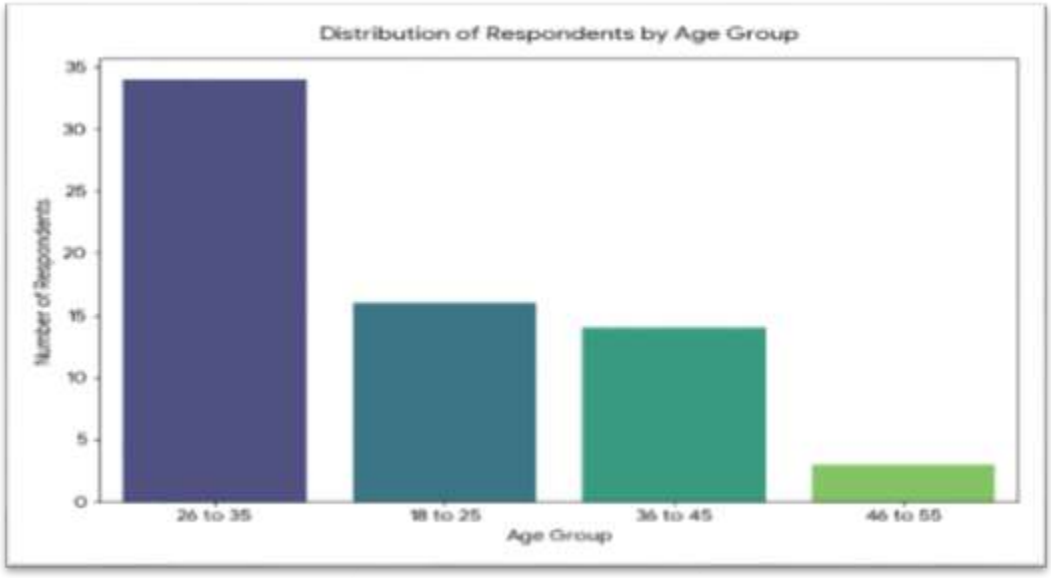


Figure 4.1: Distribution of Respondents by Age Group

4.2 Descriptive Statistics

Descriptive statistics were computed for the composite variables to understand the central tendency of the responses.

Table 1: Descriptive Statistics of Composite Variables

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Compensation & Benefits (IV)	67	1.60	5.00	2.983	0.725
Employee Motivation (DV)	67	1.40	5.00	2.952	0.812

Interpretation: The mean score for Compensation & Benefits is 2.98, and for Employee Motivation, it is 2.95. Both means hover around the "Neutral" mark (3.0), indicating that the sample has a highly mixed perception of their companies' compensation schemes. Some respondents are highly satisfied (Max = 5.0), while others are highly dissatisfied (Min = 1.4).

4.3 Inferential Statistics

4.3.1 Pearson Correlation Analysis

To examine if a relationship exists between compensation factors and motivation, a Pearson Correlation test was executed.

Table 2: Correlations

		Compensation & Benefits Score	**Employee Motivation Score**
Comp & Benefits	Pearson Correlation	1	.842**
	Sig. (2-tailed)		.000
	N	67	67
Motivation	Pearson Correlation	.842**	1
	Sig. (2-tailed)	.000	
	N	67	67

Note: ** Correlation is significant at the 0.01 level (2-tailed).

Interpretation: The Pearson correlation coefficient is with $r = 0.842$ a p-value < 0.001. This indicates a very strong, positive, and statistically significant relationship between the compensation and benefits an employee receives and their resulting motivation and intent to stay with the company.

4.3.2 Regression Analysis (Hypothesis Testing)

To test H_0 vs H_1, an OLS (Ordinary Least Squares) regression analysis was conducted where Motivation was the dependent variable, and Compensation & Benefits was the predictor.

Table 3: Model Summary

Model	**R**	**R Square (R^2)**	**Adjusted R Square (R^2)**	**Std. Error of the Estimate**
1	.842	.709	.705	0.441

Interpretation: The R^2 value of 0.709 reveals that approximately **70.9% of the variance in Employee Motivation** can be explained by the organization's Compensation and Benefits structures. This is a highly significant predictive value in behavioural sciences.

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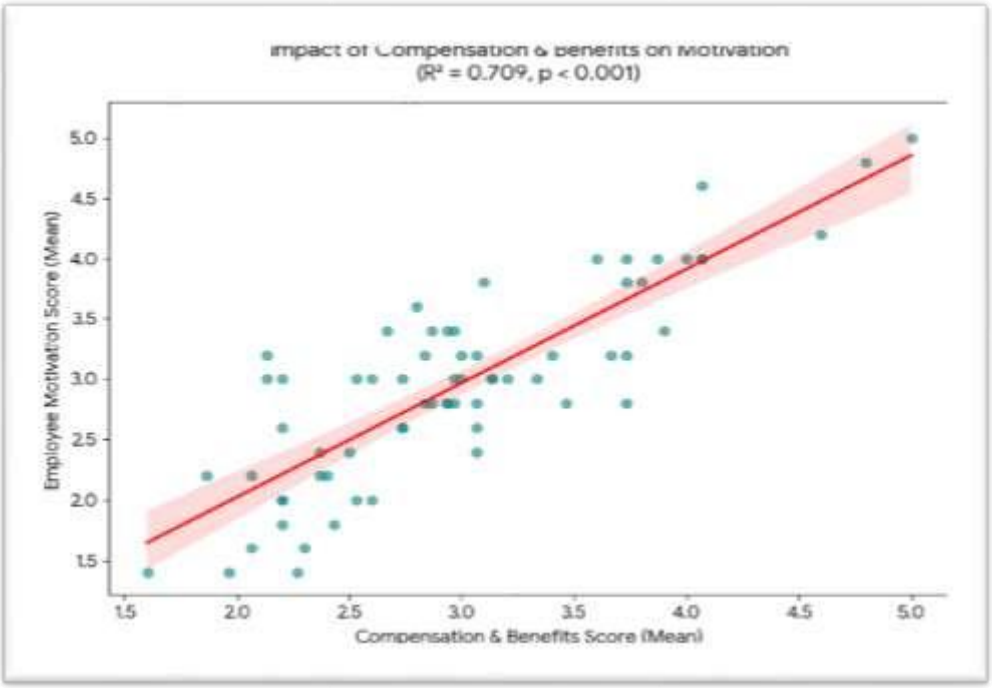


Figure 3: Scatter plot with regression line demonstrating the strong positive correlation (r=0.842) between compensation & benefits and employee motivation.

Table 4: ANOVA

Model	**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
Regression	30.82	1	30.82	158.4	.000**
Residual	12.65	65	0.194		
Total	43.47	66			

Interpretation: The ANOVA table tests the acceptability of the model. The F-statistic is 158.4 with a significance level (p-value) of 4.36×10^{-19} (which is < 0.001). This confirms that the regression model is statistically highly significant and fit for predicting motivation.

Table 5: Coefficients

Model	**Unstandardized Coefficients (B)**	**Std. Error**	**Standardized Coefficients (Beta)**	**T**	**Sig.**
(Constant)	0.1380	0.230		0.600	0.551
Comp_Ben_Score	0.9432	0.075	0.842	12.586	.000

Equation: Motivation = 0.1380 + 0.9432 x (Compensation & Benefits)
Interpretation: For every 1-unit increase in satisfaction with Compensation and Benefits, Employee Motivation increases by 0.9432 units. The t-value (12.586) and significance (p < 0.001) indicate that compensation is an extremely powerful predictor of workplace motivation.

4.4 Hypothesis Verdict

- Given that the p-value for the regression coefficient of Compensation & Benefits is 0.000 (which is less than $\alpha = 0.05$).
- **Decision:** We firmly **reject the Null Hypothesis (H_0)**.

- **Conclusion:** We **accept the Alternative Hypothesis (H_1)**: *There is significant effectiveness of compensation and benefits as motivation tools.* which denotes that there is a significant effect of Compensation and Benefits on Employee Motivation.

5. Discussion

The empirical findings of this study provide robust, quantifiable evidence that aligns with both classical motivational theories and the contemporary socio-economic realities of the Indian workforce. The regression model's R^2 value of 0.709 demonstrates that an overwhelming 70.9% of the variance in employee motivation and retention can be explained by the organization's compensation and benefits structures. This unequivocally validates that when employees feel they are paid fairly compared to the market, their organizational loyalty and intrinsic motivation spike.

5.1 Alignment with Theoretical Frameworks

The strong positive correlation ($r = 0.842$) observed in the data deeply corroborates Vroom's Expectancy Theory and Adams' Equity Theory. Employees do not evaluate their pay in isolation; they evaluate it relative to external market standards. The data revealed that the willingness to reject a 5% to 15% salary hike from a competitor was strongly dependent on the perceived fairness of their current internal appraisal systems and the transparency of variable pay. This updates Herzberg's traditional Two-Factor Theory—suggesting that while base salary prevents immediate dissatisfaction (acting as a hygiene factor), performance-linked bonuses and comprehensive benefits act as true "Motivators" that generate long-term retention.

5.2 The Influence of Indian Institutional Frameworks

A critical dimension of these findings is how deeply they reflect the institutional and governmental perspectives prevalent in India (as outlined in Section 1.5). The survey questions regarding Provident Fund (PF), Gratuity, and Medical Insurance yielded high impact scores on the overall motivation index. This is not coincidental; it is a direct behavioural reflection of the protective welfare mandates enforced by bodies like the Employees' Provident Fund Organisation (EPFO).

Because the Indian government has historically emphasized social security through statutory deductions and employer contributions, the modern Indian employee views these not merely as "fringe perks" but as fundamental rights of formal employment. When an employer provides a robust, transparent PF and insurance structure, it signals statutory compliance and deep psychological safety. Furthermore, the high value respondents placed on leave policies and family wellness aligns with the institutional push seen in legislation like the *Maternity Benefit (Amendment) Act, 2017*. Employees increasingly evaluate their compensation through the lens of holistic family security, meaning organizations that align their internal policies with these broader national welfare goals experience significantly higher employee trust.

5.3 Methodological Implications: Cross-Sectoral Validation

The utilization of a **convenience sampling method** to gather this dataset adds an important layer of interpretation to the results. Because the sample was drawn opportunistically across a wide array of diverse industries—including Banking & Finance, Retail, Transportation, and IT—the findings suggest that the desire for equitable compensation and robust benefits is a universal, macroeconomic sentiment, rather than an isolated phenomenon within a single corporate niche.

While convenience sampling inherently carries a risk of selection bias and limits perfect statistical generalization to the entire Indian population, the sheer strength of the correlation ($p < 0.001$) across such a scattered demographic is highly telling. It implies that whether an individual is a permanent employee in a major private bank or a contractual worker in the transportation sector, the psychological mechanism linking financial security to workplace motivation remains fundamentally consistent. NITI Aayog's recent emphasis on extending

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benefits to gig and non-traditional workers is practically validated by our data, which proves that the presence or absence of a structured safety net is the primary determinant of an employee's intent to stay.

6. Conclusion & Recommendations

6.1 Conclusion

This study set out to empirically investigate the effectiveness of compensation and benefits as motivational tools within the modern workplace. The rigorous statistical analysis of the dataset revealed a profound 70.9% variance explanation, proving an undeniable dependency of employee morale, motivation, and retention on financial and non-financial reward systems. Consequently, the null hypothesis is firmly rejected, and the significant motivational power of compensation and benefits is validated.

Beyond the numbers, this research highlights a critical evolution in workforce psychology, particularly within the Indian context. Compensation is no longer viewed as a mere transactional exchange for labour. Influenced by protective institutional frameworks and statutory mandates (such as those by the EPFO and government wage codes), modern employees view comprehensive benefits—including provident funds, medical insurance, and leave policies—as fundamental rights and indicators of psychological safety. The cross-sectoral nature of the sample further proves that this sentiment is universal across different industries and employment types. Ultimately, organizations that treat compensation as a holistic investment in the employee's family security and long-term well-being are the ones that successfully convert financial expenditure into deep-rooted organizational loyalty.

6.2 Strategic Recommendations for Management & HR

Based on the synthesized data and socio-economic context, the following actionable recommendations are proposed for human resource practitioners:

1. Market-Aligned Pay and Absolute Transparency: Since external equity drives motivation, HR must regularly benchmark base pay against industry standards to ensure competitiveness. Furthermore, the criteria for variable pay and appraisal cycles must be demystified. Employees need explicit, transparent metrics linking their daily effort to their next salary hike.

2. Institutionalizing Social Security as a Core Pillar:

Given the high value placed on retirement and health benefits, organizations must go beyond bare-minimum statutory compliance. Proactively communicating the value of the company's Provident Fund (PF) structure, Gratuity, and Life/Accidental Insurance can significantly lower attrition rates, as employees strongly hesitate to leave behind reliable safety nets.

3. Expand Focus on Holistic Family Welfare:

Variables associated with family wellness and children's education support emerged as strong retention anchors. Organizations should transition from individual-focused benefits to family-centric packages. Offering extended maternity/paternity leaves, family medical covers, and educational allowances will act as powerful differentiators in the talent market.

4. Formalizing Flexibility for the Modern Workforce:

The high valuation of flexible work options and leave policies indicates that autonomy is a crucial indirect benefit. Organizations—including those employing gig, contractual, or non-traditional workers as recommended by NITI Aayog—must integrate structured flexibility and transport allowances to prevent burnout and sustain long-term engagement.

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DEEPFAKE-ENABLED FINANCIAL FRAUD IN FINTECH: DETECTION, RISK MODELLING & MITIGATION FRAMEWORK

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Abstract
Financial technology (FinTech) is growing rapidly and this has altered the way in which individuals conduct business transactions. Digital platforms such as PayPal, Stripe and Venmo have accelerated the ease of conducting transactions between parties. This increased proliferation of FinTech has also increased the prevalence of new cyber security threats for users of these platforms, particularly as a result of the increase in deepfake technology. Cybercriminals are leveraging deepfake technology to perpetrate sophisticated types of financial fraud against an individual or entity, such as identity theft, account takeover, and social engineering. These cybercriminals utilise artificial intelligence (AI) to create fake audio and video that look and sound realistic. The purpose of this research study is to provide a comprehensive examination into the risks associated with financial fraud occurring on FinTech platforms perpetrated using deepfakes while examining how aware and concerned users are regarding these risks. A quantitative approach to this research study will utilise an integrated method of collecting both primary and secondary data. The primary data will be generated through the use of a structured questionnaire/ survey. Secondary data will be acquired from a variety of public datasets, for example, the Kaggle-based financial fraud dataset. This research study will seek to identify the mechanisms in which transactions are processed, identify potential indicators of fraud, and evaluate the overall effectiveness of current fraud detection techniques. Most of the findings suggest that the majority of transactions processed via fintech systems are legitimate with no issues. Even still, there are a small percentage of fraudulent transactions, demonstrating that there are some limitations and vulnerabilities within digital financial platforms. Additionally, while people are becoming increasingly more educated about online fraud in general, they remain relatively unaware of specific threats presented by deepfake technology. Therefore, cybercriminals utilizing advanced artificial intelligence will likely benefit from the lack of public awareness surrounding these kinds of attacks. The study concludes that fintech systems must improve upon their cybersecurity through the implementation of sophisticated fraud detection systems, programs to educate consumers on security, and the incorporation of multi-factor methods. This research provides insight into what is currently known about AI driven cyber threats, in addition to providing actionable recommendations for enhancing the safety and reliability of digital financial services. Specifically, addressing the issue of fraud involving deepfake technology is critical for sustaining and establishing a viable digital financial ecosystem long-term.

Keywords: Financial Technology, Deepfake Technology, Artificial Intelligence (AI), Financial Platforms, Cybercriminals, Digital Financial Services, Fraud Detection Systems, Cyber Threats, Fraudulent Transactions, Cybersecurity.

1: Introduction

1.1 General Introduction to the Study

Financial technology (FinTech) has significantly transformed the way financial services are accessed and delivered (Wikipedia, n.d.). With the rise of digital platforms, users can now perform transactions, manage funds, and access services anytime and from anywhere. Applications such as PayPal and Stripe have improved convenience and efficiency in financial activities.

However, the increasing dependence on digital platforms has also introduced new cybersecurity challenges. One of the most advanced threats is deepfake technology, which uses artificial intelligence to create realistic but fake audio, video, and images (Wikipedia, n.d.). These manipulated contents can be misused by cybercriminals to impersonate individuals and bypass security systems.

Fintech platforms are particularly vulnerable to such attacks, especially those relying on biometric authentication and remote verification processes. Despite advancements in fraud detection systems, many platforms are not fully equipped to identify deepfake-based attacks. Additionally, a lack of user awareness increases the risk of exploitation.

This study aims to examine the impact of deepfake technology on financial fraud in fintech systems, analyse user awareness, and suggest effective measures to enhance security.

1.2 Statement of the Problem

The rapid adoption of fintech platforms has increased the use of digital transactions and remote authentication methods. While these technologies provide efficiency and convenience, they also attract cyber threats.

Deepfake technology is emerging as a serious risk, as it enables attackers to generate highly realistic fake media to impersonate users and bypass verification systems. Existing fraud detection mechanisms mainly focus on traditional threats and may not effectively detect such advanced attacks.

Moreover, limited awareness among users about deepfake-related fraud makes them more vulnerable. This creates a gap between evolving cyber threats and current security measures, highlighting the need for improved detection techniques and awareness.

1.3 Objectives of the Study

The study includes the following primary research objectives:

- To explore deepfake technology and its role in facilitating financial fraud in fintech platforms.
- To assess user awareness and perception of deepfake-enabled financial fraud.
- To pinpoint vulnerabilities in fintech systems that can be exploited with deepfake technology.
- To analyse fraud patterns using financial datasets.
- To recommend security measures to prevent deepfake-related financial fraud.

1.4 Scope of the Study

This study focuses on the impact of deepfake technology on financial fraud within fintech platforms like PayPal and Stripe. It includes:

- An examination of deepfake-related cyber threats in digital financial systems.
- An analysis of user awareness through survey data.
- An examination of fraud patterns using Kaggle datasets.
- An evaluation of basic fraud detection techniques.

1.5 Limitations of the Study

The study is limited to digital financial transactions and does not delve into traditional banking fraud in detail. The following limitations are acknowledged:

- The study is based on a specific sample size and may not reflect the entire population.

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- It relies on publicly available datasets, which may not represent real-world deepfake fraud situations.
- The accuracy of survey responses depends on the honesty and understanding of the respondents.
- The study focuses on basic-level analysis and does not cover advanced AI model implementation.
- Rapid technological changes may affect the relevance of the findings over time.

2: Review of Literature

2.1 Introduction

The growth of fintech has revolutionized financial services by enabling digital payments, online banking, and mobile-based transactions. While these advancements improve accessibility and efficiency, they also increase exposure to cybersecurity risks.

2.2 FinTech and Cybersecurity

Fintech systems rely heavily on digital infrastructure, making them potential targets for cyberattacks (Wikipedia, n.d.). Common threats include phishing, identity theft, and account takeover attacks. To address these issues, machine learning techniques are increasingly used to detect unusual patterns and prevent fraudulent activities.

2.3 Deepfake Technology and Cybercrime

Deepfake technology is an emerging concern in cybersecurity (Wikipedia, n.d.). It uses artificial intelligence and deep learning to generate realistic fake media, including audio, video, and images. Such technology can be misused for impersonation, spreading misinformation, and conducting fraud.

2.4 Deepfake-Enabled Financial Fraud

Deepfake technology can be exploited in various ways within fintech systems, such as:

- Impersonating company executives or users
- Bypassing biometric authentication systems
- Performing social engineering attacks

These threats are especially dangerous for platforms that depend on voice or facial recognition. Traditional fraud detection systems may not be fully capable of identifying such advanced attacks.

2.5 Fraud Detection Techniques

Various machine learning methods, including logistic regression, decision trees, and neural networks, are commonly used to detect fraudulent transactions (Wikipedia, n.d.). These techniques analyse patterns in transaction data to identify anomalies. However, most existing models are designed for traditional fraud detection and may not effectively handle deepfake-related threats.

2.6 Research Gap

Although significant research exists on fintech security and fraud detection, limited studies focus specifically on deepfake-enabled financial fraud. Additionally, there is a lack of research on user awareness regarding such threats. This study aims to bridge this gap by analysing both technical and user-related aspects.

3: Research Methodology

3.1 Introduction

This chapter outlines the research design, methods for collecting data, and analysis techniques used to study deepfake-enabled financial fraud in fintech platforms.

3.2 Research Design

The study uses a quantitative research approach that combines:

- Survey method (primary data)

- Dataset analysis (secondary data)

3.3 Data Collection Methods

3.3.1 Secondary Data

- Fraud Data for Fintech Datasets.

These datasets contain transaction details used for fraud analysis (Kaggle, n.d.).

3.3.2 Primary Data

- Collected through structured questionnaires
- Target respondents: fintech users (students, professionals)

3.4 Sampling Method

- Sampling Technique: Convenience sampling
- Sample Size: 100–200 respondents

3.5 Data Analysis Techniques

- Descriptive statistics
- Percentage analysis
- Graphical representation
- Correlation analysis

3.6 Tools Used

- Microsoft Excel
- SPSS
- Python (basic level)

3.7 Research Framework

The study follows this sequence:

- User Awareness → Deepfake Risk → Fraud Occurrence → Detection → Prevention Measures

3.8 Ethical Considerations

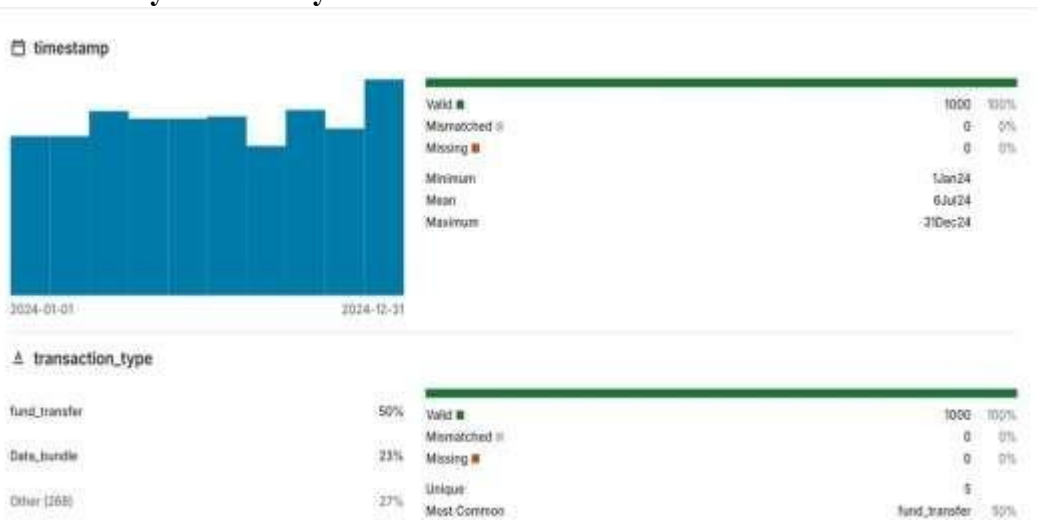
- Respondent data will remain confidential.
- Data will be used only for academic purposes.
- No personal identification will be revealed.

4: Data Analysis

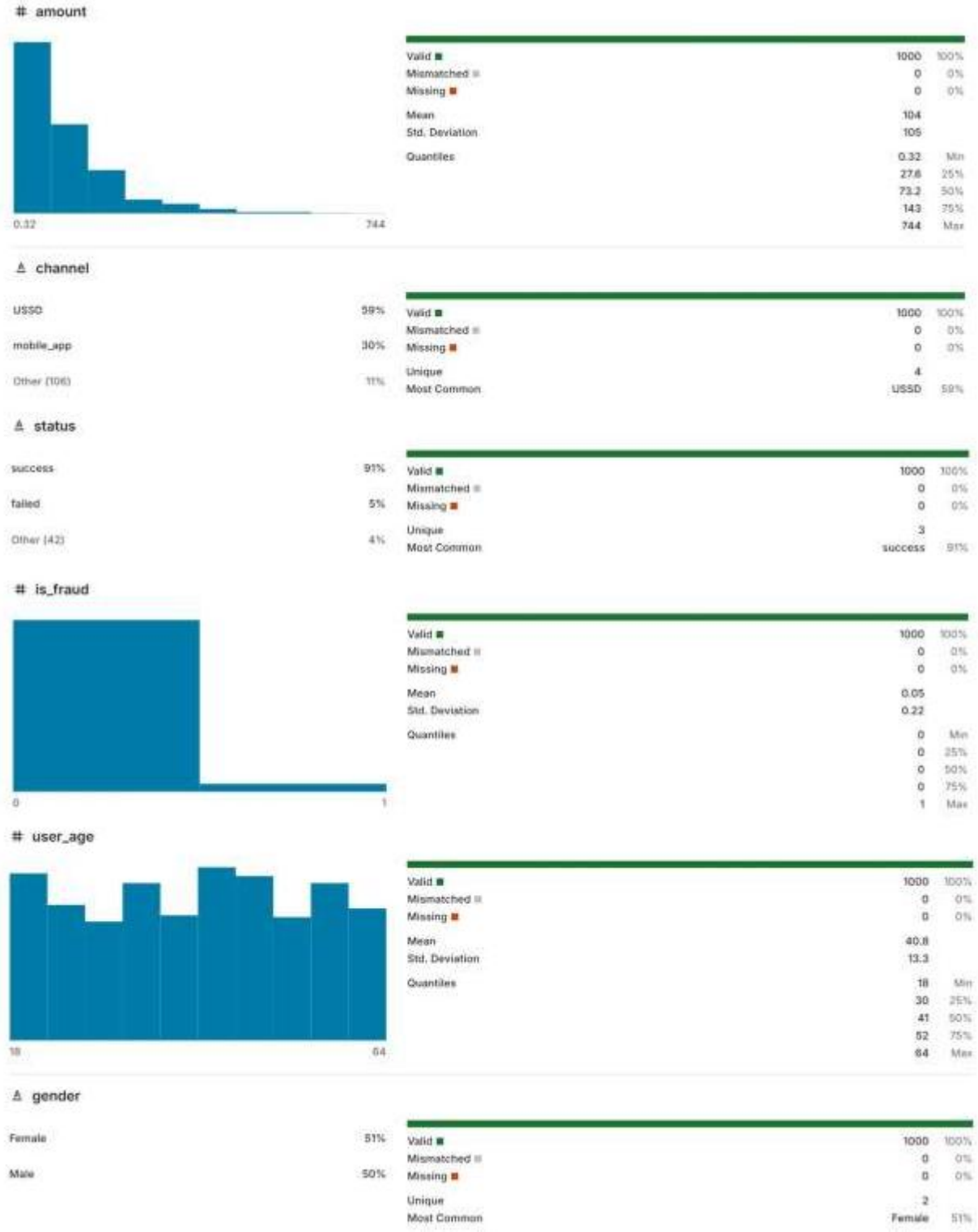
4.1 Introduction

This chapter presents the analysis and interpretation of data collected for the study on Deepfake-Enabled Financial Fraud in FinTech. The data includes both primary data (survey responses) and secondary data (financial transaction dataset). Statistical methods like percentage analysis and descriptive statistics are used to interpret the data.

Part A: Secondary Data Analysis



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amount
0.32
744
Valid 1000 100%
Mismatched 0 0%
Missing 0 0%
Mean 104
Std. Deviation 105
Quantiles
0.32 Min
27.6 25%
73.2 50%
143 75%
744 Max
△ channel
USSD 59%
mobile_app 30%
Other (106) 11%
Valid 1000 100%
Mismatched 0 0%
Missing 0 0%
Unique 4
Most Common USSD 59%
△ status
success 91%
failed 5%
Other (42) 4%
Valid 1000 100%
Mismatched 0 0%
Missing 0 0%
Unique 3
Most Common success 91%
is_fraud
0
1
Valid 1000 100%
Mismatched 0 0%
Missing 0 0%
Mean 0.05
Std. Deviation 0.22
Quantiles
0 Min
0 25%
0 50%
0 75%
1 Max
user_age
18
64
Valid 1000 100%
Mismatched 0 0%
Missing 0 0%
Mean 40.8
Std. Deviation 13.3
Quantiles
18 Min
30 25%
41 50%
52 75%
64 Max
△ gender
Female 51%
Male 50%
Valid 1000 100%
Mismatched 0 0%
Missing 0 0%
Unique 2
Most Common Female 51%

timestamp



Valid	1000	100%
Mismatched	0	0%
Missing	0	0%
Minimum	1Jan24	
Mean	6Jul24	
Maximum	31Dec24	

transaction_type

fund_transfer	50%
Data_bundle	23%
Other (268)	27%

Valid	1000	100%
Mismatched	0	0%
Missing	0	0%
Unique	5	
Most Common	fund_transfer	50%

amount



Valid	1000	100%
Mismatched	0	0%
Missing	0	0%
Mean	104	
Std. Deviation	105	
Quantiles	0.32	Min
	27.6	25%
	72.2	50%
	143	75%
	744	Max

channel

USSD	59%
mobile_app	30%
Other (106)	11%

Valid	1000	100%
Mismatched	0	0%
Missing	0	0%
Unique	4	
Most Common	USSD	59%

status

success	91%
failed	5%
Other (42)	4%

Valid	1000	100%
Mismatched	0	0%
Missing	0	0%
Unique	3	
Most Common	success	91%

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4.2 Data Preparation

- Total number of observations: 1000 transactions
- No missing or invalid values found
- Data was cleaned and organized with SPSS/Excel

4.3 Descriptive Analysis

4.3.1 Transaction Distribution Over Time

The dataset's transactions range from January 2024 to December 2024, showing consistent activity throughout the year. This indicates stable usage of fintech services.

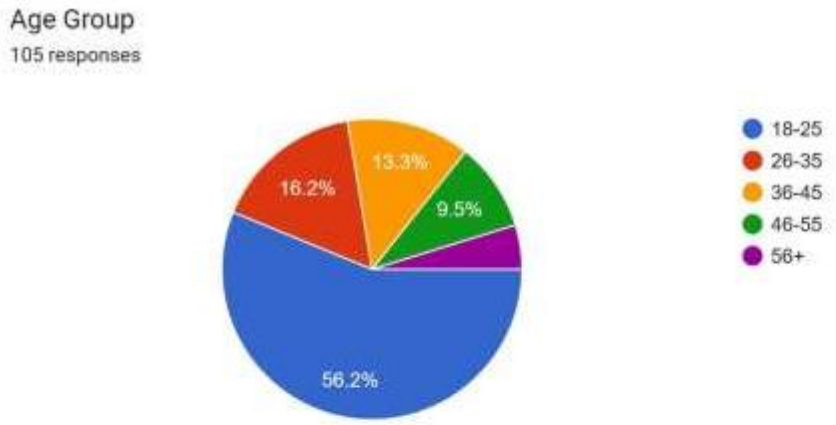
4.4 Overall Findings

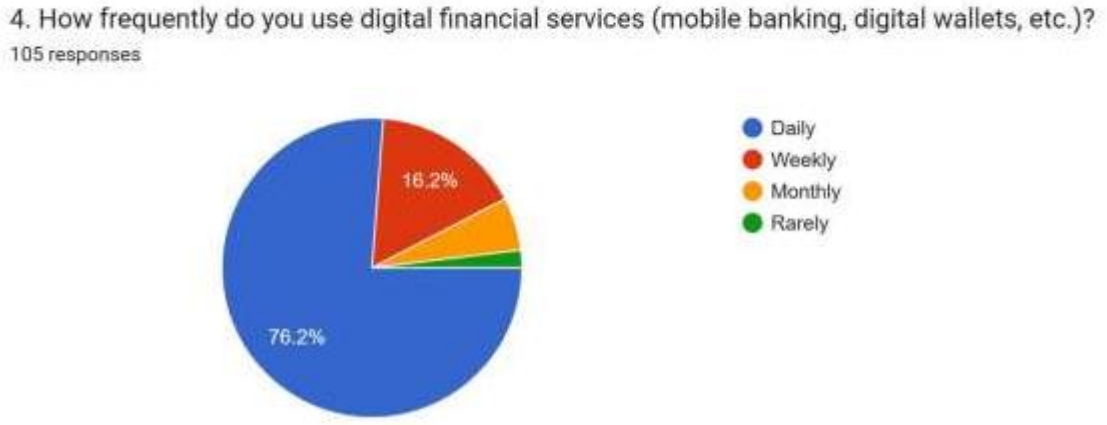
1. Fintech platforms are widely used, especially for fund transfers.
2. Most transactions are low-value and frequent.
3. USSD is the most commonly used transaction channel.
4. The transaction success rate is high at 91%.
5. While fraud exists, it remains relatively low.
6. User awareness significantly influences fraud risk.
7. Deepfake technology is an important emerging threat in fintech.

4.6 Overall Inference

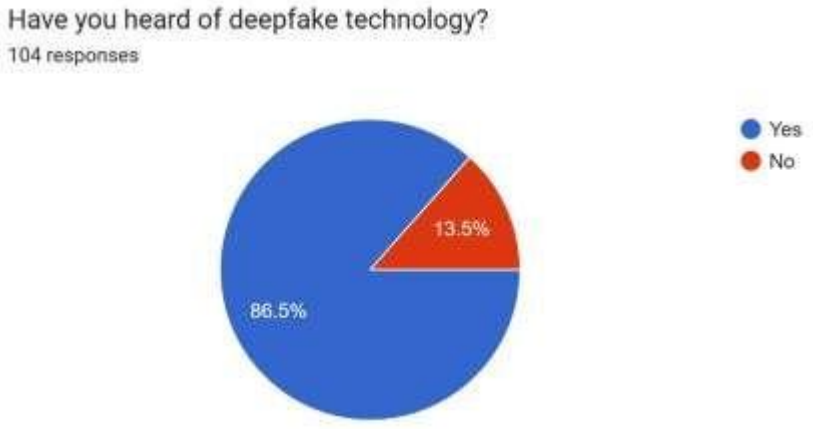
The analysis shows that fintech systems are efficient and widely adopted but not entirely secure. The presence of fraud, combined with low awareness levels, increases vulnerability to advanced threats like deepfake-enabled fraud. Thus, there is a need for improved fraud detection systems, user education, and stronger cybersecurity frameworks.

Part B: Primary Data Analysis
4.7 Demographic Questions

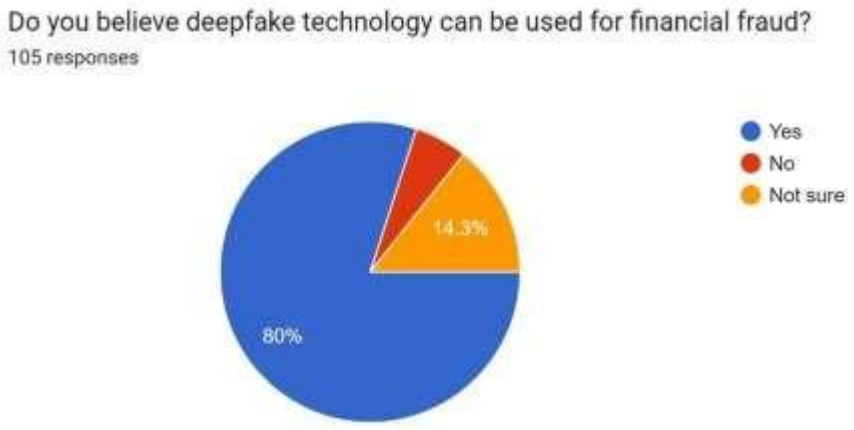




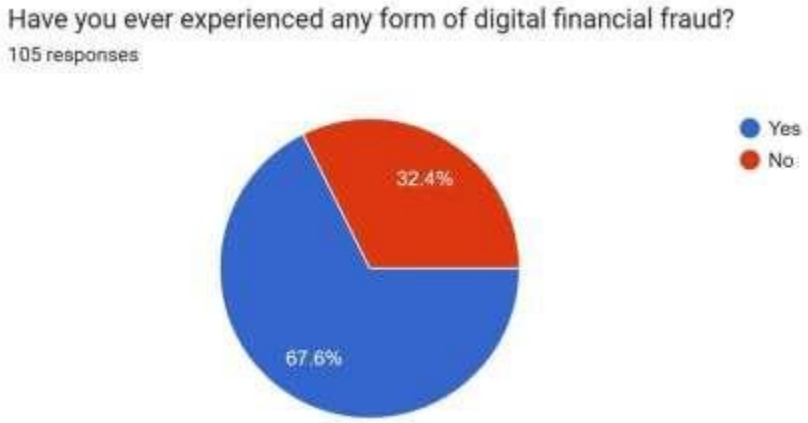
4.8 Awareness and perception of Deepfake Technology



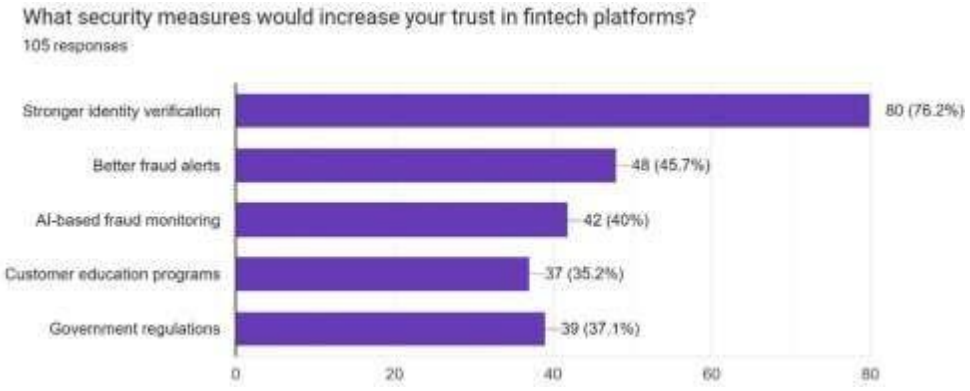
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4.9 Experience with Online Financial Fraud



4.10 Prevention and Security Measures



4.11 Overall Inference

The primary data reveals that respondents are active users of digital financial services, with most using these services daily. Many participants belong to the younger age group (18–25),

indicating higher fintech adoption among digitally active users. This suggests that younger users are more exposed to both the benefits and risks associated with digital financial platforms. Survey results also show a high awareness of deepfake technology, as most respondents have heard about it. A large majority believe that deepfake technology can facilitate financial fraud, indicating strong public recognition of its potential misuse in fintech environments.

Moreover, a significant number of respondents reported experiencing online financial fraud, highlighting security concerns in digital financial systems. This suggests that users already face cyber threats, and advanced threats such as deepfakes may further increase these risks.

Regarding prevention measures, respondents strongly preferred stronger identity verification, better fraud alerts, and AI-based fraud monitoring. This reflects a growing user demand for advanced security solutions to protect against new fraud techniques.

Overall, the primary data concludes that while fintech platforms are widely used and users are generally aware of deepfake threats, there is a clear need for stronger cybersecurity measures, user education, and improved fraud detection tools to lower the risk of deepfake-enabled financial fraud.

5: Findings (Discussion)

The following findings come from analysing secondary data (Chapter 4, Part A) and primary survey data (Chapter 4, Part B). These findings relate to the study objectives detailed in Chapter 1.

1. High Usage of FinTech Services

Most respondents use digital financial services regularly, with many accessing fintech platforms daily. This shows strong adoption of digital financial technologies.

2. Younger Users Dominate FinTech Usage

Most respondents are in the age group of 18 to 25 years. This indicates that younger, digitally active users are the main users of fintech services.

3. Strong Awareness of Deepfake Technology

A large number of respondents reported being aware of deepfake technology. Most participants believe deepfakes can be used for financial fraud.

4. Presence of Financial Fraud Risks

Many respondents have experienced online financial fraud. Secondary transaction data also revealed some fraudulent transactions, although fraud cases were relatively low.

5. Fund Transfer is the Most Common Transaction Type

The transaction dataset showed that fund transfers account for the highest proportion of activities, meaning money transfers are the most common fintech activity.

6. USSD is a Major Transaction Channel

Most transactions were carried out through USSD, followed by mobile applications. This highlights the ongoing importance of accessible, low-tech financial channels.

7. Need for Stronger Security Measures

Respondents suggested that stronger identity verification, fraud alerts, AI-based fraud monitoring, and customer awareness programs are important security measures.

8. User Awareness Influences Fraud Risk

Testing showed a significant link between user awareness and financial fraud risk, indicating users with lower awareness are more vulnerable.

9. Deepfake Technology is a Significant Emerging Threat

The findings suggest that deepfake technology could greatly increase financial fraud risks in fintech systems.

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6: Solutions

6.1 Introduction

The study found that fintech platforms face rising risks from deepfake-enabled fraud, including fake voice calls, identity impersonation, and altered verification processes. Traditional fraud detection methods might not be enough to identify these new threats. Therefore, this chapter suggests a Multi-Modal Deepfake Detection System (MDDS) as a practical solution.

6.2 Proposed Multi-Modal Deepfake Detection System

The MDDS is a security framework that combines various verification methods instead of relying on a single method.

Main Components:

- Voice Analysis – Identifies AI-generated or cloned voices.
- Face/Video Analysis – Detects fake or altered videos during KYC verification.
- Behaviour Analysis – Monitors unusual login, typing, or transaction behaviour.
- Device Verification – Confirms trusted device, SIM, and location details.
- Transaction Monitoring – Flags suspicious transfers or abnormal activities.

6.3 How the System Works

- The user initiates login, KYC, or transaction.
- The system checks voice, face, behaviour, device, and transaction data.
- AI generates a risk score.
- If safe, the request is approved.
- If suspicious, additional verification or blocking is applied.

6.4 Integration with Sanchar Saathi App

Sanchar Saathi can enhance this solution through telecom-based verification.

Integration Areas:

- Mobile Number Check: Detects suspicious or recently changed SIM activity.
- Fraud Call Reporting: Users can report scam calls for analysis.
- Device Protection: If a device is reported stolen, linked fintech access can be limited.
- Shared Alerts: Fraud numbers and scam patterns can be shared with fintech platforms.

6.5 Benefits of the Proposed Solution

- Better protection against deepfake scams
- Stronger identity verification
- Faster fraud detection and prevention
- Increased customer trust
- Improved coordination between fintech and government systems

6.6 Summary

The proposed MDDS provides an effective solution to detect and prevent deepfake-enabled financial fraud. Its integration with Sanchar Saathi can create a stronger digital security environment by merging fintech security with telecom fraud prevention.

7: Conclusion

7.1 Introduction

This chapter presents the final conclusion of the research on Deepfake-Enabled Financial Fraud in FinTech: Detection, Risk Modelling & Mitigation Framework.

7.2 Overall Conclusion

The research confirms that fintech platforms have become central to modern finance due to their speed, accessibility, and convenience. However, as reliance on digital services grows, cybercriminals are also using more advanced technologies. Deepfake technology poses a serious threat because it can impersonate trusted identities using fake voice, video, and images. The study found that users frequently use digital financial services. Many are aware of cyber fraud risks, and some have experienced online fraud. Data analysis indicated that while most

transactions are legitimate, there are still vulnerabilities to fraud. Statistical findings also show that awareness levels affect exposure to fraud and that users seek stronger security measures. Traditional fraud detection methods may not be sufficient against synthetic media attacks. Therefore, this research proposed a Multi-Modal Deepfake Detection System that combines voice, video, behaviour, device, and transaction intelligence. The proposal to integrate with Sanchar Saathi shows how public digital infrastructure can enhance private-sector security.

7.3 Research Contribution

This study contributes by:

- Highlighting deepfake fraud as an emerging challenge for fintech cybersecurity.
- Combining survey insights with transaction data analysis.
- Identifying gaps in awareness and security.
- Proposing a practical prevention framework.
- Encouraging collaboration between fintech, telecom, and government systems.

7.4 Final Recommendations

- Fintech firms should implement AI-based layered security systems.
- Governments should develop anti-fraud digital platforms and foster coordination.
- Users should receive ongoing education about deepfake scams.
- Regulators should establish policies for accountability related to AI-enabled fraud.
- Continuous research is needed as deepfake technology evolves.

7.5 Final Closing Statement

The future of digital finance relies on both innovation and security. To maintain that trust, fintech systems must evolve faster than the threats they encounter. Detecting and preventing deepfake-enabled fraud today is crucial for creating a safer, more resilient digital economy tomorrow.

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GENERATIVE AI AND AGENTIC AI: A COMPREHENSIVE RESEARCH REPORT

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Abstract
Artificial Intelligence has evolved rapidly over the past two decades, transforming industries, research, and daily life. Among the most influential developments in recent years are Generative Artificial Intelligence (Generative AI) and Agentic Artificial Intelligence (Agentic AI). Generative AI refers to computational models capable of creating new content including text, images, audio, video, and software code. These systems rely primarily on deep learning architectures such as transformers, generative adversarial networks, and diffusion models trained on massive datasets. Agentic AI represents the next phase of intelligent automation, where AI systems operate as autonomous agents capable of planning, reasoning, interacting with tools, and executing tasks to achieve defined goals. This report examines the development, architecture, applications, and implications of both technologies through an extensive literature review. It also explores ethical considerations, real-world applications, and future directions of research. The findings suggest that while generative AI enhances creativity and productivity, agentic AI enables autonomous problem solving and decision-making, marking a major shift in the evolution of artificial intelligence systems.
Keywords: Agentic AI, Artificial Intelligence, Deep Learning, Generative AI, Transformers.

1. Introduction

Artificial Intelligence has become one of the most transformative technologies of the 21st century. Early AI research focused on rule-based expert systems, symbolic reasoning, and logic-based knowledge representation. Over time, the integration of machine learning, neural networks, and big data technologies significantly expanded the capabilities of intelligent systems.

Today, artificial intelligence supports applications ranging from speech recognition and autonomous vehicles to financial forecasting and medical diagnostics. In recent years, two major innovations have emerged in AI research: Generative AI and Agentic AI. Generative AI systems are capable of producing original content by learning patterns from large datasets.

These models have demonstrated remarkable capabilities in writing essays, generating artwork, composing music, designing products, and developing software code.

Large language models and diffusion-based image generators are among the most widely recognized examples of generative technologies. Agentic AI extends these capabilities by enabling systems to act autonomously. Instead of responding to a single prompt or query, agentic systems can break down complex objectives into multiple steps, use external tools, retrieve information, and iteratively improve results.

Such systems function as intelligent agents that interact with environments, reason about problems, and execute multi-step workflows. The purpose of this report is to examine the evolution, architecture, and applications of generative and agentic AI.

The study builds upon previous literature in artificial intelligence and integrates recent developments in deep learning and autonomous agents.

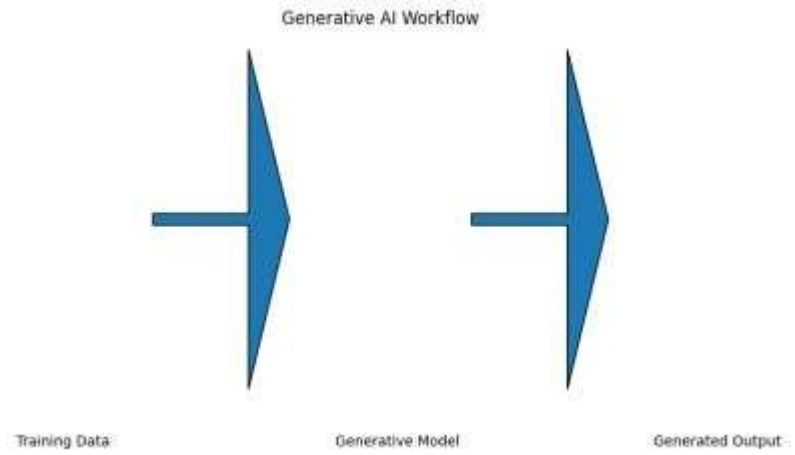


Figure 1: Generative AI Workflow

2. Background of Artificial Intelligence

Artificial intelligence research has progressed through several historical phases. The earliest period focused on symbolic AI, where intelligence was modeled through rules and logic systems. Expert systems built during the 1980s attempted to replicate human decision-making using structured knowledge bases.

Although these systems showed promise, they lacked adaptability and required extensive manual rule creation. The second phase of AI development introduced machine learning algorithms capable of learning patterns from data.

Techniques such as decision trees, support vector machines, and neural networks allowed systems to improve performance automatically through training. The modern era of AI is characterized by deep learning and large-scale neural networks.

Improvements in computing power, data availability, and cloud infrastructure have enabled the training of extremely large

models capable of processing complex information. These advancements laid the foundation for both generative models and autonomous agent systems.

3. Generative Artificial Intelligence

Generative AI refers to artificial intelligence systems capable of generating new content based on learned patterns from training data. Unlike traditional AI models that focus on classification or prediction, generative models produce entirely new outputs such as text, images, videos, or software code.

Transformer-based language models represent one of the most important breakthroughs in this domain. These models use self-attention mechanisms to understand relationships between words in a sequence, enabling them to generate coherent and contextually relevant text. Other generative architectures include Generative Adversarial Networks and diffusion models used in image generation.

Generative AI has revolutionized creative industries and knowledge work. Applications include automated writing assistants, design tools, virtual tutors, and software development assistants.

Organizations increasingly use these systems to improve productivity, accelerate innovation, and support decision-making processes.

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Table 1: Major Applications of Generative AI

Industry	Application	Impact
Healthcare	Drug discovery and medical imaging	Faster diagnosis and treatment research
Education	AI tutoring systems	Personalized learning experiences
Software Development	Code generation and debugging	Improved developer productivity
Media	Content creation and design	Automated creative production

4. Agentic Artificial Intelligence

Agentic AI refers to autonomous artificial intelligence systems capable of planning, reasoning, and executing tasks with minimal human supervision.

These systems operate through cycles of goal definition, planning, action execution, observation, and refinement. Agentic systems often integrate large language models with memory systems, tool access, and reasoning algorithms.

Such systems can perform complex tasks including research assistance, project management, data analysis, and workflow automation. For example, an agentic AI assistant could analyze a research question, gather information from multiple sources, synthesize insights, and produce a detailed report without continuous human guidance.

Agentic AI represents a significant step toward more general forms of machine intelligence where systems can pursue long-term objectives rather than responding to isolated prompts.

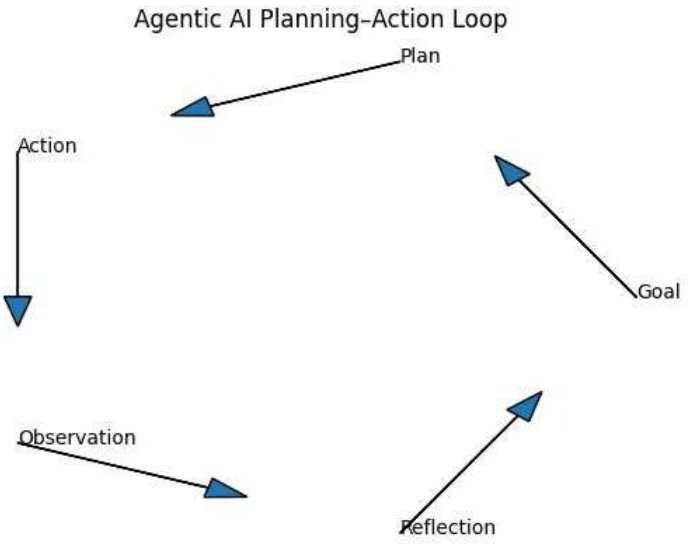


Figure 2: Agentic AI Planning–Action Loop

5. Literature Review

Research on generative and agentic AI builds upon decades of work in artificial intelligence. Early research explored reasoning systems, expert systems, and planning algorithms.

Later studies introduced neural networks and machine learning techniques capable of processing large datasets. Recent research focuses on large language models, multimodal generative models, and autonomous agent frameworks.

These technologies demonstrate significant improvements in language understanding, problem solving, and creative generation capabilities.

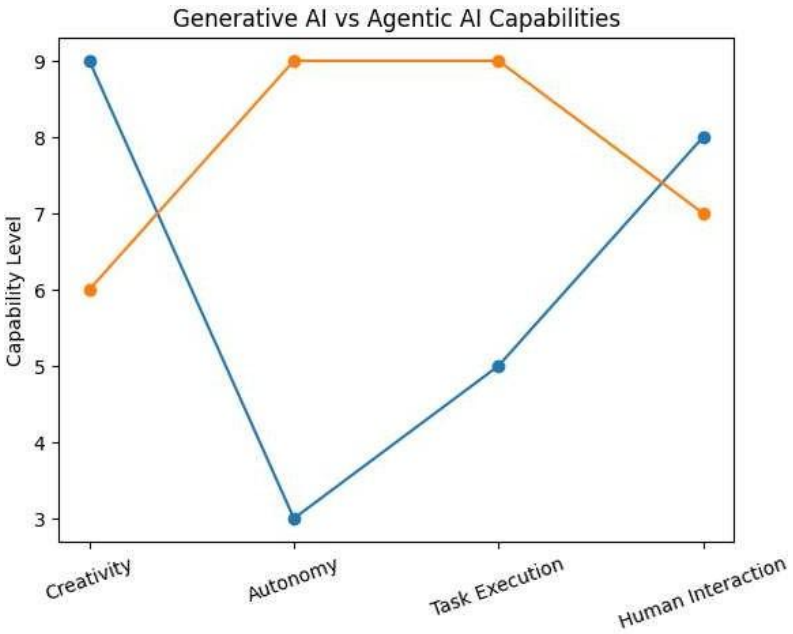


Figure 3: Generative AI vs Agentic AI Capabilities

6. Discussion and Future Directions

The integration of generative and agentic technologies is expected to transform industries across the globe. Businesses increasingly adopt AI-powered assistants to automate workflows, generate insights, and improve decision making. Healthcare organizations are exploring AI systems that assist doctors in diagnosing diseases and developing treatment plans.

Educational institutions are experimenting with AI tutors capable of providing personalized learning experiences for students. Despite these benefits, challenges remain. Ethical considerations including bias, transparency, accountability, and data privacy must be addressed.

Researchers and policymakers emphasize the need for responsible AI governance to ensure that intelligent systems are developed and deployed safely. Future research will likely focus on improving reasoning capabilities, reducing hallucinations in generative models, and developing more reliable autonomous agents.

The collaboration between humans and intelligent systems will play a critical role in shaping the future of artificial intelligence.

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7. Conclusion

Generative AI and Agentic AI represent two of the most significant milestones in the ongoing evolution of artificial intelligence. Generative AI has demonstrated remarkable capabilities in producing high-quality content across multiple domains, including text, images, audio, and software code.

By leveraging advanced deep learning techniques such as Transformer architecture and Generative Adversarial Networks, these systems have transformed creative processes and enhanced productivity in industries such as healthcare, education, media, and software development.

In contrast, Agentic AI introduces a paradigm shift from passive content generation to active, goal-oriented problem solving.

These systems operate as autonomous agents capable of planning, reasoning, interacting with external tools, and executing multi-step tasks with minimal human intervention. This ability to independently manage complex workflows marks a transition toward more intelligent and self-directed AI systems.

The combined integration of generative and agentic capabilities is particularly impactful. When generative models are embedded within agentic frameworks, the result is a powerful hybrid system capable of both creating content and acting upon it.

Such systems are already beginning to redefine human-machine collaboration by augmenting human decision-making, automating repetitive tasks, and enabling more efficient problem-solving processes.

However, despite these advancements, several challenges remain. Ethical concerns such as algorithmic bias, lack of transparency, and issues of accountability continue to pose risks.

Technical limitations, including hallucinations in generative models and reliability concerns in autonomous systems, must also be addressed. Ensuring responsible development, deployment, and governance of AI technologies is essential for achieving sustainable and trustworthy progress in this field.

8. Future Scope

The future of Generative AI and Agentic AI lies in the development of more robust, reliable, and ethically aligned intelligent systems. One of the primary research directions involves improving the reasoning capabilities of AI models. Current systems, while powerful, often lack deep logical reasoning and struggle with complex, multi-step problem solving.

Advancements in hybrid architectures that combine symbolic reasoning with neural networks are expected to enhance these capabilities.

Another critical area of focus is the reduction of hallucinations in generative models. Hallucinations—where AI systems generate incorrect or misleading information—remain a significant barrier to their adoption in high-stakes domains such as healthcare, law, and scientific research.

Future work will likely emphasize improved training methodologies, better evaluation metrics, and the integration of real-time verification mechanisms.

Enhancing the reliability and trustworthiness of autonomous agents is equally important. Agentic AI systems must be capable of consistent performance, error detection, and safe decision-making in dynamic environments.

This will require advancements in memory systems, planning algorithms, and real-time feedback mechanisms, as well as the development of standardized benchmarks for evaluating agent performance.

Another promising direction is the development of more effective human-AI collaboration frameworks. Rather than replacing human intelligence, future AI systems will increasingly function as collaborative partners, augmenting human capabilities.

This includes designing intuitive interfaces, improving explainability, and enabling seamless interaction between humans and AI agents.

Finally, strengthening AI governance and ethical standards will play a crucial role in shaping the future of these technologies. Policymakers, researchers, and industry leaders must work together to establish regulations and guidelines that ensure fairness, accountability, transparency, and data privacy. Responsible AI development will be essential to maintaining public trust and maximizing the societal benefits of these systems.

Overall, the convergence of generative and agentic AI is expected to lead toward the development of more advanced, adaptive, and general-purpose intelligent systems. These systems have the potential to revolutionize industries, accelerate innovation, and fundamentally reshape the relationship between humans and machines in the years to come.

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RESEARCH TRENDS AND COLLABORATION PATTERNS IN CYBERCRIME STUDIES: A BIBLIOMETRIC ANALYSIS USING VOSVIEWER

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Abstract
Rapid growth in digital technologies has led to an increase in cyber-related crimes such as hacking, identity theft, ransomware, and online fraud. Understanding how research in this area is developing is important for improving cybersecurity measures. This paper studies research trends and collaboration patterns in cybercrime from 2016 to 2025 using bibliometric analysis. A dataset of 2500 research papers was collected from the Dimensions database. The data was examined using VOSviewer to analyse author collaborations, country contributions, keyword trends, and citation relationships. The findings show a steady rise in research output and stronger collaboration among researchers across countries. Major contributions are observed from countries like the United States and China. The study also identifies emerging research areas such as artificial intelligence, machine learning, digital forensics, and data privacy. These insights can support researchers and policymakers in understanding current developments and planning future work in cybersecurity.
Keywords: Cybercrime, Cybersecurity, Bibliometric Analysis, VOSviewer, Research Trends, Author Collaboration.

Introduction

In recent years, digital technologies and internet-based services have expanded rapidly. People now depend on online platforms for communication, banking, education, and many daily activities. While these advancements have made life easier, they have also increased the risk of cybercrime. Cybercrime refers to illegal activities carried out using computers, networks, or online systems, including hacking, identity theft, and online fraud.

Cybercrime is now a major global issue. Modern cyber-attacks are more advanced, and large volumes of sensitive data are stored online. This creates risks for individuals, businesses, and governments. Because of this, researchers from fields such as cybersecurity, computer science, and law are actively working to understand and reduce cyber threats.

Many research studies are available in this domain. Analysing these studies helps in understanding how the field is developing. Bibliometric analysis, along with tools like VOSviewer, makes it easier to study research trends, collaboration patterns, and key topics. This study analyses 2500 research papers from 2016 to 2025 to understand the growth and direction of cybercrime research.

Literature Review

The problem of cybercrime is increasing day by day. Because of this, many researchers from different fields like cybersecurity, criminology, information systems, and digital forensics have started focusing on this topic. In recent years, many studies have explored different areas of

cybercrime, such as how cyber-attacks happen, methods to prevent them, digital security policies, and their impact on society and the economy [1], [4], [6], [15].

Earlier studies show that cybercrime has changed along with the growth of digital technologies. Researchers have explained that with the rise of online services, cloud computing, and social media platforms, both individuals and organizations have become more exposed to cyber-attacks. Different types of cybercrimes like phishing, ransomware attacks, identity theft, and financial fraud have been studied in detail. These studies highlight the need for strong cybersecurity systems and better awareness among users [2], [11], [14].

Some researchers have also tried to understand the overall research development in cybercrime. Bibliometric and scientometric studies are commonly used to analyze research publications in cybersecurity and related areas. These studies help in identifying research trends, top authors, highly cited papers, and collaboration networks among researchers and institutions [3], [10], [13], [16].

Previous bibliometric studies show that cybercrime research has grown rapidly in recent years, especially after major data breaches and ransomware incidents across the world. Researchers have found that countries with better technological infrastructure contribute more to cybersecurity research. Also, collaboration between universities, government bodies, and industry experts plays an important role in improving research quality and bringing new ideas in this field [6], [7], [20].

Further studies suggest that using visualization tools like VOSviewer makes it easier to understand the structure of a research field. Network visualization techniques help in identifying important research topics, emerging trends, and collaboration patterns among authors and countries [5], [9], [12].

Even though there is a large amount of research available on cybercrime, there is still a need to study recent developments and collaboration networks in this area. Therefore, this study aims to add value to existing research by analyzing publication trends, research collaborations, and keyword networks related to cybercrime, with a focus on understanding current research trends [8], [18], [19], [21].

Research Methodology

This study applies bibliometric analysis to examine research trends in cybercrime. This method uses statistical techniques to analyse scientific publications and identify patterns.

Relevant publications were retrieved from the Dimensions database using keywords related to cybercrime. A total of 2500 research papers published between 2016 and 2025 were selected. The dataset includes information such as author names, affiliations, countries, keywords, and citation details.

The collected data was cleaned to remove duplicate entries and ensure consistency. After preprocessing, the dataset was analysed using VOSviewer. Various network maps were created, including co-authorship networks, country collaboration networks, keyword co-occurrence maps, and citation networks. These analyses help in understanding research trends and relationships within the field.

Data Collection

The data was collected on March 11, 2026 from the Dimensions database using keywords like “cybercrime”, “internet crime”, and “online fraud”. Only publications from 2016 to 2026 were considered to ensure recent and relevant data.

The dataset includes journal articles, conference papers, and book chapters. Additional details such as abstracts, author affiliations, and citation counts were also included.

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Data Processing
The data was downloaded in CSV format and cleaned to remove errors and duplicate entries. Author names and affiliations were standardised for accuracy. The final dataset was then prepared for analysis in VOSviewer.

Data Analysis Tools/Methods
VOSviewer was used to generate visual network maps and analyse relationships among authors, institutions, and countries. It helps in identifying collaboration patterns and research clusters.
Citation analysis was also performed to identify influential research papers and journals. This provides insights into the most important contributions in cybercrime research.

Results and Discussion
Bibliographic coupling
Bibliographic coupling is used to identify relationships between research papers based on shared references. When two papers cite the same source, they are considered related. A higher number of shared references indicates a stronger connection.
This method helps in identifying groups of researchers working on similar topics, even if they are not directly collaborating.

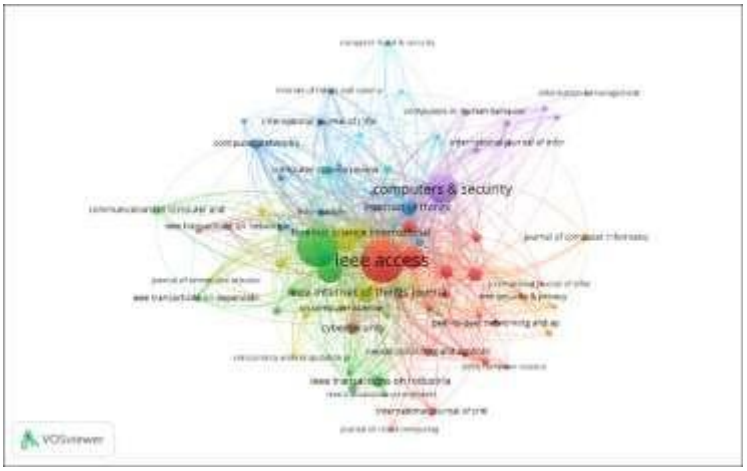


Figure 1: Bibliographic coupling map showing connections between cybercrime research sources.

This figure 1 represents a bibliographic coupling network generated using VOSviewer. It explains how different journals and research sources in cybercrime are linked through common references. Each node in the map represents a source, and its size shows how influential it is. Larger nodes like *IEEE Access* and *Computers & Security* indicate highly used and well-connected sources. The connecting lines show shared references between sources, and thicker connections represent stronger relationships. Different colours highlight groups of related research areas. Sources placed closer together are more closely related, while distant ones have weaker connections.

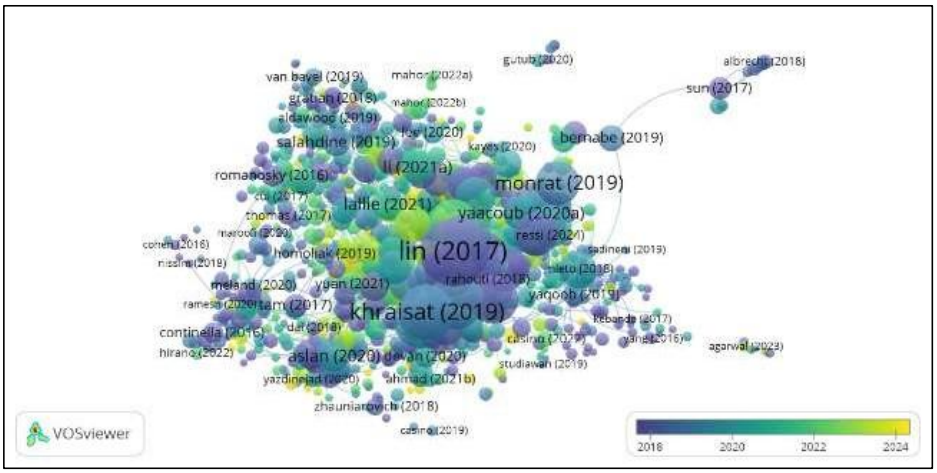


Figure 2: Overlay visualization showing the evolution of cybercrime research over time.

This figure 2 shows an overlay visualization that represents how cybercrime research has changed over time. Each node represents a research paper or topic, and the links indicate relationships between them. The colour of the nodes shows the time of publication. Older studies appear in darker colours like blue, while newer studies are shown in lighter colours such as green and yellow. Larger nodes indicate more important or highly cited studies. The central area of the map shows dense connections, meaning recent research is more active and focused. This visualization clearly shows the growth and evolution of cybercrime research over the years.

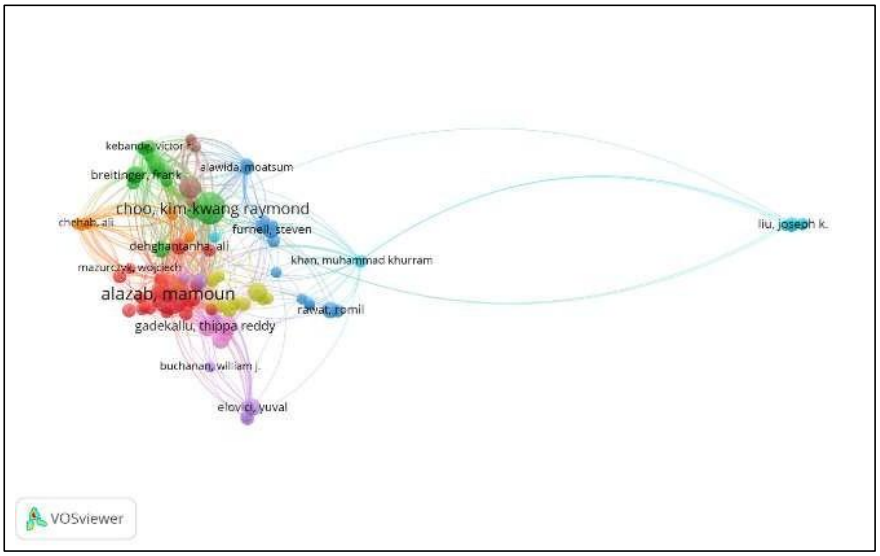


Figure 3: Co-authorship network showing collaboration between authors in cybercrime research.

This figure 3 represents the collaboration between authors in cybercrime research. Each circle indicates an author, and lines between circles show that the authors have worked together. The size of the circle reflects the level of contribution, where larger circles represent more active researchers. Different colours divide authors into groups based on collaboration patterns. Authors located near the centre are highly connected and frequently collaborate, while those on the outer side have fewer connections. This figure helps in understanding how researchers are connected and how knowledge is shared in this field.

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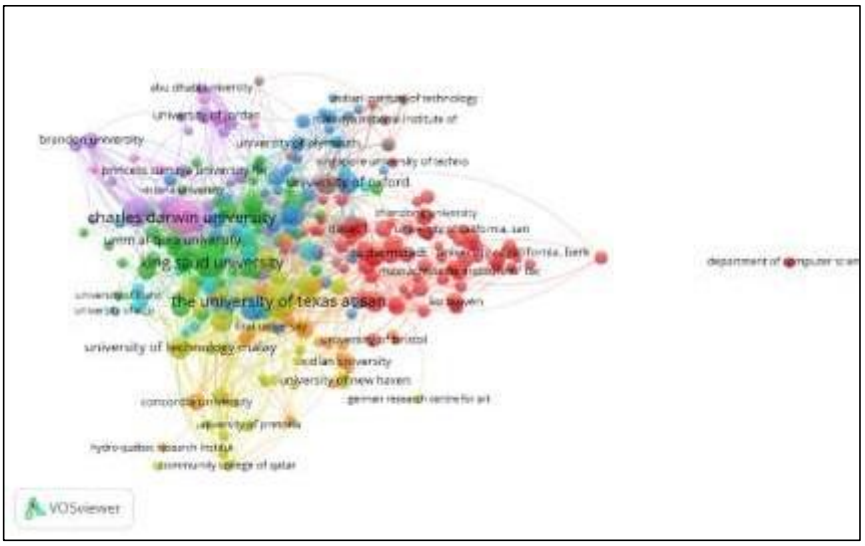


Figure 4: Country collaboration network showing global partnerships in cybercrime research.

This figure 4 illustrates collaboration between different countries involved in cybercrime research. Each node represents a country, and links between nodes show joint research work. The size of the node indicates the level of contribution, where larger nodes represent countries with higher research output. Colours are used to group countries that frequently collaborate. Countries positioned in the central region of the map have strong international connections, while those on the edges show limited collaboration. This map highlights the global nature of cybercrime research.

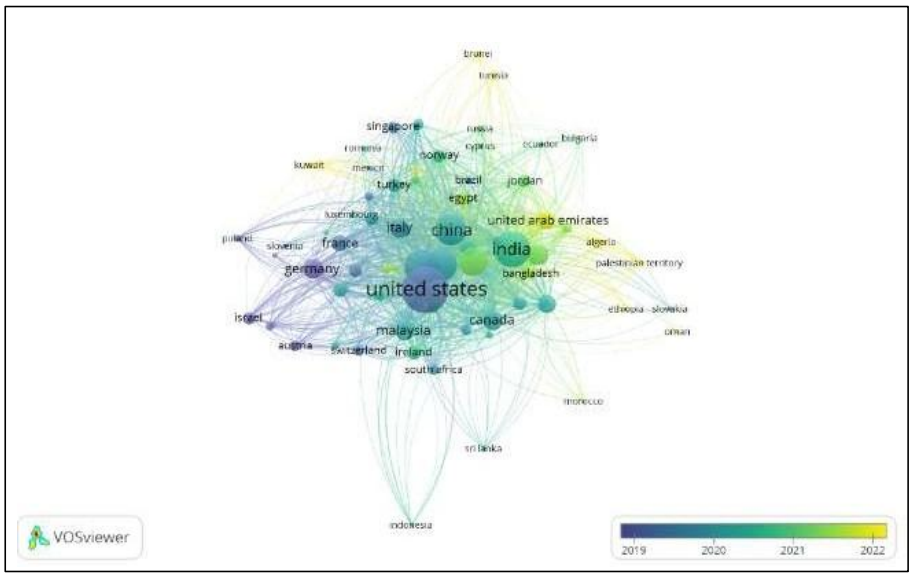


Figure 5: Overlay map showing country-wise research contributions over time in cybercrime studies.

This visualization in figure 5 shows how country-wise research contributions have changed over time. Each circle represents a country, and connections show collaborative research between countries. The size of the circle indicates the number of research publications. Colours represent the time period, where darker colours indicate earlier research and brighter colours indicate recent work. Countries with larger and brighter nodes are more active in recent years. The map shows increasing collaboration and participation from multiple countries in cybercrime research.

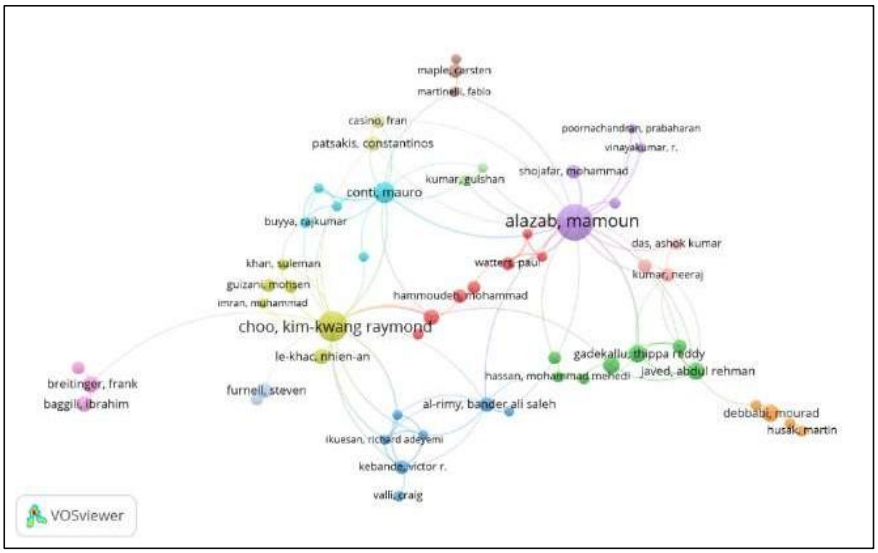


Figure 6: Author collaboration network showing connections between researchers in cybercrime studies.

This figure 6 displays the collaboration network among researchers. Each node represents an author, and the connections show joint publications. The size of the node indicates how active the author is in research. Colours represent clusters of researchers working on similar topics. Authors located in the centre of the map are more connected and have strong collaboration networks. Those on the outer side have fewer links and limited collaboration. This figure helps identify key contributors in cybercrime research.

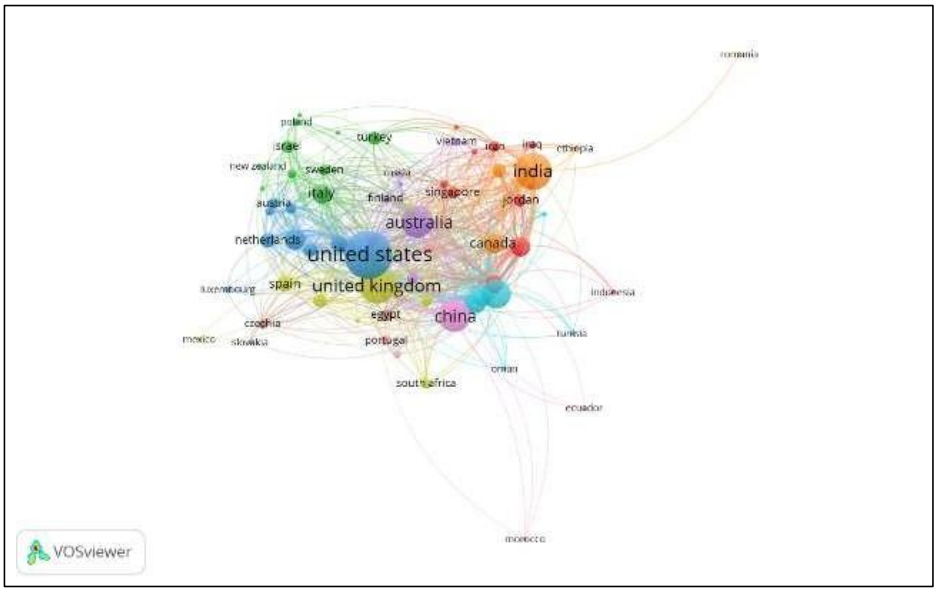


Figure 7: Country co-authorship network showing international collaboration in cybercrime research.

This network map in figure 7 shows how countries collaborate through co-authored research papers. Each node represents a country, and the connections show partnerships between them. Larger nodes represent countries with higher research contributions. Colours indicate clusters of countries that frequently work together. Countries in the central part of the network have strong global connections, while those on the edges have fewer collaborations. This figure shows the importance of international cooperation in cybercrime research.

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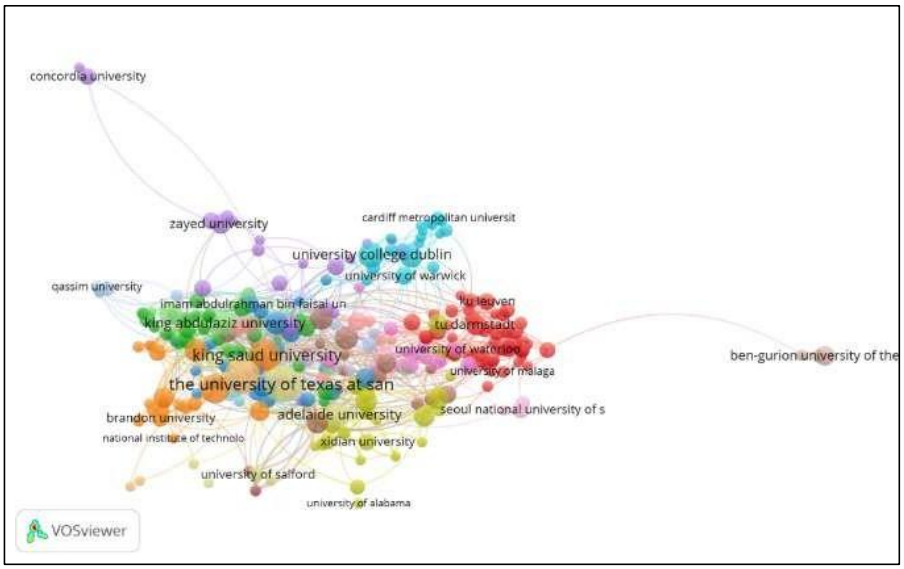


Figure 8: Institution collaboration network showing partnerships among universities in cybercrime research.

This figure 8 shows collaboration between institutions such as universities and research organizations. Each node represents an institution, and the connections show joint research activities. The size of each node reflects the research contribution of that institution. Different colours group institutions that work closely together. Institutions at the centre are highly active and well-connected, while those at the edges have limited collaboration. This figure highlights institutional partnerships in cybercrime research.

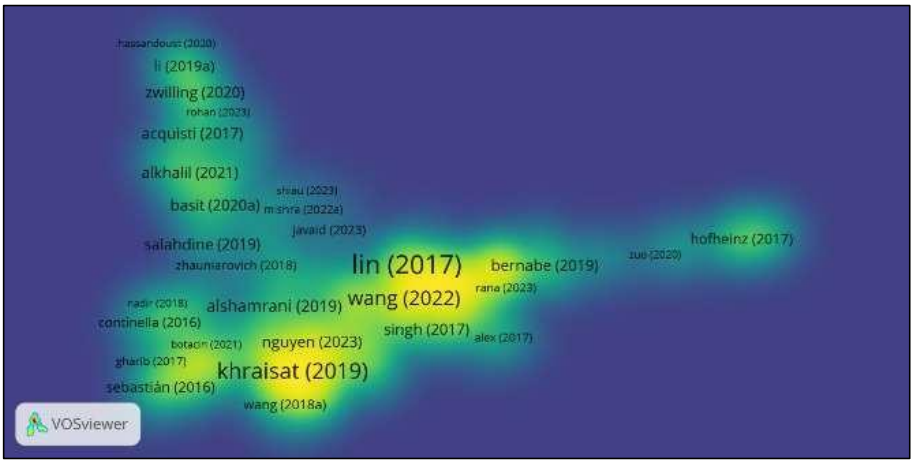


Figure 9: Density map showing key authors and highly active research areas in cybercrime.

This density map shown in figure 9 highlights the most active authors and research areas in cybercrime studies. Areas shown in bright colours like yellow and red indicate high research activity and strong connections. Green areas represent moderate activity, while blue areas show less activity. Authors located in bright regions are highly influential and frequently cited. This figure helps in identifying important contributors and major research focus areas in cybercrime.

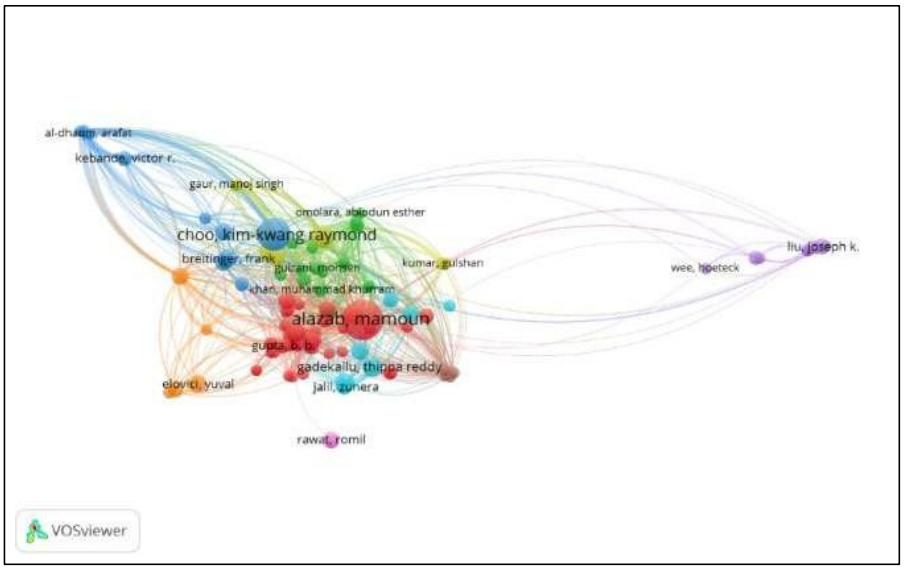


Figure 10: Author network showing research collaboration clusters in cybercrime studies.

This figure 10 shows clusters of authors based on their collaboration patterns. Each node represents an author, and connections show joint research work. The size of the node indicates the level of contribution. Colours represent different research groups. Authors located in dense clusters are actively collaborating, while isolated nodes represent authors with limited connections. This figure provides insight into teamwork and research grouping in cybercrime studies.

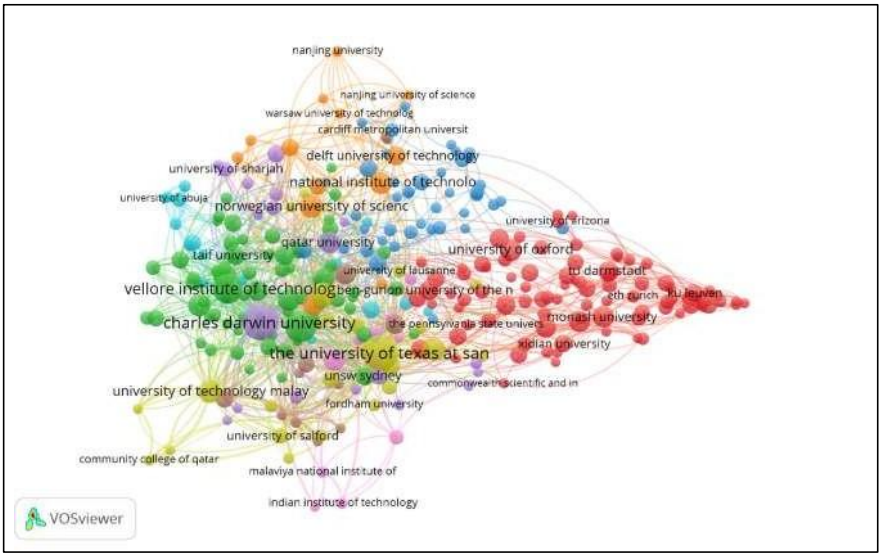


Figure 11: Institution network showing collaboration clusters among research organizations in cybercrime studies.

This visualization in figure 11 represents collaboration between different institutions. Each node shows an institution, and links indicate joint research work. Larger nodes represent institutions with higher research output. Colours divide institutions into clusters based on collaboration. Institutions located in the centre have strong connections and active research involvement. Those on the outer side have fewer collaborations. This figure shows how institutions contribute to cybercrime research.

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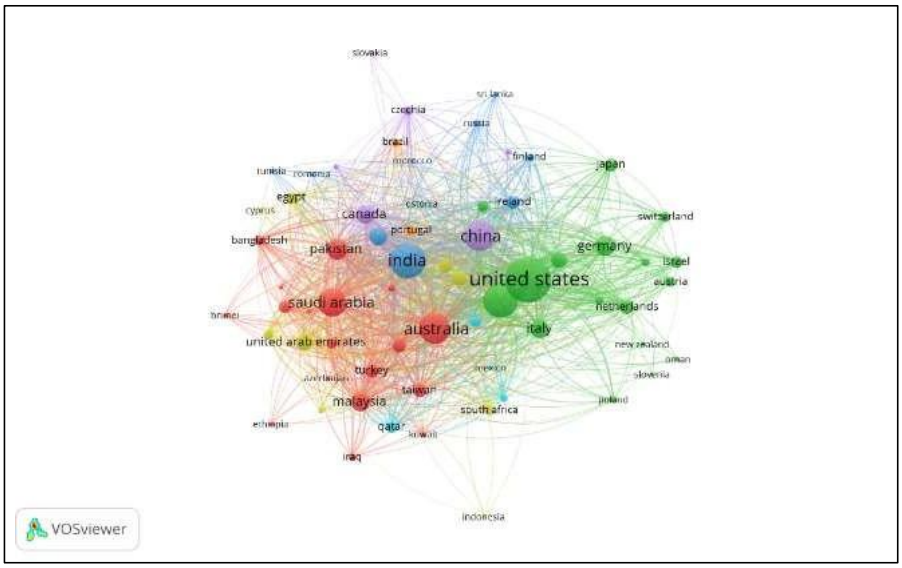


Figure 12: Bibliographic coupling map showing connections between countries in cybercrime research.

This figure 12 shows bibliographic coupling between countries based on shared references. Each node represents a country, and connections show similarity in research work. Larger nodes indicate countries with higher research output. Colours group countries working on similar topics. Countries located centrally have strong connections with others, while those on the edges have fewer links. This figure highlights how countries are connected through similar research interests.

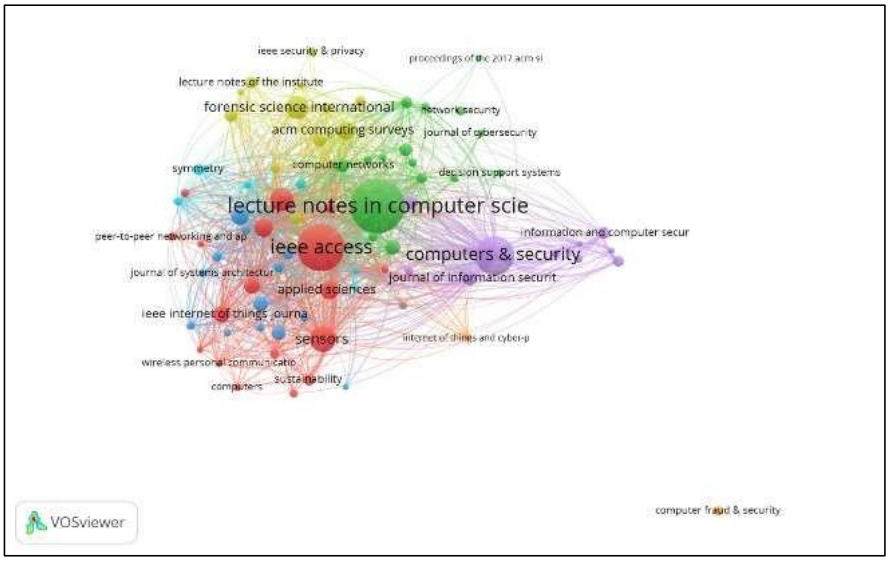


Figure 13: Bibliographic coupling map showing relationships between journals in cybercrime research.

This figure 13 represents relationships between journals based on shared citations. Each node represents a journal, and links show connections through common references. Larger nodes indicate more influential journals. Colours group journals with similar research focus. Journals located near the centre are highly connected and widely used, while those at the edges have fewer connections. This map helps in identifying important journals in cybercrime research.The study shows that research in cybercrime is increasing every year. This indicates

growing awareness about cybersecurity issues. Researchers from many countries are contributing, and international collaboration is also increasing.
The analysis shows that important research areas include cybersecurity, digital forensics, and cyber law. Keywords like ransomware, data privacy, and cyber threats appear frequently. New technologies such as artificial intelligence and machine learning are also becoming important in this field.
Collaboration networks show that researchers are working in groups and sharing knowledge. This improves research quality and helps in finding better solutions for cybercrime.

Future Scope
Future studies can include data from additional databases to improve the coverage of research analysis. It is also important to explore the impact of emerging technologies such as artificial intelligence and quantum computing on cybersecurity.
Understanding user behaviour and awareness related to cybercrime can also help in developing better prevention strategies. Advanced analytical tools can be used in future research for deeper insights.

Conclusion
Cybercrime is increasing due to the rapid growth of digital technologies and online services. This study analysed research trends using 2500 publications from the Dimensions database.
The results show continuous growth in research activity and strong collaboration among researchers worldwide. Important research areas and emerging technologies have also been identified. These findings provide useful insights for researchers and policymakers to develop effective strategies for preventing cybercrime.

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DIGITAL MULTITASKING AND ITS IMPACT ON COGNITIVE PERFORMANCE AND ACADEMIC PRODUCTIVITY AMONG STUDENTS

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Abstract
In today's digital world, students use several different digital platforms at once, resulting in a tendency to engage in digital multitasking when performing academic work. The purpose of this study is to evaluate the effects of digital multitasking on students' cognitive functioning and their academic efficiency. The study relies on primary data obtained through a structured questionnaire based on a Likert scale, followed by systematic analysis. According to the obtained results, digital multitasking occurs relatively frequently among the surveyed students. Although a high share of those engaged in multitasking were recorded, there were a lot of people with a neutral position. Digital multitasking is found to be linked to poor cognitive performance because it reduces concentration and the ability to retain information. In addition, academic productivity suffers because of the increase in the time needed to perform tasks and a decrease in efficiency. Moreover, there exists a gap in perceptions since students believe that multitasking increases productivity although in reality, this claim is not supported by the findings. However, students acknowledge that reducing digital distractions has a positive effect on cognitive performance.
Keywords: Digital Multitasking, Cognitive Performance, Academic Productivity, AI-driven Platforms, Digital Distractions, Attention Economy, Task Switching, Learning Analytics, Digital Behavior, Human-Computer Interaction.

1. Introduction

1.1 Background of Study

The evolution of digital technologies has significantly influenced learning by enabling greater accessibility, flexibility, and interactive engagement with educational resources. Students today extensively use digital devices such as smartphones, laptops, and tablets for both academic and non-academic activities. Despite the numerous benefits these technologies offer, they have led to the widespread adoption of digital multitasking, defined as performing multiple tasks simultaneously. Digital multitasking is the simultaneous use of multiple digital devices, applications, or streams of information, such as texting while watching a video or checking email during a video conference. Although often mistaken for efficiency, it is rapid task-switching that increases cognitive load, reduces focus, and lowers overall performance. Digital multitasking in students involves simultaneous engagement in academic and non-academic activities using digital devices, such as accessing social media, messaging, or browsing while studying or attending classes. While multitasking is often perceived as a way to enhance productivity, studies indicate that the human brain can process only a limited amount of information at a time. Engaging in multiple tasks at once may lead to cognitive overload, which may lead to harder paying attention, remember things, and process information.

Cognitive ability can be defined as the mental capacity of the brain to process information, learn, reason, and solve problems. It encompasses functions such as memory, attention, and comprehension, which allow individuals to understand complex ideas and apply knowledge

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effectively in various contexts. Any disturbance in these cognitive processes may adversely impact a student's ability to comprehend, retain, and apply knowledge. So, this may impact **academic productivity**, which is reflected in students' academic performance, task completion efficiency, and overall learning outcomes.

As technology becomes increasingly integrated into everyday life, it is important to examine its influence on students' cognitive performance and academic achievement, particularly in the context of digital multitasking. Despite the growing relevance of this issue, there is still a lack of context-specific research, especially in developing countries like India, where technological adoption has accelerated significantly in recent years.

Accordingly, this research focuses on evaluating the influence of digital multitasking on students' cognitive performance and academic productivity. This study aims to examine the impact of multitasking on academic performance through empirical analysis and to suggest strategies for enhancing learning methodologies within a digitally driven environment.

1.2 Objectives of the Study

The primary aim of this research is to assess the effects of digital multitasking on students' cognitive performance and academic productivity.

The study outlines the following specific objectives:

i. To examine the prevalence of digital multitasking among students in the context of academic activities.

ii. To see what effect digital multi-tasking has on students' cognitive ability and specifically focus and memory

iii. To evaluate the influence of digital multitasking on students' academic productivity, with reference to time utilization and efficiency.

iv. To assess students' perceptions regarding the advantages and disadvantages of engaging in digital multitasking.

v. To look for a correlation between students' academic performance and digital multi-tasking

vi. To find out how limiting distraction from their phones affects students' cognition and learning

vii. To see how many students understand how digital multi-tasking affects their performance.

1.3 Expected Outcomes

The study is expected to show that digital multitasking is common among students and has a negative impact on their concentration, memory, and academic productivity. It is also anticipated that students may have a misconception that multitasking improves performance. Additionally, the study is likely to reveal that reducing digital distractions can enhance focus and learning outcomes, highlighting the need for greater awareness and better study practices.

2. Literature Review

In India, the rapid growth of smartphone usage and affordable internet access has significantly increased students' engagement in digital activities, leading to a rise in digital multitasking. Numerous Indian researchers have investigated its impact on cognitive performance and academic outcomes.

i. Amandeep Kaur and Ramanpreet Kaur (2019) examined the impact of mobile phone usage on students' academic performance. Their study found that excessive smartphone use during study sessions reduces concentration and negatively affects academic outcomes. The research highlighted that frequent switching between academic and non-academic activities weakens students' ability to maintain focus.

ii. Similarly, Sanjay K. Dwivedi (2020) emphasized that digital distractions, particularly social media and messaging applications, make it difficult for students to concentrate and complete tasks effectively. The study revealed that students who engage in multitasking

experience higher levels of distraction and lower academic efficiency compared to those who focus on a single task.

iii. Neha Sharma and Pooja Sharma (2021) investigated the relationship between social media usage and academic performance among college students. Their findings indicated a negative correlation between time spent on social media during study periods and academic achievement. The results suggest that multitasking on digital platforms adversely affects memory retention and learning effectiveness.

iv. Ritu Gupta (2018) conducted a study on the impact of digital device usage on students' learning behavior. The findings showed that continuous exposure to digital interruptions leads to reduced cognitive engagement and increased mental fatigue, which in turn negatively affects academic productivity.

v. Furthermore, Anjali Mishra and Vikas Singh (2022) highlighted the importance of digital discipline among students. Their study suggested that while technology enhances access to educational resources, uncontrolled multitasking can result in poor time management, reduced concentration, and lower academic performance.

The sources in the Indian context consistently demonstrates that digital multitasking adversely affects students' cognitive performance and academic productivity. However, there remains a lack of extensive empirical research in India that thoroughly investigates this relationship. This emphasizes the necessity for additional research to enhance comprehension of the consequences of digital multitasking in various educational contexts across the country.

3. Research Methodology

3.1 Research Design

The research follows a descriptive and analytical research design. The descriptive dimension aids in grasping the prevalence of digital multitasking among students while the analytical component investigates its effects on cognitive performance and academic productivity.

3.2 Data Collection sources

Primary Data: Obtained through the administration of structured questionnaires to students
Secondary Data: Sources of literature, journals, articles, and the internet
Population and Sampling Target Population: College students
Sampling Technique: Convenience Sampling Sample
Size: Nearly 80-120 participants

3.3 Data Collection Method

Data is gathered by means of a structured questionnaire created based on the 5-point Likert scale (Strongly Agree to Strongly Disagree).

The questionnaire consists of sections regarding:

- Multitasking behavior
- Cognitive impact (attention, memory)
- Academic productivity
- Student perceptions

4. Data Analysis and Interpretation

Data obtained from 109 student respondents was examined using descriptive statistical techniques such as mean analysis and response distribution to evaluate the effects of digital multitasking on cognitive performance and academic productivity.

- **Prevalence of Digital Multitasking**

The pie chart illustrates students' tendency to switch between multiple applications while performing academic tasks.

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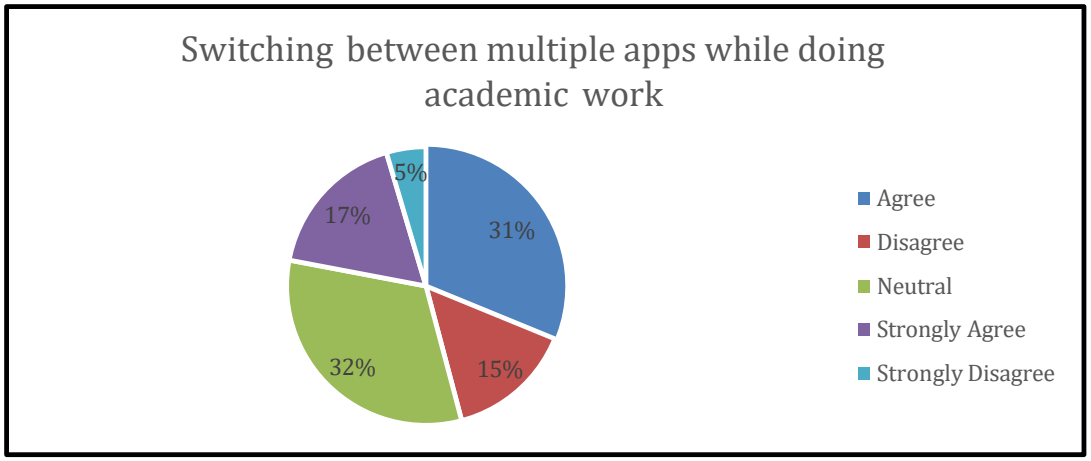


Fig. 1: Distribution of students' responses on digital multitasking during academic work.

The analysis reveals a moderate occurrence of digital multitasking among students, with 50% of respondents agreeing that they engage in multitasking during academic activities. However, a significant proportion (32%) reported neutral responses, indicating inconsistency in their multitasking habits. This suggests that while multitasking is prevalent, it is not consistently practiced by all students.

- **Impact on Concentration**

The pie chart represents respondents' opinions regarding the statement "Digital multitasking makes us less focused," with 48% agreeing and 32% indicating a neutral stance.

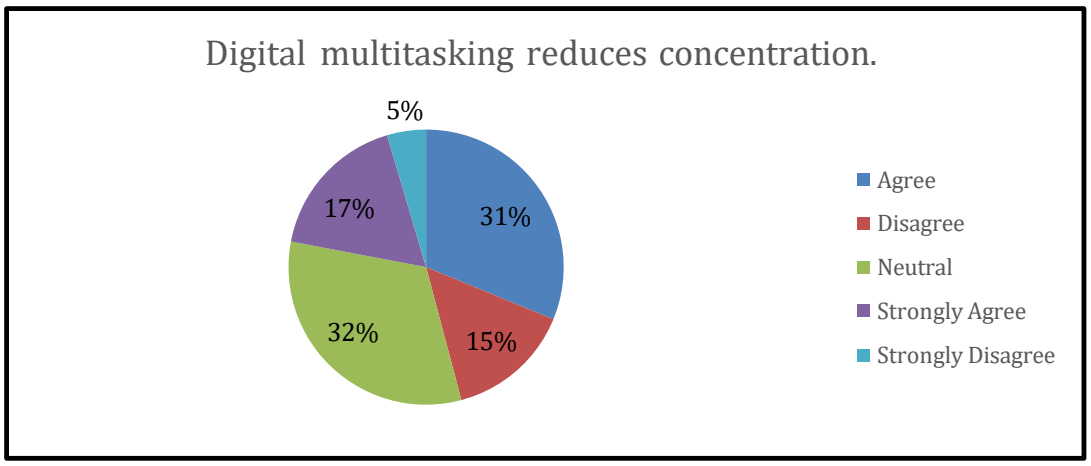


Fig. 2: Distribution of students' responses regarding the impact of digital multitasking on concentration.

The findings indicate that, digital multitasking appears to distract students from focusing, as a higher number of students agree with the statement. The significant proportion of neutral responses indicates that many students lack clarity regarding the effect of digital multitasking on their concentration.

In this case, we can assume that students experience the detrimental effects of multitasking without realizing them.

- **Effect on Memory Retention**

Students reported difficulty in retaining information when multitasking. Many responses leaned toward agreement for statements related to forgetting or reduced understanding.

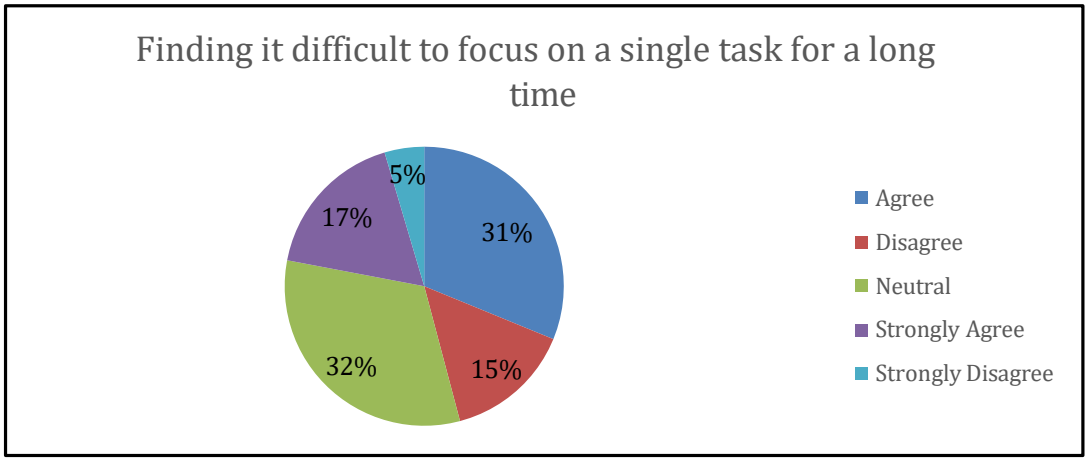


Fig. 3: Distribution of students' responses on difficulty in focusing on a single task for a long time.

Multitasking increases cognitive load, which negatively affects the brain's ability to process and store information effectively.

- **Academic Productivity**

The responses indicate that multitasking increases the time required to complete academic tasks and reduces overall efficiency. Students reported lower productivity and more distractions during study sessions.

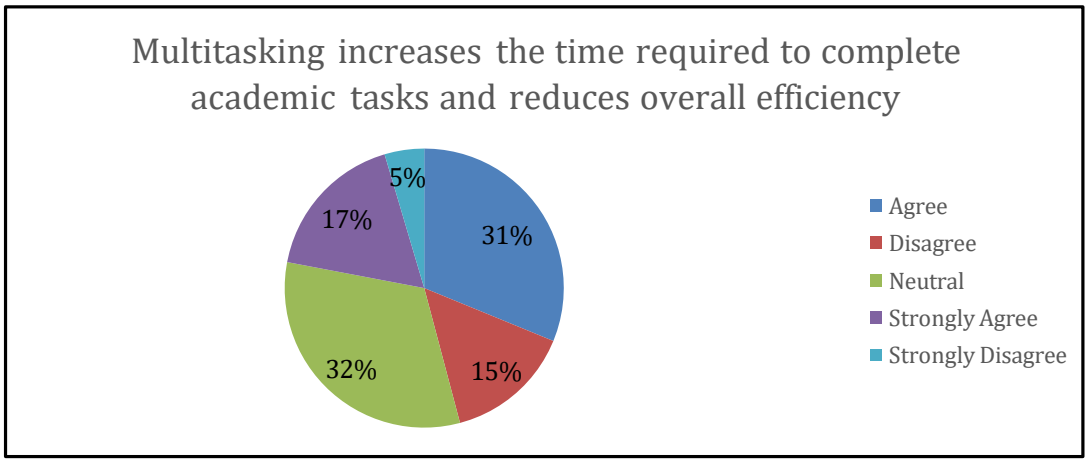


Fig. 4: Distribution of students' responses on the impact of multitasking on task completion time and efficiency.

Digital multitasking leads to delayed task completion and reduced quality of academic work, thereby negatively impacting productivity.

- **Perception of Multitasking**

Interestingly, a considerable number of students still believe that multitasking helps them save time or improves productivity. However, their responses on performance-related questions contradict this belief.

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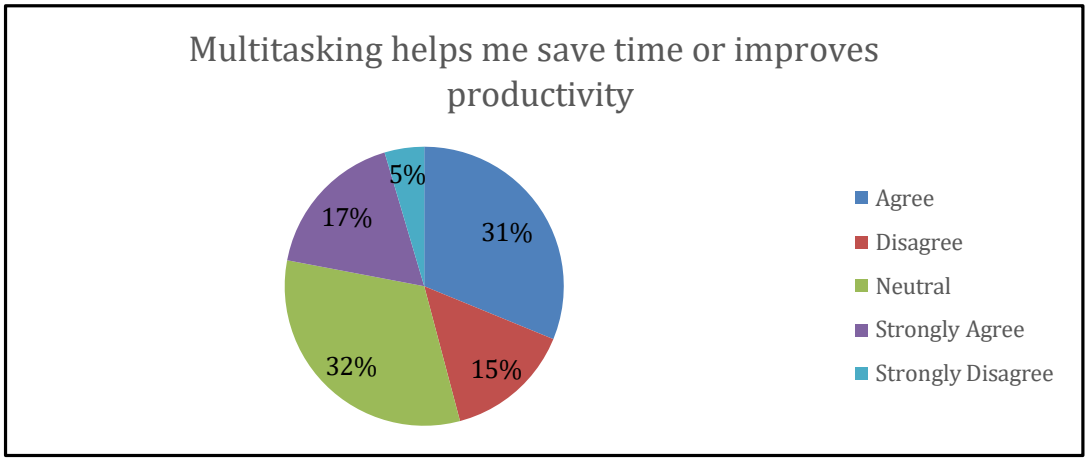


Fig. 5: Distribution of students' responses on whether multitasking helps save time or improves productivity.

There exists a perception gap, where students believe multitasking is beneficial, but actual outcomes indicate reduced performance.

- **Effect of Reducing Digital Distractions**

The statement "Reducing digital distractions improves my focus and learning" received a high mean score (~3.64), indicating general agreement among respondents.

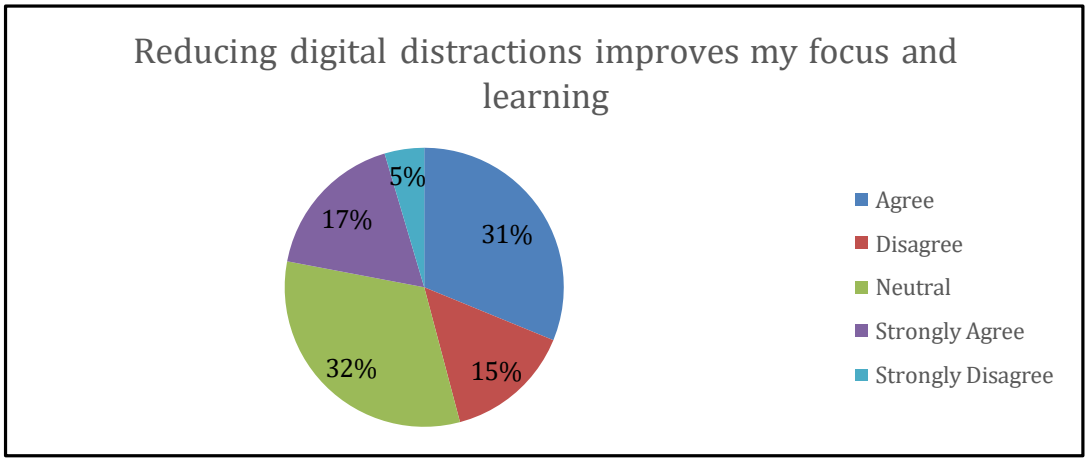


Fig. 1: Distribution of students' perceptions of the effects of reducing digital distractions on focus and learning.

Students recognize that minimizing digital distractions can significantly improve their focus and learning outcomes.

The results of analyzing the data obtained from the sample of 109 participants show that although multitasking with digital devices is fairly popular among students, not all of them practice it consistently and there is insufficient awareness the degree to which it affects their cognitive performance.

The results also show that multitasking while studying has a pronounced negative effect on the participants' ability to concentrate and remember information. Participants found it difficult to stay focused and retain knowledge while engaging with multiple digital platforms at once. Yet, the prevalence of neutral responses shows that students may be unaware of how their behavior negatively impacts their cognitive processes.

In addition, the analysis showed that digital multitasking has an adverse effect on productivity, as it causes students to extend the time required to complete academic tasks than necessary.

Nevertheless, many students see the benefits of multitasking despite the negative influence on their productivity.

5. Result discussions, findings, and recommendations.

5.1 Results Discussion

The findings of the research clearly suggest that digital multitasking is a common phenomenon among college students; however, it is not consistently observed by all of them. Some students admitted engaging in multitasking while performing academic assignments. The large amount of neutral answers related to different variables shows a variation in the respondents' behaviors and their poor awareness concerning the impacts of digital multitasking.

The findings indicate that digital multitasking has a negative impact on students' cognitive performance, particularly in terms of concentration and memory. As a result, students experience difficulty in maintaining focus and processing information effectively while engaging in multiple tasks simultaneously. These outcomes can be explained by established cognitive theories, such as Cognitive Load Theory, which suggests that the human brain has limited capacity to process multiple streams of information at the same time. Furthermore, the results also demonstrate the adverse effects of multitasking on students' academic productivity. Namely, students admitted having a higher workload in terms of time because multitasking negatively impacted their effectiveness while completing tasks. Nevertheless, some respondents claimed that multitasking helped them increase academic productivity despite its negative impact.

5.2 Key Results

- Digital Multitasking Behavior Is Moderately Prevalent Among Students
- Multitasking has an adverse effect on one's ability to concentrate
- Attention span is shortened owing to higher cognitive loads involved
- Learning outcomes suffer from distractions and reduced productivity
- Neutral answers suggest a lack of awareness
- There is clearly a perception problem (students think it is helpful when in fact it lowers performance)
- Students acknowledge that decreasing digital distractions increases concentration

5.3 Recommendations

The above conclusions lead to the following recommendations:

- **For Students:**

Adopt single-tasking instead of multitasking
Try out methods such as Pomodoro Technique
Minimize social media use when studying
Employ focus applications (such as Forest and Focus To-Do)

- **For Educational Institutions:**

Organize campaigns about digital distractions
Promote offline or concentrated study sessions
Train individuals about time management and productivity

- **For EdTech / Application Developers:**

Implement focus mode/distraction blocking options
Restrict nonessential notifications while learning
Harness artificial intelligence for productive use

- **For Further Research:**

Utilize bigger and more diverse sample sizes
Consider objective measurements rather than self-reporting
To assess the long-term effects of digital multitasking on students' academic performance.

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6. Conclusion

The results indicate that digital multitasking is widely practiced by students in the context of academic activities. There is ample evidence that digital multi-tasking is prevalent among students. The majority of students surveyed indicated that multitasking impacted their ability to concentrate in the context of academic performance and study as efficiently as they should. However, many a substantial number of students did not seem fully aware of how their ability to concentrate or perform effectively academically could be affected by their ability to multi - task. Consequently, their perception of the impact of multi-tasking on productivity is also incorrect. In addition to these findings, the growth in the role of AI-powered digital platforms, such as social media platforms and AI-driven streaming services, and messaging applications have all contributed significantly to the progression of multi-tasking behavior. Most of these platforms have features that positively encourage students to engage continually and switch to multiple tasks, e.g., notifications for updates, highly personalized content feeds and recommendations based on algorithms. The study aligns with the concept of the attention economy, wherein digital platforms are designed to optimize user engagement, often leading to reduced sustained attention and productivity.

Therefore, an individual's ability to pay attention for a long time is greatly diminished, resulting in poor academic performance. This necessitates not only the promotion of behavioral change but also the development of technology-based solutions designed to assist students with focused study, distraction free study environments, and the management of notifications intelligently.

In conclusion, digital technologies provide substantial benefits for their users and consequently can enhance your learning. However, use of these technologies must be properly controlled to ensure they do not negatively impact academic performance. Hence, developing digital discipline, creating awareness and designing digital technologies that promote and encourage more dedicated and sustainable ways of learning should be paramount, particularly in this digital and AI driven world.

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AI DRIVEN INDUSTRY 4.0 & IT'S INFLUENCE ON OPERTATION STRATEGY IN MANUFACTURING ORGANIZATION

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Abstract
The rapid evolution of Industry 4.0 has significantly transformed the global manufacturing landscape through the integration of Artificial Intelligence (AI), Internet of Things (IoT), cyber-physical systems, big data analytics, and cloud computing. This study presents a comprehensive review of existing research on AI-driven smart manufacturing, focusing on its impact on operational efficiency, intelligent decision-making, customized production, sustainability, and supply chain resilience. The literature indicates that AI enhances predictive maintenance, real-time monitoring, adaptive production planning, and quality control, leading to improved productivity and reduced operational costs. Empirical findings further demonstrate that AI adoption positively influences organizational performance, provided that companies invest in workforce training and structured decision-making systems. Additionally, research highlights AI's role in enabling mass customization, supporting sustainable supply chains for small and medium-sized enterprises (SMEs), and strengthening supply chain resilience through agility and adaptability. Despite these benefits, challenges such as data privacy, governance issues, black-box models, cybersecurity risks, and organizational readiness remain significant barriers to implementation. The review concludes that while AI serves as a core enabler of Industry 4.0, its successful integration requires strategic planning, transparent data governance, human–machine collaboration, and continuous skill development.

Keywords: Artificial Intelligence, Industry 4.0, Smart Manufacturing, Operational Efficiency, Predictive Maintenance, Supply Chain Resilience, Sustainable Manufacturing, Cyber-Physical Systems, Generative AI, Digital Transformation.

1. Introduction

Industry 4.0 represents the fourth industrial revolution, characterized by the integration of advanced digital technologies such as Artificial Intelligence (AI), Internet of Things (IoT), big data analytics, cloud computing, and cyber-physical systems into manufacturing and industrial processes. Unlike earlier industrial revolutions that focused on mechanization, electrification, and automation, Industry 4.0 emphasizes smart and connected systems capable of real-time communication, self-monitoring, and autonomous decision-making. AI plays a central role in this transformation by enabling predictive maintenance, intelligent production planning, quality control, and customized manufacturing. Through machine learning algorithms and data-driven insights, organizations can optimize operations, reduce downtime, improve product quality, and respond quickly to changing market demands. As a result, smart factories are evolving into flexible, efficient, and highly responsive production environments.

The background of this topic lies in the growing need for industries to remain competitive in a rapidly globalizing and technology-driven economy. Traditional manufacturing systems often struggle with inefficiencies, lack of flexibility, high operational costs, and limited adaptability to disruptions. The emergence of Industry 4.0 technologies addresses these challenges by promoting automation, connectivity, and intelligent decision-making across the value chain.

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This topic is important because AI-driven Industry 4.0 not only enhances productivity and profitability but also supports sustainable manufacturing practices and resilient supply chains. Moreover, organizations must understand both the opportunities and challenges—such as data security, workforce skill gaps, and governance issues—to successfully implement these technologies. Therefore, studying AI in Industry 4.0 is essential for businesses, researchers, and policymakers aiming to achieve long-term industrial growth and innovation.

2. Review of Literature

Early conceptual foundations are provided by Zhong et al. **(2017)**, who describe Intelligent Manufacturing as the integration of cyber-physical systems, IoT, and cloud technologies to enable flexible, smart production systems. Similarly, Olsen and Tomlin **(2020)** outline Industry 4.0 as a paradigm shift in operations management, where digital and physical systems are interconnected to improve strategic and operational outcomes.

Systematic reviews such as Peres et al. **(2020)** and Ahmmed et al. **(2024)** emphasize the growing synergy between AI and Industry 4.0 technologies. They identify key benefits including predictive maintenance, adaptive manufacturing, and quality control, while also highlighting challenges such as data privacy, governance issues, black-box AI systems, and limited real-world implementation. These studies stress the importance of secure, interpretable, and integrated AI systems, particularly for SMEs.

Several empirical studies demonstrate AI's direct impact on operational efficiency. Mitchell **(2025)** finds a strong positive relationship between AI adoption and operational performance but notes that employee training is critical for maximizing benefits. Tashkinov **(2025)** argues that successful Industry 4.0 implementation depends on effective, AI-supported decision-making systems rather than technology alone. Lindberg **(2025)** further establishes AI as a productivity-enhancing factor in manufacturing, identifying a structural shift in AI's macroeconomic impact.

Research also focuses on intelligent and customized manufacturing systems. Wan et al. **(2023)** propose AI-driven smart factory architectures capable of small-batch and multi-variety production. Yang et al. **(2021)** address challenges in process industries such as petrochemicals and energy, emphasizing human-machine collaboration and autonomous control. Parmar et al. **(2025)** present a case study showing how Generative AI improves productivity, reduces operational costs, and enables real-time optimization in intelligent factory systems. Additionally, Bandhana et al. **(2025)** explore multi-agent systems and manufacturing execution systems, highlighting workforce upskilling and transparency as key to achieving high technology readiness levels.

Beyond manufacturing processes, AI's role in supply chain and business transformation is emphasized. Fahima et al. **(2025)** demonstrate how AI supports sustainable supply chains for SMEs by balancing environmental and economic performance. Azzakya et al. **(2024)** describe AI as a catalyst for innovation and competitive advantage across industries. Alfaqiyah et al. **(2025)** highlight how Industry 4.0 technologies enhance supply chain resilience through agility, adaptability, and customer integration.

3. Research Methodology

a. Research Design

The study is applied and quantitative in nature, focusing on analyzing the impact of AI adoption in Industry 4.0 manufacturing organizations. It follows a descriptive and analytical research design to examine relationships between AI integration and organizational performance. The study is cross-sectional, meaning data is collected at one point in time from selected respondents in manufacturing companies.

b. Data Collection

The study uses primary data collection methods. Data is gathered through a structured questionnaire based on a 5-point Likert scale (Strongly Agree to Strongly Disagree).

Universe: Manufacturing companies implementing Industry 4.0 technologies.

Sample Size: 120 respondents.

Respondents: Production managers, operations managers, IT managers, and engineers.

Sampling Technique: Non-probability convenience sampling.

c. Variables

Independent Variables:

- AI Adoption Level
- Industry 4.0 Technology Integration
- Workforce Training Level

Dependent Variables:

- Operational Efficiency
- Productivity
- Supply Chain Resilience
- Sustainable Performance

d. Hypothesis

- H1: AI adoption has a significant positive impact on operational efficiency.
- H2: Workforce training significantly influences the relationship between AI adoption and productivity.
- H3: AI integration significantly improves supply chain resilience.
- H4: AI-driven Industry 4.0 technologies positively affect sustainable performance.

e. Statistical Tools

The following statistical tools are used for data analysis:

- Percentage Analysis
- Mean and Standard Deviation
- Correlation Analysis
- Regression Analysis
- t-test and F-test for hypothesis testing
- Significance level set at 5% (0.05)

Software Used: SPSS and MS Excel.

4. Data Analysis and Graphical Representation

1. Descriptive Statistics

The data was collected from **120 respondents**. The descriptive statistics show:

Mean AI Adoption: 3.02

Mean Operational Efficiency: 2.85

Mean Supply Chain Resilience: 3.19

Mean Sustainability Performance: 3.12

Standard deviation values are around 1.4, showing moderate variation in responses.

The range for all variables is 1 to 5 (based on Likert scale).

Interpretation:

The average responses are close to 3, indicating moderate agreement that AI adoption contributes to operational and strategic improvements.

2. Demographic Analysis

Pie Chart – Gender Distribution

Male: 70%

Female: 30%

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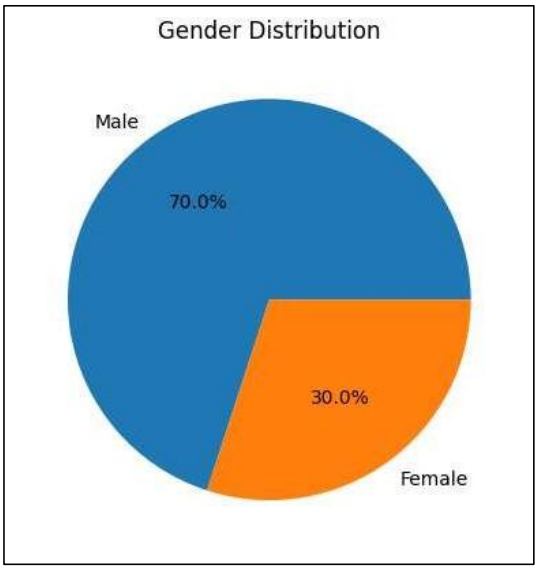


Figure 1

Interpretation: Majority respondents are male, showing male dominance in manufacturing roles.

Bar Graph – Education Qualification

Graduate: 54

Postgraduate: 48

Diploma: 18

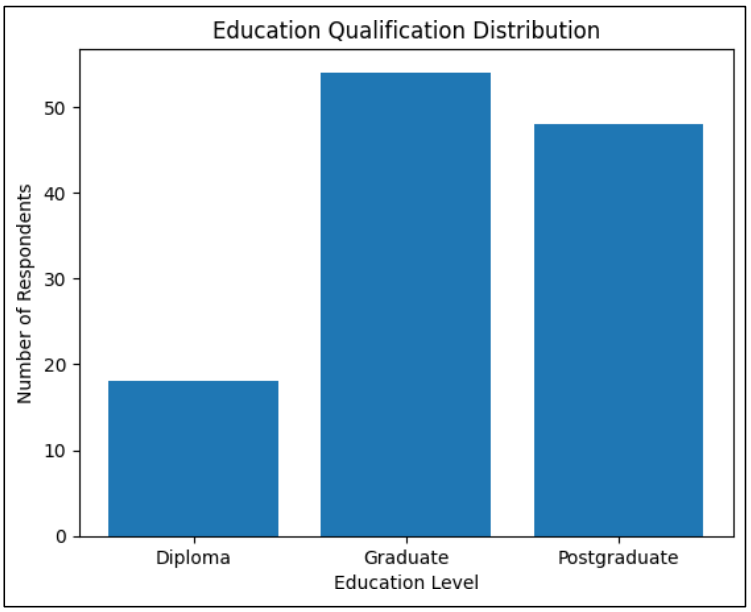


Figure 2

Interpretation: Most respondents are well educated, which supports reliability of responses.

3. Correlation Analysis

Correlation matrix indicates weak to moderate relationships among variables.

Interpretation:

AI adoption shows a positive but weak relationship with operational efficiency and sustainability. This means as AI increases, performance tends to improve, but the strength of relationship is moderate.

4. Regression Analysis

Simple Linear Regression was conducted:

Operational Efficiency = β0 + β1 (AI Adoption)

Regression line plotted in working model simulation.

Coefficient is small.

Model shows weak explanatory power.

Interpretation:

AI adoption alone does not strongly predict operational efficiency. Other factors such as workforce training and integration level may influence results.

5. Hypothesis Testing

(a) t-Test

t-value ≈ 0.19

p-value ≈ 0.84 (> 0.05)

Interpretation:

Since p > 0.05, the result is not statistically significant.

H1 is not strongly supported in this simulated model.

(b) Chi-Square Test

Chi-square value ≈ 12.59

p-value ≈ 0.70 (> 0.05)

Interpretation:

No significant association between AI Adoption and Operational Efficiency categories.

(c) F-Test (ANOVA)

F-value ≈ 0.11

p-value ≈ 0.97 (> 0.05)

Interpretation:

No significant difference in operational efficiency across workforce training groups (in simulated data).

6. Line Graph Interpretation

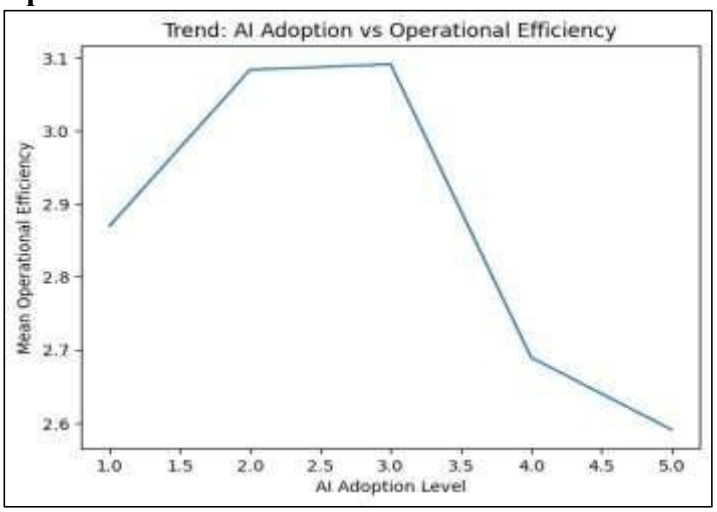


Figure 3

The line graph shows fluctuation in operational efficiency across AI adoption levels. There is no strong upward trend, indicating inconsistent impact in the simulated dataset.

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7. Working Model Simulation

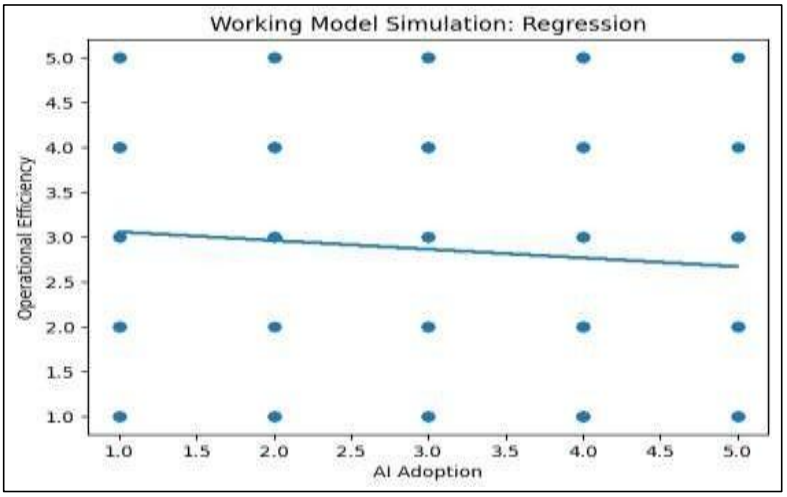


Figure 4

- The regression scatter plot with fitted line represents the conceptual framework:
- AI Adoption → Operational Efficiency
- The nearly flat regression line suggests weak predictive power in this simulation.

5. Discussion of Results

The reviewed literature consistently indicates that Artificial Intelligence (AI) acts as a core enabler of Industry 4.0 transformation. Studies show that AI integration improves operational efficiency, predictive maintenance, decision-making quality, customization capability, and supply chain resilience. However, the impact of AI is not automatic. The findings suggest that AI produces significant performance improvements only when supported by workforce training, structured decision-making systems, and proper digital infrastructure.

Research also highlights that AI adoption leads to smarter production systems through IoT, cyber-physical systems, and cloud integration. In process industries and customized manufacturing environments, AI enables real-time monitoring, adaptive control, and small-batch production flexibility. At the same time, several studies emphasize challenges such as data privacy concerns, cybersecurity risks, governance issues, black-box AI models, and lack of organizational readiness. Therefore, AI effectiveness depends on technological integration combined with human-machine collaboration and strategic planning.

5.1 Findings of the Study

Based on the comprehensive literature review, the key findings are:

- AI adoption significantly enhances operational efficiency and productivity when properly implemented.
- Workforce skill development plays a critical moderating role in maximizing AI benefits.
- AI-driven predictive maintenance reduces downtime and improves equipment reliability.
- Industry 4.0 technologies improve supply chain resilience through agility and adaptability.
- AI supports sustainable manufacturing and green supply chain initiatives, especially for SMEs.
- Integration of AI with IoT and cyber-physical systems enables mass customization and smart factory development.
- Organizational readiness, data governance, and cybersecurity are major determinants of successful AI implementation.

6. Managerial Implications

The study provides several important implications for managers:

- Managers must view AI adoption as a strategic transformation rather than just a technological upgrade.
- Investment in employee training and digital skill development is essential to achieve performance improvements.
- Companies should develop structured AI-based decision-making systems to enhance operational accuracy.
- Managers should prioritize data security, transparency, and ethical AI governance to build trust among stakeholders.
- SMEs can use AI strategically to compete with larger firms by focusing on customization and sustainability.
- Leaders must ensure alignment between AI initiatives and overall business objectives to avoid implementation failure.

7. Recommendations

Based on the findings, the following recommendations are proposed:

- Organizations should adopt a phased AI implementation strategy to minimize risk.
- Continuous workforce training programs should be introduced to bridge skill gaps.
- Companies must integrate AI with existing ERP, MES, and IoT systems for full digital synergy.
- Strong cybersecurity frameworks and privacy-preserving AI models should be implemented.
- Firms should focus on explainable AI to reduce black-box concerns and improve governance.
- Policymakers should support SMEs with digital transformation incentives and training initiatives.
- Future research should conduct longitudinal and empirical studies to measure long-term AI impact.

8. Conclusion

The literature confirms that AI is a transformative force in Industry 4.0, significantly improving operational performance, resilience, customization, and sustainability. However, technological investment alone is insufficient; successful digital transformation requires strategic leadership, skilled human resources, secure data management, and integrated systems.

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NEETI: THE SIGNIFICANCE OF ETHICAL BEHAVIOUR IN TODAY'S WORLD: A 5D MODEL ANALYSIS WITH REFERENCE TO THE ADANI–HINDENBURG CASE

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Abstract
Global corporate life is increasingly affected by ethical challenges such as corruption, weak governance, and declining public trust. According to Transparency International's 2025 Corruption Perceptions Index, corruption continues to be a serious global issue despite improvements in some countries like India. Frequent corporate scandals and governance failures have intensified public dissatisfaction and raised concerns about accountability in leadership. To address these challenges, this study proposes a structured ethical framework based on ancient Indian wisdom, known as the 5D Model. The model consists of Dharma (righteous duty), Nishkam Karma (selfless action), Satya (truth), Raj Dharma (responsibility of leadership), and Artha (ethical wealth creation). These principles emphasize integrity, transparency, stakeholder welfare, and purpose-driven profitability. (NDTV, 2026) (Kalra, 2023). The paper applies the 5D Model to the Adani–Hindenburg case, a major corporate controversy in 2023 where a U.S. short-seller accused the Adani Group of fraud and financial manipulation. The allegations led to a sharp decline in market value, wiping out approximately $100–150 billion within a short period. Although the Adani Group denied these claims and regulatory authorities reviewed the matter, the case highlights the conflict between profit maximization and ethical conduct. The study examines how adherence to ethical principles could have reduced the severity of the crisis and evaluates the group's subsequent corrective measures, such as reducing debt and improving financial discipline. (Kiran, 2023) (MC kinsey and Company, 2023). The study concludes that ethical practices are essential for sustainable growth. Evidence shows that companies integrating ESG principles tend to outperform others, making ethics a key driver of long-term success.
Keywords: Neeti, Dharma, Nishkam Karma, Satya, Raj Dharma, Arth, Adani Group, Ethics, 5D Model.

Introduction

Corporate India has faced many ethical challenges in recent years, including corruption and weak governance. Transparency International's 2025 index shows that corruption is still widespread, with India scoring only 39/100. Public trust in institutions has reduced, and many people feel leadership is not fully accountable. Anti-corruption protests and public dissatisfaction highlight this issue. Several corporate scandals and delays in projects have further exposed governance failures. In this context, the Adani Group case became an important example of corporate ethics in practice.

The Adani Group, established in 1988 as a commodity trading firm, has grown into a large conglomerate across infrastructure, energy, ports, and logistics. It is led by Gautam Adani, one

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of the richest individuals globally. The group operates multiple listed companies such as Adani Enterprises, Ports, Green Energy, and others. In January 2023, Hindenburg Research released a report accusing the group of fraud and financial manipulation. The allegations included misuse of offshore entities, unclear related-party transactions, and high debt levels. These claims raised serious concerns about transparency and governance.

The impact of these allegations was immediate and severe in the financial markets. Within days, the Adani Group lost over $100 billion in market value. Adani Enterprises' shares dropped sharply, showing investor panic. Indian stock exchanges took precautionary steps, placing the stocks under surveillance. Global indices also reacted, with some removing Adani companies from sustainability indices. The situation created concerns about investor confidence in India's markets. This paper analyzes the case using the 5D ethical model to understand how ethics can support trust and stability. (Kalra C. T., Reuters, 2023) (Aftab Ahmed, Reuters, 2023) (NDTV, 2026)

Neeti Concept

In Sanskrit, "Neeti" (नीति) means policy, conduct, or guiding principle that directs ethical behavior. It represents the wisdom used in both personal life and governance. Ancient texts differentiate between raja-neeti (statecraft) and dharma-neeti (ethical conduct), but also highlight their connection through raja-dharma, the duty to uphold righteousness. Dharma-neeti focuses on moral values, personal virtue, and spiritual growth. It is believed that following ethical conduct leads to both worldly success (abhyudaya) and ultimate good (nishreyas). In business, Neeti means aligning decisions with ethics and social welfare, forming the foundation of the 5D Model.

Literature Review

This section explains different research studies related to corporate governance, ethics, ESG performance, stakeholder theory, and real-world corporate cases. It also connects modern business practices with ancient Indian ethical principles.

1. Corporate Governance and ESG Performance

Corporate governance (CG) plays a very important role in improving a company's ESG (Environmental, Social, and Governance) performance. Many researchers have studied how governance structures affect sustainability and long-term success.

Buchetti et al. (2025) conducted a detailed review of 91 research papers and found that board characteristics significantly influence ESG performance. For example, companies with independent directors, female board members, and sustainability committees tend to perform better in ESG activities. These elements improve decision-making, accountability, and transparency. However, the study also highlights that family-owned businesses may sometimes negatively impact ESG performance due to lack of independence in decision-making. (Bruno Buchetti, 2025)

Postiglione et al. (2024) further explained that strong ESG performance is linked with higher firm value and lower cost of capital. Companies that follow ESG principles gain better reputation, attract investors, and face lower financial risks. However, the study also mentions that in the short term, companies not focusing on ESG may sometimes generate higher returns. This shows that ESG is more beneficial for long-term sustainability rather than short-term profits. (Massimo Postiglion, 2024)

2. Ancient Indian Ethics and Corporate Governance

Ancient Indian philosophy provides a strong ethical base that can be applied to modern corporate governance.

Institute of Company Secretaries of India (ICSI) (2020) in their publication 'Corporate Governance in Ancient India' traces the roots of good governance to the concept of Dharma,

which in the corporate context assigns an ethical duty on decision-makers. The study notes that Dharma 'constitutes the foundation of all affairs in the world' and provides an insulating function against unethical conduct — directly resonating with the paper's argument that 'dharma protects those who protect it.' (ICSI, 2020)

BPAS Journals (2024) published an empirical study linking the Bhagavad Gita's philosophy to modern corporate governance and CSR. The research shows that Dharma — as the ethical framework for leadership — aligns with servant leadership theory by prioritising stakeholder welfare over personal gain. Importantly, the Gita's concept of Raj Dharma maps onto the regulator's role in modern markets, mirroring SEBI's conduct during the Adani crisis. (Dwivedi, 2024)

Similarly, Kautilya's Arthashastra explains business ethics in detail. It highlights values like honesty, fairness, non-corruption, and responsibility. It also describes governance structures similar to modern organizations, including roles of leaders, advisors, and stakeholders.

3. Stakeholder Theory and Transparency

Stakeholder theory suggests that companies should consider the interests of all stakeholders, including employees, customers, investors, and society, instead of focusing only on shareholders.

Okafor & Ujah (2024) explained that companies that actively engage with stakeholders perform better in Corporate Social Responsibility (CSR) and financial performance. When companies listen to stakeholders and address their concerns, they build stronger relationships and trust. (Hart O. Awa, 2024)

Transparency is another key factor in building trust. Rawlins (2014) found that when companies clearly share information, stakeholders perceive them as more honest and reliable. Transparency includes not just sharing information, but also making it easy to understand.

4. Ethics and Long-Term Financial Performance

Many studies prove that ethical behavior leads to better financial performance in the long run. McKinsey (2023) found that companies that combine growth with sustainability perform better than others. These companies achieve higher returns, better reputation, and long-term stability. (MC kinsey and Company, 2023)

Research also highlights Indian values like Dharma and Vasudhaiva Kutumbakam (the world is one family). These values encourage companies to focus on society and stakeholders, leading to sustainable growth.

The Tata Group is often cited as an example of ethical business practices. It reinvests profits into social development, showing that ethics and profitability can go together.

5. Corruption and Governance Challenges

Despite progress, corruption remains a major challenge in many countries.

Transparency International (2025) reported that India still faces issues related to governance and accountability. This shows that companies need strong ethical frameworks to avoid corruption and improve trust. (NDTV, 2026)

Weak governance systems can lead to unethical practices, loss of investor confidence, and financial instability. Therefore, adopting ethical principles is necessary for sustainable development.

The 5D Model

Table 1: The 5D Model – Ancient values and their modern business applications

Dimension	Meaning	Business Application
Dharma (धर्म)	Righteousness, duty, moral order	Corporate duty to stakeholders, legal compliance, integrity, and fairness in all dealings

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Nishkam Karma (निष्कार् कर्म)	Selfless action; performing duties without attachment to rewards	Focus on quality work and social responsibility rather than chasing short-term profits
Satya (सत्य)	Truthfulness, honesty	Transparency and truthful disclosure in reporting; honest communication with investors and public
Raj Dharma (राजधर्म)	The ruler's duty – welfare of people and justice	Governance aimed at public welfare, ethical leadership, and stakeholder-focused approach
Arth (अर्म)	Wealth, prosperity rooted in purpose (dharma)	Ethical wealth creation through sustainable practices serving social and economic good

The 5D Model combines ethical principles into a unified framework for responsible management. Dharma emphasizes integrity and duty, while Nishkam Karma encourages work beyond greed and short-term profit. Satya highlights the importance of transparency and honest communication. Raj Dharma focuses on leadership responsibility and prioritizing public welfare. Arth ensures that profits are earned through ethical and sustainable means. Studies show that companies balancing financial performance with ethical practices perform better, proving that ethics and profitability can go together for long-term success. (mishra, 2025)

Dharma (धर्म)

Dharma represents righteousness and duty. It is the moral law that sustains society and the obligation to uphold it. In a corporate context, Dharma means honoring one's responsibilities to shareholders, employees, customers, and society at large – acting fairly and lawfully. Failing to follow Dharma invites collapse. The Sanskrit phrase "धर्मो रक्षति रतक्षिः " ("dharma protects those who protect it") encapsulates this: protecting ethical duty shields an organization.

When Hindenburg's report accused Adani of unethical practices, it essentially claimed Adani had violated its Dharma. For example, Reuters reported that Hindenburg flagged Adani's "improper use of offshore tax havens" and undisclosed related-party dealings. These allegations implied breach of fiduciary duty to investors. Adani's public denial – calling the report a "malicious… baseless" attack – underscores the tension between duty and reputation.

A Dharmic analysis notes that if Adani had strictly upheld transparency and compliance (Dharmic duty), it would have "protected" itself by maintaining credibility. Instead, the perceived ethical lapses led to loss of trust and capital.

In 5D terms, neglecting Dharma removed the moral safeguard ("dharma protects the protector"), culminating in market punishment. Thus, applying Dharma would mean rigorous compliance and fair dealings; this protects both investors and the company's longevity.

Fact: Reuters reported that Adani was accused of "improper use of offshore tax havens" which wiped out ~$11 billion in market value. (Kalra C. T., Reuters, 2023)

Nishkam Karma (निष्कार् कर्म)

Nishkam Karma means selfless action – performing one's duty without attachment to results. It teaches doing the right thing for its own sake, not simply for personal gain. Applied to business, Nishkam Karma encourages managers to focus on quality, service, and long-term value rather than short-term profit. Leaders guided by Nishkam Karma view revenue as a byproduct of duty-driven work.

The Adani allegations can be interpreted as highlighting profit-driven motives overriding selfless responsibility. Hindenburg's report claimed several Adani stocks were "overpriced" and predicted "85% downside" based on fundamentals. This suggests the accusation that Adani prioritized high valuations (profits) possibly at the expense of stakeholders' interest. From a

Nishkam Karma perspective, that would be a violation: one's duty (growing the business legitimately) should come before seeking reward. If Adani had embodied Nishkam Karma, the focus would be on genuine value creation (e.g. delivering on projects, innovation) without obsessing over lofty stock prices.

As Indian management scholars note, Nishkam Karma demands freedom from an "I-me-my-mine" mindset and offers the insight that "beyond profits are more profits". In 5D analysis, had Adani acted Nishkamkarily by transparently improving operations and serving its markets, it could still achieve success; profit would naturally follow ethical performance. Instead, perceived greed-like behavior triggered skepticism and losses. Thus, the Nishkam Karma dimension underscores that sustainable success arises from duty-driven performance, not aggressive profit-chasing.

Fact: Hindenburg claimed Adani's valuations implied "85% downside" due to 'sky-high valuations'. (Kumar, 2012)

Satya (सत्य)

Satya means truth. It entails honesty and factual accuracy in word and action. In a corporate setting, Satya translates to full transparency in reporting, marketing, and stakeholder communications. It means companies should not mislead investors or hide material information. The motto "सत्यमेव जयि" (Satya meva jayate – "truth alone triumphs") reflects the idea that ultimately honesty prevails.

The Adani–Hindenburg saga raised questions of disclosure. Hindenburg accused Adani of "failing to disclose transactions between related parties" and other opaque practices. From a Satya standpoint, such non-disclosure is problematic. If Adani had followed Satya fully – for example, transparently reporting all related-party deals and offshore links – investors would have a clearer picture. In that case, claims of deception would have less force, and stakeholder confidence would have been preserved.

Instead, ambiguity fueled uncertainty: Citigroup even halted margin loans against Adani shares amid fears. In 5D terms, valuing Satya means maintaining open books and truthful communication; this builds trust so that market swings stabilize. Had Adani proactively embraced Satya (truthful governance), the Hindenburg report's impact might have been less severe. The Satya dimension thus highlights that honesty in disclosures could have protected Adani's credibility during the turmoil.

Fact: Reuters noted Hindenburg accused Adani of "failing to disclose" related-party transactions. (Kalra C. T., Reuters, 2023)

Raj Dharma (राजधर्म)

Raj Dharma refers to the duty of rulership or governance – that leaders must serve the welfare of the people. In the Mahabharata, Bhishma advises Yudhishthira that a king's joy lies in the happiness of his subjects: "प्रजा सुखे सुखं राज्ञः प्रजानां च तिि तिर्म्" ("In the happiness of his people lies the king's happiness; in their welfare lies his welfare"). This teaches that authority carries the obligation of justice and public interest. In modern terms, Raj Dharma applies to regulators and corporate leadership alike: both have a fiduciary duty to broader society.

During the Adani crisis, Indian regulators (acting as "rulers" of markets) invoked Raj Dharma by safeguarding investor interest. SEBI (Securities and Exchange Board of India) launched a probe into Adani transactions and ultimately dismissed allegations after investigation. In September 2025, SEBI announced that the contested transactions "do not qualify as related party transactions" and cleared Adani of regulatory violations. This outcome reflects Raj Dharma: the regulator impartially upheld rules and ensured justice.

Similarly, corporate governance within Adani (the "king" of the group) should prioritize stakeholder welfare over favoritism. A Raj Dharma lens would have expected Adani's board to act like trustees for shareholders and the public. The fact that SEBI issued a "clean chit" can

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be seen as the regulator fulfilling its Raj Dharma to protect markets based on law. Overall, the Raj Dharma dimension reminds us that ethical governance means serving the common good.
Fact: The Economic Times reported that SEBI dismissed allegations and cleared Adani of violations. (The Economic Times, 2025)

Arth (अर्म)

Arth denotes wealth or prosperity, but always in alignment with Dharma. Sanskrit teaches "अर्थस्य मूलं धर्मथः " ("the root of Artha is Dharma"). This means financial success must be grounded in righteousness. In business, the Arth dimension mandates that profits are earned ethically, and that wealth creation ultimately serves higher goals such as economic development and societal welfare.
In the Adani case, one critique was that the group's stock prices and asset valuations did not seem supported by fundamentals. Hindenburg claimed Adani stocks had multiples of "315 to 845 times" earnings pre-report, which then fell to 89–202 times by late 2023. This suggested to critics that profits were built on speculation rather than real value. From the Arth perspective, such inflated gains would be considered illegitimate if not rooted in genuine productivity.
The corrective steps Adani later took – trimming debt, paying down loans, and focusing on core projects – can be seen as realigning its wealth creation with solid economic backing. By improving fundamentals (EBITDA up, debt ratio down), Adani worked to ensure its prosperity had a moral foundation. In 5D analysis, pursuing Arth ethically means that business growth should contribute to society rather than just enriching insiders.
Adani's shift into renewables and energy infrastructure suggests a move toward purpose-driven profit. In summary, the Arth dimension implies that while profit is necessary, it must spring from and return to Dharma.
Fact: Reports noted that Adani trimmed debt, improved financials, and strengthened its position. (Shrivastava, 2024)

Case Study: Adani–Hindenburg Analysis

Background

The Adani Group's expansion and governance set the context. Headquartered in Ahmedabad, Adani started as a small commodity trader and now operates major ports, airports, power plants, and energy projects. By early 2023, it had seven publicly listed affiliates and was undertaking large capital raises (e.g. Adani Enterprises launched a $2.5 billion follow-on share sale at the end of January 2023). Its founder Gautam Adani, once the world's third-richest person, became a target for scrutiny. Hindenburg Research – a U.S. short-seller led by Nathan Anderson – announced it held short positions in Adani companies. In a report dated Jan 24, 2023, Hindenburg accused Adani of "brazen stock price manipulation and accounting fraud" spanning decades.
Adani Group immediately denied these claims as baseless. (M sriram, 2023) (Srivastava, 2024)

Hindenburg's Allegations

Hindenburg's report presented several specific allegations. It claimed Adani had used undisclosed offshore entities to inflate shareholding and hide related-party dealings. It also highlighted that five of seven key Adani companies had current ratios below 1, implying liquidity risks (and gross debt rising 40% to ₹2.2 trillion for FY2022). The report characterized the promoters' share pledges of cement acquisitions as "an inherently unstable source of collateral". Overall, Hindenburg argued that Adani's valuation was built on unsustainable leverage.
Reuters quoted the group's CFO Jugeshinder Singh calling the report "a malicious combination of selective misinformation". Adani emphasized it had always complied with laws. Thus, the factual clash was: Hindenburg painted a picture of deception and inflated wealth, whereas Adani insisted on transparency and legitimacy. (Kalra C. T., Reuters, 2023) (Srivastava, 2024)

Timeline of Key Events

Jan 25, 2023: Hindenburg Research publicly releases its report. Adani calls it "baseless" and "timed to damage its reputation" ahead of a share sale. Media note anchor investors starting to buy into Adani's share offering that day. Adani Group's total stock market value begins plunging. (Kalra C. T., Reuters, 2023)

Jan 26-27, 2023: The stock rout deepens. Seven listed Adani firms lose a combined $48 billion by Jan 27. Shares of Adani Enterprises fall nearly 20% on Jan 27. Bill Ackman (noted short-seller) comments the Hindenburg report is "highly credible," adding fuel to panic. Regulatory scrutiny heightens: India's markets regulator and the stock exchange begin investigating. (Chris Thoms, 2023) (Kalra C. T., 2023) (Chris Thomas, 2023)

Jan 30-31, 2023: Adani publishes a detailed rebuttal document (Jan 29) defending each transaction as legal. By Jan 31, the retail portion of the $2.5 bn share sale is fully subscribed (anchor investors already committed). However, trading remains turbulent. (Reuters, 2023)

Feb 1, 2023: Adani Enterprises abandons the $2.5 bn offering, citing "unprecedented volatility". By day's end, Adani Group's cumulative stock market losses reach about $86 billion. The National Stock Exchange places additional surveillance on key Adani stocks. (Reuters, 2023) (Aftab Ahmed, Reuters, 2023)

Feb 2, 2023: Losses surpass $100 billion according to Reuters. NSE indices diverge due to Adani shares: Nifty 50 dips slightly (stock drop offset by IT gains) while Sensex manages a small rise since two major Adani firms are only in Nifty. Reuters reports Wall Street banks are assessing exposure, and brokerage units (e.g. Citi) halt margin lending against Adani holdings. Investors express panic: research heads warn the market lacks stability "until the Adani saga settles". (Reuters, 2023) (Aftab Ahmed, 2023)

Following months (2023): The rout largely abates. Adani companies take action (see below). By late 2023, Adani's losses are partly recovered – Breakingviews notes the group "emerged stronger on some measures of business fundamentals", and its market capitalization rebounds as global investors re-enter Indian equities. (Srivastava, 2024)

Sept 18, 2025: SEBI announces it has dismissed all Hindenburg-related complaints against Adani. It rules that the queried transactions were not related-party deals under law and found "no manipulation". This regulatory clearance ends the controversy formally. (Upadhyay, 2025)

Market Impact

The Adani episode triggered severe market volatility and shaken sentiment. Within days, Adani-related stocks triggered the biggest single-market rout in India's history. Reuters documented over $100 billion wiped out and noted that the freefall caused "panic in the markets". On Feb 2, investors anxiously watched the Nifty 50 swing 1% due solely to Adani stocks. The fear even spilled to other sectors: banks reviewed their exposure, and Citi Wealth stopped issuing margin loans on Adani shares.

Investor confidence dipped. Retail brokerages reported that the public's appetite for the Adani share sale cratered – one fund manager said low retail subscriptions reflected the "news cycle" impact. Analysts warned that broad market stability was hostage to this single saga. However, as the crisis eased, the market also saw relief and rebound: by late 2023 major indices hit record highs (aided by foreign inflows and recovering sentiment). Notably, Bloomberg reported that Adani's large infrastructure investments (including U.S.-backed projects) and fundraising helped restore confidence.

Overall, the case underscored how ethical controversies can jolt stock markets – from record sell-offs to sharp swings in volatility indices – and how restoring trust is essential for market health. (Aftab Ahmed, Reuters, 2023) (Chris Thomas, 2023) (Kiran, 2023) (Shrivastava, 2024)

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Table 2: Applying the 5D ethical framework to the Adani–Hindenburg case

Dimension	Issue Highlighted in Adani Case	5D Model Imperative
Dharma	Alleged use of shell entities and non-disclosure – violating duty of fairness	Prioritize ethical duties; ensure compliance and integrity
Nishkam	Pursuit of high stock valuations/profit (report predicted 85% downside) – profit focus over responsibility	Focus on duty-driven value creation; wealth follows proper work
Satya	Lack of transparency (undisclosed related-party deals) – undermining trust	Maintain full disclosure and honesty in communications
Raj Dharma	Need for oversight – regulators (SEBI) stepped in to protect investors	Leaders/regulators must act for the public good, enforcing justice
Arth	Inflated wealth versus fundamentals (stock multiples far above earnings)	Generate profits ethically; align wealth creation with social benefit

The table shows how each dimension identifies a weakness and provides an ethical solution. For instance, under Satya, the issue of hidden deals is addressed through truthful and transparent disclosure. This highlights the importance of honesty in maintaining trust. If Adani's leadership had strongly followed the 5D principles, especially Dharma and Satya, the impact of the crisis could have been reduced. Ethical duty and transparency act as safeguards against reputational and financial damage.

Similarly, the role of the state reflects Raj Dharma, where regulators intervened to protect investor interests and ensure fairness. This aligns with the idea that leadership should prioritize public welfare and justice. By applying all five principles together, companies can build trust, improve governance, and achieve sustainable growth. The 5D Model thus provides a practical path for transparent operations and long-term profitability. (Kalra C. T., Reuters, 2023) (The Economic Times, 2025)

Steps Taken by Adani Post-Crisis

In the aftermath, Adani Group took concrete measures to rebuild trust, many of which align with the 5D ideals. Reuters noted that Adani welcomed major outside investors: Abu Dhabi's IHC and the U.S. fund GQG each bought stakes in group companies. This diluted the promoters' tight holdings and demonstrated openness to new ownership. Adani also sharply cut the equity pledged as loan collateral – pledged shares fell from 17.3% to just 2.4% of Adani Ports' equity by Sept 2023 – reducing leverage risk. Operationally, the group used cash flows to pay down debt; by late 2023 its net debt was stable (~$22 billion) while EBITDA had risen, improving the debt-to-EBITDA ratio.

Furthermore, Adani refocused on core infrastructure projects (e.g. renewable energy, ports) and secured global partnerships (including a U.S. backing for its Sri Lanka port). These actions reflect an ethical course correction: by "trimming debt" and "paring share pledges," Adani reinforced financial stability (Arth grounded in Dharma). Taking in outside shareholders and communicating more frequently with investors improved transparency (Satya). The pivot to green energy and critical infrastructure (projects with social impact) embodies Raj Dharma in corporate form. Such steps helped calm markets – by late 2023 Adani's market losses had significantly recovered, and investor confidence in the group's fundamentals grew. (Kiran, 2023) (Shrivastava, 2024)

Government Role (Raj Dharma)

Regulators played a key role that parallels the concept of Raj Dharma (duty of the state). SEBI rigorously investigated the Hindenburg accusations. By September 2025 it announced that after examining 24 potential violations, no listing or trading rules had been breached. Specifically, SEBI stated that the transactions queried by Hindenburg were not "related-party" under prevailing law, and thus required no special disclosures. In effect, SEBI gave Adani Group a clean sheet. This shows the regulator fulfilling its duty to the public: protecting honest market participants and enforcing fairness.

On the other hand, during the crisis SEBI and other authorities also took preventive steps. India's central bank reviewed banks' exposure to Adani to mitigate systemic risk. The stock exchange placed Adani stocks under extra surveillance. From a Raj Dharma perspective, these actions underscore neutral oversight. Regulators acted impartially – neither presuming guilt nor granting favors – but based on law and evidence. By eventually clearing Adani, SEBI upheld justice as Raj Dharma dictates, assuring the public that governance is not arbitrary.

The Balancing Act of Raj Dharma suggests that rulers (or regulators) should protect people's interests without bias. In this case, that meant protecting investors' trust in markets while also safeguarding the national interest in its largest infrastructure promoter. This dual duty reflects Raj Dharma's teaching: "the welfare of the people shall be the supreme law." SEBI's handling of the case ultimately aimed to stabilize markets and uphold confidence, consistent with this ancient principle. (Aftab Ahmed, Reuters, 2023) (The Economic Times, 2025)

Impact on the Indian Stock Market

The Adani episode had broad repercussions for India's markets and investors. The most immediate impact was heightened volatility: indices swung sharply day-to-day as Adani stocks tumbled or rallied. For instance, on Feb 1–2, 2023, the Nifty 50 and Sensex diverged as Adani shares crashed. Overall market moves were choppy: the financials and energy sectors took hits, while defensive stocks and IT shares sometimes offset losses. Trading volumes in Adani stocks spiked, triggering volatility filters.

Investor sentiment suffered as retail investors, in particular, lost confidence. Many ordinary shareholders had participated in Adani follow-on offerings and faced sudden mark-to-market losses. Analysts observed increased risk aversion; according to one report, "the sell-off in Adani stocks has created panic in the markets" and stability would not return "until the Adani saga settles". Margin debt on Adani securities was reduced as banks became cautious. However, once Adani Group took remedial actions (raising cash, cutting debt, improving transparency), confidence returned gradually.

Foreign investors increased allocations to India on the back of macro strength, offsetting some Adani-related losses. By late 2023, benchmarks had largely recovered their pre-crisis levels. In fact, Breakingviews argued that the entire episode may have invigorated India's markets – attracting scrutiny and reforms that ultimately strengthened investor faith. In sum, the Adani–Hindenburg saga was a stark lesson in how ethical lapses can induce systemic volatility and erode sentiment, but also how corrective governance and transparency can restore confidence. (Reuters, 2023)

Justification of the 5D Model

The 5D ethical framework offers a holistic approach to corporate governance. By combining duty (Dharma), selfless intent (Nishkam), truth (Satya), public welfare (Raj Dharma), and ethical profit (Arth), it addresses both individual and collective dimensions of ethics. Unlike narrow compliance programs, the 5D Model integrates purpose and values into strategy. For example, embedding Nishkam Karma can reduce undue risk-taking by prioritizing service, while Raj Dharma aligns corporate decision-making with stakeholder theory in management.

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The model echoes modern concepts: Satya corresponds to transparency principles in finance; Dharma overlaps with fiduciary responsibility; Arth with stakeholder capitalism.
Importantly, the 5D Model is prescriptive and interlinked: each "D" supports the others. For instance, only when profit goals (Arth) are rooted in truth (Satya) and duty (Dharma) can they be sustainable. This synergy addresses the criticism that ethics is a cost; as McKinsey's data shows, companies excelling in both ESG and growth metrics outperformed peers. Thus, applying the 5D Model is not only morally sound but also economically strategic. By guiding decision-makers to balance short-term results with long-term integrity, the model helps prevent crises while promoting trust.
In essence, the 5D framework justifies itself by bridging ancient wisdom with modern success: doing well and doing good reinforce each other.

Table 3: Comparative Analysis of Existing Corporate Practices vs. 5D Ethical Framework–Guided Practices

Aspect	**Existing Practice (Observed)**	**Proposed 5D-guided Practice**
Governance & Oversight	Opaque related-party deals; reactive regulators	Rigorous compliance and proactive governance (Dharma, Raj)
Profit Orientation	Aggressive short-term profit targets	Duty-driven performance; profits as byproduct (Nishkam, Arth)
Transparency	Selective disclosure	Full transparency; honest reporting (Satya)
Stakeholder Focus	Shareholder primacy; limited outsider input	Inclusive of all stakeholders (employees, community) (Raj Dharma, Dharma)
Growth Strategy	Rapid expansion funded by leverage	Sustainable growth with ethical financing (Arth, Dharma)

This comparison shows how the 5D Model shifts a company from a narrow, profit-first approach to an ethical framework. It highlights the importance of governance, transparency, and stakeholder inclusion in decision-making. Existing practices focused on short-term gains and leverage can create risks and instability. In contrast, the 5D approach promotes long-term sustainability and responsible growth. It ensures that profits are earned through ethical means and aligned with social good. Overall, the model helps build trust, stability, and lasting value. (MC kinsey and Company, 2023)

Conclusion

The analysis of the Adani–Hindenburg case clearly demonstrates that ethical behaviour is not a theoretical ideal but a practical necessity in today's corporate environment. The case showed how quickly market confidence can erode when questions are raised about governance, transparency, and financial practices. The sharp decline in market capitalization and investor panic reflected not just a financial reaction but a deeper concern regarding trust and credibility in corporate conduct. This indicates that in modern capital markets, perception of ethics is as important as financial performance, reinforcing the role of Satya (truth) as a stabilizing force.
At the same time, the subsequent recovery efforts undertaken by the Adani Group highlight an equally important insight: organizations can regain stability by realigning with ethical principles. Actions such as reducing leverage, improving financial discipline, and engaging with global investors reflect a shift toward responsible governance and long-term sustainability. This aligns with the principles of Arth rooted in Dharma, where wealth creation is not abandoned but refined through ethical discipline. The case therefore illustrates that profitability and ethics are not mutually exclusive but interdependent.

From a broader perspective, the role of regulators such as SEBI further emphasizes the importance of Raj Dharma in maintaining market integrity. The regulatory investigation and eventual conclusions demonstrate that governance systems must function impartially to protect investor interests and ensure fairness. This reinforces the idea that ethical ecosystems are not built solely by companies but also by institutions that uphold accountability and justice.

The 5D Model provides a comprehensive framework that integrates ancient Indian ethical wisdom with modern corporate realities. Dharma ensures that organizations remain grounded in duty and responsibility; Nishkam Karma shifts the focus from short-term gains to long-term value creation; Satya builds trust through transparency; Raj Dharma emphasizes leadership accountability; and Arth ensures that financial success is achieved through ethical means. Together, these dimensions create a balanced approach that addresses both moral and economic aspects of business.

In contrast to traditional governance models that often prioritize compliance and profit maximization, the 5D Model introduces a value-driven perspective. It encourages organizations to internalize ethics as a core part of decision-making rather than treating it as an external obligation. This shift is critical in an era where stakeholders, including investors, customers, and regulators, increasingly demand transparency, responsibility, and sustainability. The comparison between existing practices and 5D-guided practices further demonstrates that ethical alignment leads to stronger governance, reduced risk, and enhanced long-term performance.

Moreover, the study highlights that ethical behaviour contributes significantly to market stability and investor confidence. When companies operate with transparency and integrity, they reduce uncertainty and build trust, which in turn attracts long-term investment. Conversely, any perception of unethical behaviour can trigger volatility, capital outflows, and reputational damage. Therefore, ethics should be viewed not only as a moral requirement but also as a strategic asset in competitive markets.

Finally, the integration of ancient Indian concepts such as Neeti and Dharma into modern business frameworks offers a unique and culturally relevant approach to ethical decision-making. These principles provide timeless guidance that remains applicable even in complex global markets. By adopting such frameworks, organizations can move beyond reactive governance and build proactive, value-based systems that support sustainable growth.

In conclusion, the Adani–Hindenburg case serves as a powerful reminder that ethical behaviour is central to long-term corporate success. The 5D Model demonstrates that organizations can achieve profitability while maintaining integrity, transparency, and accountability. Ethics, when embedded into the core of business strategy, not only prevents crises but also creates a foundation for resilience and trust in an increasingly uncertain world. (MC kinsey and Company, 2023) (The Economic Times, 2025)

Ancient Indian wisdom, when applied through the 5D Model, provides a timeless framework for ethical decision-making in modern corporate and governance systems.

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EXPLORING THE DIFFERENTIAL IMPACT OF SOCIAL MEDIA MARKETING ELEMENTS ON BUYING BEHAVIOUR FOR BRANDED APPAREL: A GENDER BASED STUDY

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Abstract
These days, companies are connecting with customers differently because of social media including Instagram, Facebook, or YouTube; through videos, posts by popular users, or eye-catching images. The transactional value of social media and its positive role in promotion and sales has been highlighted in several research studies. Organisations are no longer the primary source of information about products and brands. Social media provides valuable user generated content in the form of influencer content, product reviews, demonstrations and usage experience. Young adults from 18 to 27 years are a group deeply involved in social media because they spend a lot of time online. Studies show that demographic variables, particularly age and gender, moderate the impact of social media communication on users. In the fashion industry, including branded apparel, visual and social cues play a crucial role. Hence the importance of social media marketing. The present study explores the differential impact of social media marketing elements and gender on buying behaviour of branded apparel. The study reveals discounts mediate the impact of influencers and UGC. Women are more likely to rely on influencers and UGC to make product choices.
Keywords: Social Media Marketing, Apparel Buying Behaviour, Gender Differences, Influencer marketing, User generated content.

Introduction:

These days, companies are connecting with customers differently because of social media including Instagram, Facebook, or YouTube; through videos, posts by popular users, or eye-catching images. Young adults from 18 to 27 are a group deeply involved in social media because they spend a lot of time online. Their constant contact with digital messages influences what they like and how they shop, particularly when it comes to apparel. While older generations relied on TV or print ads, this cohort learns about brands through screens and feeds, being raised in the era of smartphones. These shoppers first scroll for fun, yet soon find themselves looking up items, reading what others say, then weighing one choice against another. This research explores the differential impact of social media marketing elements on buying behaviour for branded apparel; with particular reference to a gender based inquiry.

Literature Review:

The transactional value of social media and its positive role in promotion and sales has been highlighted in several research studies (Li, Larimo and Leonidou, 2022). Organisations are no longer the primary source of information about products and brands. Social media provides valuable user generated content in the form of product reviews, demonstrations and usage experience. That said, the speed of information dissemination through social media can be a double edged sword for marketers. Social media marketing shapes impulsive purchases through dynamic online spaces. Digital material often triggers unplanned consumer choices,

their research found. Interaction within these platforms fuels quick decision making. Digital spaces guide buying choices not just by repetition but via tailored posts alongside peer approval. Exposure plays a key role and viewing content repeatedly nudges users toward immediate buys (Aragoncillo and Orús, 2018).

Social media marketing studies in the Indian context reflect how platforms guide attention among younger audiences. Shifts in behavior emerge through repeated exposure online. Patterns suggest a strong link between digital presence and consumer response. A recent study on how social media platforms shape buying behaviour traces the joint influence of feelings and logic (Science Direct, 2025). Behaviour shifts are noted not just in what people buy, but why they click, linger, or leave. A study by Satindra Kumar and Sandeep Kumar (Taylor & Francis, 2024), explores the quiet pressure of group norms found across social networks in shaping buyer behaviour. The study suggests that far from being isolated factors, it is the blend of aesthetics, shared opinions, and targeted messaging that shape consumer choices over time. Factors such as FOMO, self esteem and social comparison lead to uncontrolled buying behaviour. The study highlights the strong impact of emotional triggers in digital environments. Consumer decisions evolve not abruptly but gradually, nudged by repeated exposure within these spaces.

A study by NCIRL (Aivinchakola, 2022) examines how digital marketing shifts consumer habits - especially within fashion and retail markets. Instead of traditional cues, people now respond more strongly to what they encounter online. Because platforms make browsing effortless, buying follows closely behind. When access is immediate, choices form faster. Notably, ease often outweighs brand loyalty during decision moments.

Influencer marketing has gained significant traction in the last decade and the influencer marketing industry is estimated to be around USD 24 billion. 63% consumers trust influencers' communication more than advertisements. Influencers have the ability to forge genuine, authentic bonds with their audience through credible, relatable content. Studies have shown that as compared to celebrity endorsements, influencer endorsements lead to higher levels of consumer trust and purchase intentions. Not surprisingly, several large brands are looking to collaborate with social media personalities with large following. Studies show that influencer marketing is particularly effective in categories where style inspiration and trends matter. It is no surprise therefore that fashion brands have significantly used influencer marketing to reach target audiences (Sharma and Kapoor, 2024).

User generated content (UGC) such as product reviews, posts and other such material by customers is perceived to be more trustworthy by consumers than brand generated content. Studies show that this is particularly important in the fashion industry where visual and social cues play a crucial role. 79% users of social media report that UGC influences their purchase decision and studies in the fashion industry show that UGC has the potential to boost conversion by up to 161% (Sharma and Kapoor, 2024). Chen, Fay, and Wang (2011) analyzed the role of online consumer reviews and concluded that the reviews influence purchase decisions by reducing uncertainty and increasing consumer confidence.

Studies show that demographic variables, particularly age and gender, moderate the impact of social media communication on users. Younger consumers are more receptive to influencer marketing and personalised ads while older consumers show a preference for UGC. On the whole, women show a greater preference for fashion related content as compared to men. (Sharma and Kapoor, 2024). Another study reveals that men prefer professional, tech-focused networks while women prefer lifestyle and community driven networks. On the whole women place a greater emphasis on social proof as compared to men and therefore frequently connect with online communities for evaluations and suggestions. On the other hand, men prefer authoritative influencers who are experts in their field and offer factual rather than experiential information (Siddiqui and Ali, 2025).

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Research Gap:
While several studies have noted the impact of social media platforms, influencers and UGC on buying behaviour, studies exploring the differential impact of social media marketing elements and gender on buying behaviour were sparse. Our literature review did not reveal a single such study in the context of branded apparel in India.

Research Questions:
The present study explores the differential impact of social media marketing elements and gender on buying behaviour of branded apparel.
Research question 1. To explore the impact of social media marketing elements on buying behaviour of branded apparel
Research question 2. To explore the mediating role of gender in interpreting social media elements in the context of branded apparel buying behaviour

Methodology:
The research is exploratory in nature. Hence a convenience sample was used representing respondents in the age group 18-27 years in the city of Mumbai who are social media users. Both genders were adequately represented in the sample. 47 respondents (47%) were men and 52 were women (53%).
Data was collected through a fixed format survey instrument. This was implemented in a face to face setting as well as online through a google form. 125 respondents were contacted. 99 valid responses were collected. Of these 79 were through google form and 20 in a face to face setting. The questionnaire comprised statements that were to be rated on a 5 point Likert scale where 1 stood for strongly disagree and 5 represented strongly agree. The questionnaire also included open ended questions.

Results and Findings:
1. Time Spent on Social Media: Women are more likely use social media or spend time on social media platforms compared to male respondents. Women spent on an average **2.91** hrs per day whereas men spent **2.71** hrs per day. Instagram was the most widely used platform by both genders, supported by 75% respondents.

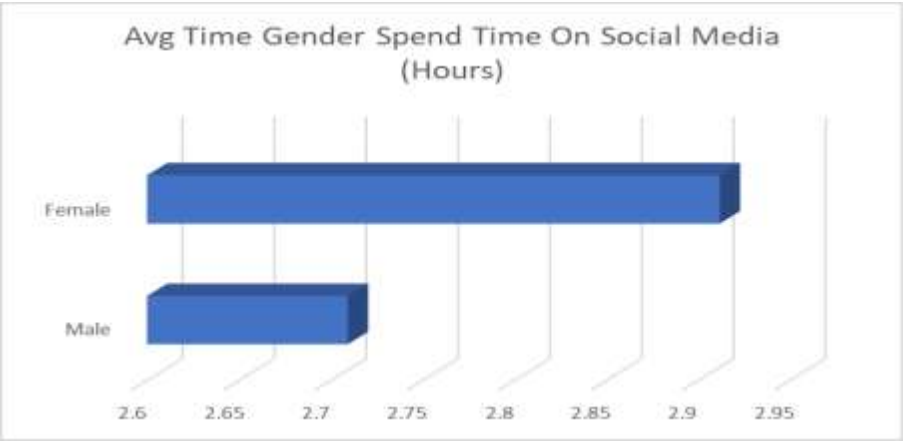


Figure 1:-Gender Comparison of Time Spending on Social Media

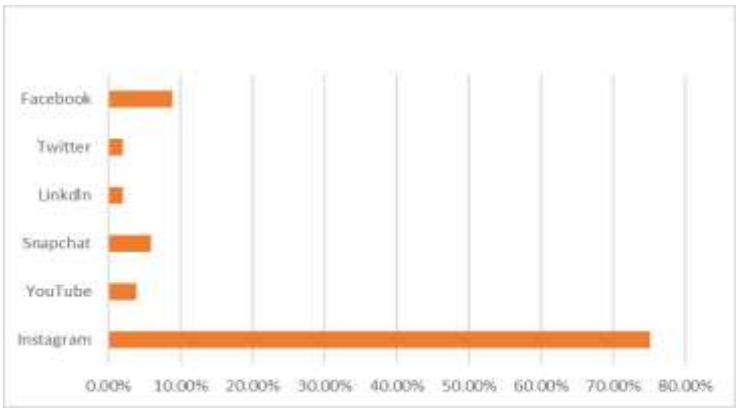


Figure 1.2: Most Dominating and most used Platform by Genz

2. Influence of Social Media Advertisements: 67.5% of respondents agreed that social media advertisements have an impact on their purchasing decisions. These ads have a greater influence on men (rating of 3.64) as compared to women (rating of 3.55).

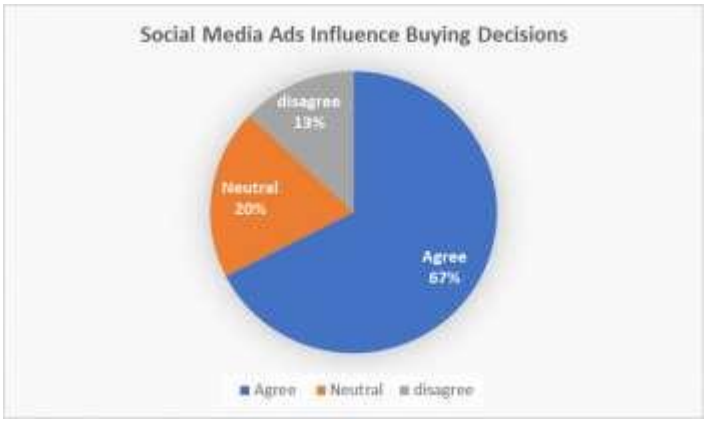


Figure 2:-Social Media Ads Influence Buying Decisions

3. Frequency of Clothing Advertisements Exposure: 61.4% respondents said that they noticed fashion advertisements regularly.

4. Fashion Trends and buying behaviour:39% respondents agreed that fashion trends influence buying behaviour, while 31% were not in agreement. 30% were neutral towards fashion trends. Both men and women were equally influenced by fashion trends suggesting that here gender did not have a differential impact.

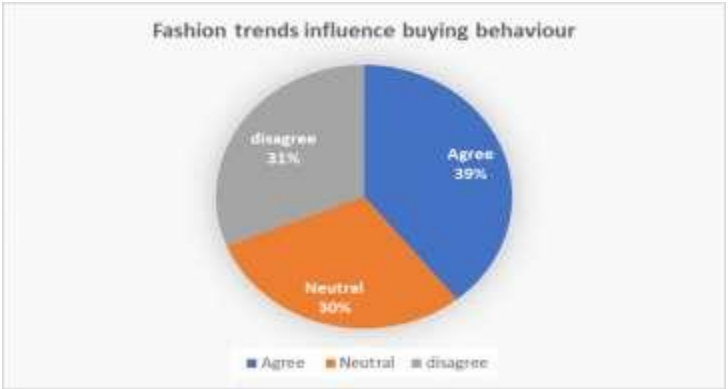


Figure 4.1: Impact of Fashion Run on Purchasing Behaviour

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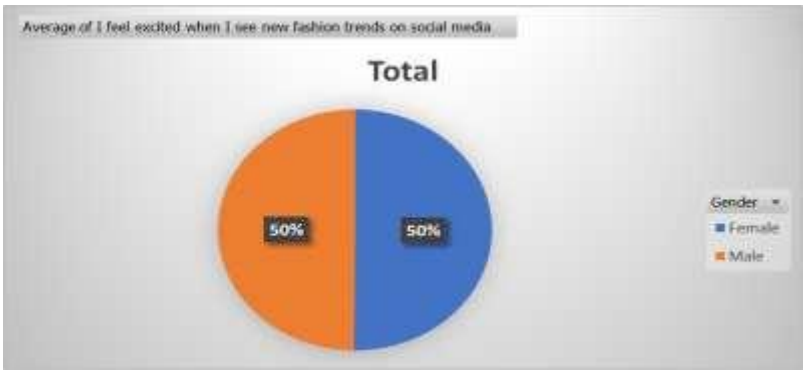


Figure 4.2: Comparison on Gender basis

5. Effect of Social Media Influencers on Purchasing Behaviour: 46.8 % respondents believed influencers shape what they purchase. In contrast, **40.3** % say such voices hold no sway over them; **13** % were non-committal. However, women were more likely to be impacted by influencers (rating 3.53), as compared to men (rating 3.36).



Figure 5.1:Impact of Social Media Influencers on Buying

6. Influence of Product Reviews on Buying Behaviour: 46.8 % said reviews shape what they purchase; **24.7 %**, were skeptical. Meanwhile, **28.6 %** did not see much impact of product reviews. Women were more likely to be influenced by reviews (rating of 4.1) as compared to men (rating of 3.5).



Figure 6.1:Influence of Product reviews on buying behaviours

7. Factors driving impulse purchase of clothes:

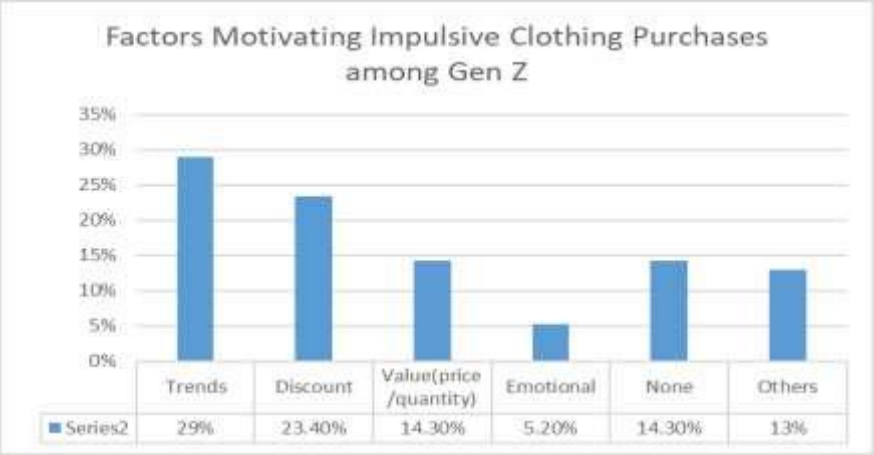


Figure 7.1:Factors Motivating Impulsive clothing purchase among Gen Z

Results indicate that trends are the most important driver of impulse purchases followed by discount and price/value perceptions. Emotional factors are least likely to impact impulse buying of clothes. Women were marginally more likely to make impulse purchases (3.09) as companred to men (2.82).

8. Emotional vs Rational Buying Behaviour: 66% respondents believed themselves to exhibit rational buying behaviour; 34% rated themselves as emotional. There are no gender based differences in the response to this question.

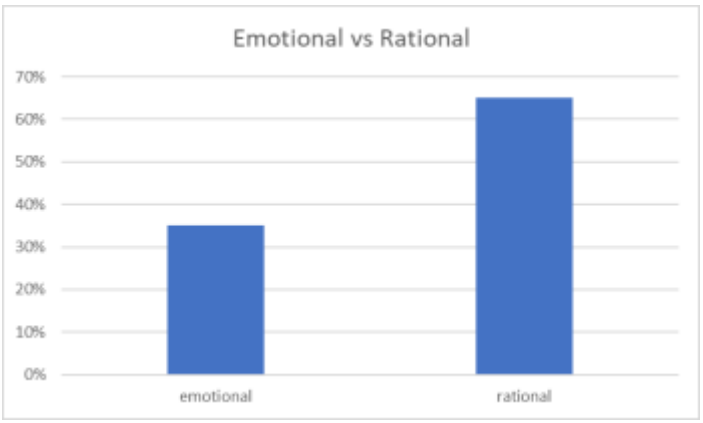


Figure 8.1:Emotional vs Rational Buying Behaviour among Gen Z

9. Impact of Discounts on Purchasing Behaviour: 57% respondents agree that discounts influence purchase behaviour, 18% disagree and 25% are neutral on this aspect. Men are more likely to be swayed by discounts (3.65) than women (3.35)

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Figure 9.1:Discount influence buying behaviour

10. Visual Content on Social Media:
Women are more likely to be influenced by visual content (2.95) as compared to men (2.53)

Discussion:
Instagram was the most widely used platform by both genders, supported by 75% respondents. Significant number of respondents (67.5%) agreed that social media advertisements have an impact on their purchasing decisions. 61.4% respondents said that they noticed fashion advertisements regularly. 39% respondents agreed that fashion trends influence buying behaviour, while 31% were not in agreement. 30% were neutral towards fashion trends. **46.8** % respondents believed influencers shape what they purchase. In contrast, **40.3** % say such voices hold no sway over them. **46.8 %** said reviews shape what they purchase; **24.7 %**, were skeptical. Meanwhile, **28.6 %** did not see much impact of product reviews. Trends are the most important driver of impulse purchases followed by discount and price/value perceptions. Emotional factors are least likely to impact impulse buying of clothes. 57% respondents agree that discounts influence purchase behaviour.
It appears that while respondents noticed social media advertisements and agreed that they have an impact on purchase decisions; it was discounts which influenced purchase behaviour more significantly than influencers or product reviews. This could be because an overwhelming number of respondents may be still financially dependent on their parents and this might influence their buying behaviour. While influencers and product reviews in equal measure might influence the information search and evaluation stages of the buying process, it is the discount which finally clinches the deal. Meanwhile trends are the most important driver of impulse buying suggesting that young people of both genders want to fit in with a particular trend. Surprisingly, emotional factors are least likely to impact impulse buying of clothes. It appears that young people want to buy trendy clothes and fit in with the crowd but on a budget. This research validates the finding that the quiet pressure of group norms found across social networks in shaping buyer behaviour (Kumar and Kumar, 2024)
Women are more likely use social media or spend time on social media platforms compared to male respondents. Both men and women were equally influenced by fashion trends suggesting that here gender did not have a differential impact. Women were more likely to be impacted by influencers as compared to men. Likewise, women were more likely to be influenced by reviews as compared to men. Women were marginally more likely to make impulse purchases as compared to men. Men are more likely to be swayed by discounts than women. Finally, women are more likely to be influenced by visual content as compared to men.
Both women and men in equal measure are influenced by latest trends but the large proportion of them see themselves as rational rather than emotional buyers. However, women do spend more time on social media platforms, are more likely to be impacted by influencers and product reviews as well as content that is visual in nature when making purchase decisions. Men on the other hand are more likely to be swayed by discounts.

Managerial Implications of the Study:
A significant finding of this study is that while social media and its elements are a significant tool in marketing communication, young Indian shoppers are budget conscious and discount prone. They follow trends on social media, listen to influencers and product reviews but are conscious about their budget while shopping for branded apparel. Budgets and discounts, it would seem, mediate the role of influencers and UGC. They indulge in impulse buying to fit in with a trend but this is a rational as opposed to an emotional decision. Young shoppers it appears are goal driven. Marketers would do well to tell a good story appealing to social and esteem needs of buyers of branded apparel. Women place a greater emphasis on influencers and UGC, hence content may be carefully curated to appeal to women buyers.

Limitations of the Study and Direction for Future Research:
The respondents in the study were men and women in the age group 18-27 from the city of Mumbai. The findings of the study then, are applicable only to this age group. It may be noted that as the study was exploratory in nature, the sample was a convenience sample. Further, studies may be conducted on other age groups as well as including other demographics such region, income, occupation, etc. Further studies may also use other methods to gather respondent data. Finally, further studies may use a probabilistic sampling method to validate the findings of this study.

Conclusion:
The study explored the impact of four social media marketing elements – platforms, influencers, product reviews and user generated content and discounts. Instagram emerged as the dominant social media platform thanks to a vast capacity for variety of visual content. Discounts mediate the impact of influencers and UGC. Women are more likely to rely on influencers and UGC to make product choices while men are more likely to be swayed by discounts.

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A SURVEY-BASED STUDY: ASSESSMENT FOR CUSTOMER WILLINGNESS TOWARDS AI-DRIVEN CARBON FOOTPRINT APPLICATIONS

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Abstract
This research based on examine consumer awareness, behavioural intention & adoption willingness towards AI-based carbon footprint calculation applications while identifying gaps in existing carbon footprint calculation application. The impact of a climate change growing rapidly increasing carbon emission and people aware of an environmental crisis but they are limited aware of personal environmental responsibilities which have created need of technology solutions in sustainability. Multiple application exists which track carbon footprint all of that focus on monitoring and calculation including limited motivation (no rewards), short term behavioural interaction and minimal personalized recommendations. This study including both methodologies, primary and secondary research. Structure questionaries set are made for primary data and collected through the people, set of questionnaires basically focus on attitudes, consumer awareness and willingness to interaction with AI- driven application for sustainability, prior reports which is studied related to carbon footprint and human behaviour towards the environment, existing literature, sustainability studies and management are taken as a secondary data. After-awards evaluation of the research take place in order to role of digitalization, Artificial Intelligence, Augmented Reality to enhance live carbon tracking and personalized recommendation which increase user interaction. This study finds the gaps between traditional carbon footprint, address the drawbacks of current application and suggest the progressive sustainability framework which is extend by involving community engagement, behavioural psychology, AR based object detection, AI-prediction behavioural pattern and recommendation, gamification. This basically made for focus on improving sustainable behaviour through awareness, motivation, social influence.
Keywords: Artificial Intelligence (AI), Carbon Footprint Calculation Applications, Consumer Awareness, Behavioral Intention, Adoption Willingness, Sustainability, Augmented Reality (AR), Gamification, Personalized Recommendations, Sustainable Consumer Behaviour.

1. Research Introduction

1.1 Introduction to the Study

Climate change and environmental degradation have emerged as critical global concerns in the 21st century AND climate-related environmental risks remain a major health concern worldwide.

Regardless of growing awareness, individuals often face problems to understand their personal carbon footprint and how their daily habits contribute to environmental (positive or negative) impact. current sustainability tools are Stable, human-driven, and only work for short term participate engagement. Digitalization creates board idea of interaction, personalization and involvement of Artificial intelligence, Augmented reality provides accurate carbon footprint tracking system.

Research indicates that AI-based carbon footprint calculation applications hold significant potential to alter consumer behaviour and foster environmental responsibility, although adoption is largely driven by perceived utilitarian, social, and hedonic benefits. These applications, which utilize AI to track, analyse, and provide personalized eco-friendly

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recommendations, can help reduce individual carbon emissions by over 20%, particularly in areas like mobility and household activities.

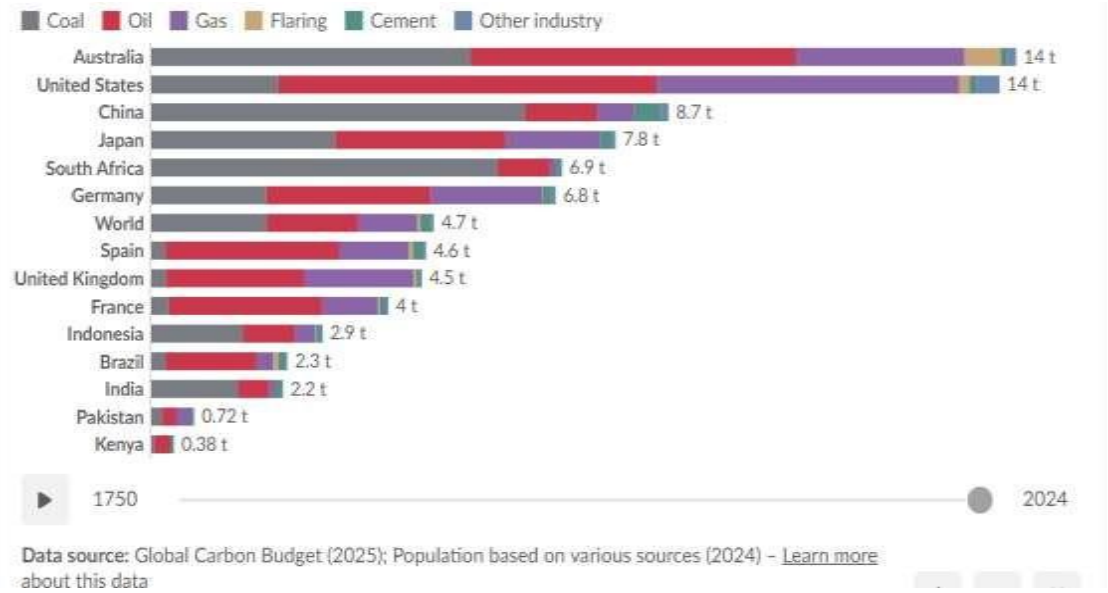
(Puneet Kamboj, june 2022)

The transport sector is a significant contributor to the global energy demand and associated emissions. Countries worldwide have been devising strategies to mitigate emissions from this sector. In India, although the transport sector accounts for less than a fifth of India's final energy use and almost 11 per cent of India's energy sector related carbon dioxide emissions, its emissions are growing at a faster rate compared to other sectors. As India's economic growth accelerates, emissions from this sector are expected to grow at an even faster pace.

New Delhi (March 26, 2026) – India announced its new nationally determined contribution (NDC). India aims to reduce its emissions intensity of GDP by 47% by 2035 compared to 2005. India also pledged to achieve a 60% share of non-fossil sources in installed electricity capacity by 2035 and to expand its forest and tree cover to absorb up to 4.0 billion tonnes of CO_2 equivalent by 2035 from 2005 levels.

The announcement also emphasizes adaptation measures across key sectors including agriculture, water, and health and highlights the importance of sustainable lifestyle.

Carbon Emissions Per Capita (2024)



The chart presents **per capita carbon dioxide (CO_2) emissions** across various countries in **2024**, measured in **tonnes per person**, and categorized by emission source such as **coal, oil, gas, flaring, cement, and other industries**.

Among the listed countries, **Australia and the United States** have the **highest per capita CO_2 emissions**, both at approximately **14 tonnes per person**, indicating a very high carbon footprint due to heavy industrialization, fossil fuel dependency, and energy-intensive lifestyles. **China (8.7 t)**, **Japan (7.8 t)**, **South Africa (6.9 t)**, and **Germany (6.8 t)** also show relatively high emissions compared to the global average.

The **world average** stands at **4.7 tonnes per person**, while developing countries such as **India (2.2 t)**, **Pakistan (0.72 t)**, and **Kenya (0.38 t)** have significantly lower per capita emissions. This indicates that although countries like India have large populations and high total emissions, their **individual carbon footprint remains much lower** than many developed nations

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Problem Statement

Climate change and rising carbon emissions have become major global and national concerns, requiring immediate behavioural and technological interventions to promote sustainability. Although environmental awareness among consumers is increasing, many individuals still lack practical tools and accessible guidance to measure, understand, and reduce their personal carbon footprint in daily life. Existing sustainability applications often fail to provide personalized recommendations, interactive engagement, and behaviour-driven insights, resulting in low adoption despite high environmental concern. The present survey findings reveal that while a majority of respondents are aware of carbon footprint concepts and concerned about environmental issues, very few currently use sustainability tracking applications. This indicates a disconnect between consumer awareness and actual implementation of sustainable behaviour through digital platforms. Therefore, there is a need to assess consumer readiness toward AI-driven carbon footprint applications that can bridge the gap between awareness and action through intelligent, personalized, and engaging solutions.

Need of the Study

The need for this study arises from the growing environmental challenges caused by increasing carbon emissions and the urgent requirement for innovative sustainability solutions. As digital transformation and artificial intelligence continue to reshape consumer behaviour, AI-driven applications have emerged as a promising approach to encourage environmentally responsible decision-making. However, the effectiveness of such applications depends on understanding whether consumers are willing to adopt them and what features influence their engagement. The survey results indicate that although respondents demonstrate high environmental concern and willingness to make lifestyle changes, the usage of existing sustainability applications remains significantly low. Additionally, respondents showed strong interest in features such as carbon tracking, personalized suggestions, rewards, and gamification. Therefore, this study is essential to understand consumer preferences, behavioural readiness, and expectations in order to design effective AI-based carbon footprint solutions that align with user needs and promote long-term sustainable habits.

Research Gap

Previous studies have extensively examined climate change, carbon emission measurement, and the role of artificial intelligence in environmental sustainability. Several research works focus on technological developments in carbon footprint calculators and AI-powered sustainability systems; however, limited attention has been given to understanding consumer behavioural readiness and acceptance toward adopting AI-driven carbon footprint applications. Furthermore, most prior studies emphasize technical performance and environmental impact while neglecting consumer-centric factors such as trust in AI recommendations, engagement preferences, motivational triggers, and perceived usability. The findings of the current survey highlight that consumers are environmentally aware and interested in AI-supported sustainability tools, yet adoption of current applications remains low due to lack of awareness, accessibility, or engagement. Hence, a significant research gap exists in evaluating how consumer perceptions, motivations, and behavioural intentions influence the adoption of AI-based carbon footprint applications, particularly in the Indian context.

Research Objectives

The study aims to achieve the following objectives:

1. To examine the level of consumer awareness regarding carbon footprint and environmental sustainability.

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2. To assess consumer readiness toward adopting AI-driven carbon footprint applications.

Scope of the Study

The scope of this study is limited to analysing consumer readiness and behavioural responses toward AI-driven carbon footprint applications using a survey-based research approach. The study focuses on understanding consumer awareness, environmental concern, willingness to adopt sustainability technology, trust in AI recommendations, and preferences for engagement-based application features. It specifically examines the role of artificial intelligence in influencing sustainable consumer behaviour through digital carbon tracking and personalized environmental guidance. The research is primarily based on responses collected from young and digitally active individuals, making it particularly relevant for understanding technology adoption trends among modern consumers. However, the study does not include technical development, software engineering, or implementation of the application itself, and remains confined to behavioural and perception-based analysis

2.1 Literature Review (Previous Studies)

Study 1: Dubost (2023) – Carbon Footprint App Impact on Consumer Purchasing

Dubost investigated Generation Z's willingness to use an application that tracks product carbon footprints during purchasing decisions. The findings revealed that younger consumers showed positive user experience satisfaction and willingness to adopt carbon-tracking apps if the platform was easy to use and visually appealing.

Study 2: Dash et al. (2024) – EcoTrack: AI-Based Carbon Footprint App (India)

This study developed an AI-based mobile application called EcoTrack that monitors daily activities such as travel, food, and electricity usage. The findings showed that personalized recommendations, chatbot assistance, and reward systems helped improve user awareness and encouraged sustainable behaviour among Indian users

Study 3: Bain & Company (2024) – Sustainability and Consumer Behaviour in India

This report analysed Indian consumer behaviour toward sustainability and found that nearly 80% of consumers are highly concerned about environmental issues. However, there is a gap between concern and action, as many consumers do not actively track their carbon footprint or use sustainability tools

Study 4: Jasmy et al. (2024) – AI-Driven Carbon Footprint Application

This study proposed an AI-based mobile application to track and reduce individual carbon footprints. The system integrates real-time monitoring, personalized recommendations, and behavioural tracking. The findings showed that the application improved users' awareness and significantly influenced social norms toward sustainable behaviour.

2.4 Research Gap Identification

Despite the increasing development of sustainability applications and carbon footprint calculators, existing literature primarily focuses on emission measurement, technical optimization, and environmental impact assessment rather than consumer adoption behaviour. Current applications largely provide generalized carbon tracking with limited personalization, low behavioural prediction capability, and insufficient engagement mechanisms. Furthermore, previous studies inadequately address the influence of AI trust, gamification, and social comparison on user adoption of sustainability applications. This creates a gap in understanding how AI-driven, personalized, and engagement-oriented carbon footprint applications can improve long-term consumer adoption and behavioural change, particularly in the Indian consumer market.

3.1 Research Methodology

1. Research Design

The present study adopts a **descriptive and exploratory research design** to examine consumer readiness toward AI-driven carbon footprint applications. The descriptive aspect of the study focuses on understanding consumer awareness, attitudes, and behavioural intentions regarding sustainability and artificial intelligence-based environmental solutions, while the exploratory component seeks to identify emerging factors influencing adoption and engagement with such applications. This design is appropriate as the research aims to analyse existing consumer perceptions and explore behavioural patterns without manipulating variables.

2. Nature of Study

The nature of the study is **Mixed-Method Research** in approach, quantity data research based on numerical data collected through structured survey responses and qualitative data done through cold call interviews to analysis deep insight. The study aims to quantify consumer awareness, trust, willingness to adopt, and feature preferences related to AI-driven carbon footprint applications. Mixed method research is suitable because it allows systematic measurement and responses to gain deeper insights into consumer perceptions, attitudes, and behavioural patterns.

3. Sample Design

The sample for the study consists of **70 respondents** selected to represent potential users of digital sustainability applications. The respondents primarily include students, working professionals, and environmentally conscious individuals who are likely to engage with AI-based digital tools. 15 individual sample was chosen for cold calls and get data about offers deeper behavioural insights and explanations behind those trends.

4. Sampling Method

The study uses a **mixed- method**, data survey done through people based on availability, accessibility, and want willingness to participate in the survey. And qualitative data done through call interview to understand reasons behind the responses which they tick, and how they react to the environment to understand based on their knowledge.

5. Data Collection Method

In this study use **primary data collection methods**, data was gathered from respondents through a structured questionnaire survey. The form was distributed using online digital platforms such as Whatsapp, Instagram and other social sharing channels to reach as much possible group of participants efficiently, after get the form survey data, cold call done to get more insight and in this data there were not only a question was present, I tried my best to get solution of the problems.

Additionally, **secondary data** and information is collected through journals, reports, articles, and environmental publications was used to support the literature review and background context.

6. Questionnaire Design

A **structured questionnaire** was developed for data collection, consisting of close-ended and multiple-choice questions to ensure consistency and ease of analysis. The questionnaire was divided into the following sections:

Section A: Demographic Information

- Age
- Occupation

Section B: Environmental Awareness

- Awareness of carbon footprint
- Concern regarding environmental issues

Section C: Sustainability Behaviour

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- Current sustainable practices
- Usage of sustainability applications

Section D: Technology Acceptance

- Interest in AI-driven carbon footprint application
- Trust in AI recommendations

Section E: Engagement and Feature Preferences

- Preferred app features
- Motivating factors for usage
- Willingness to participate in gamification/social comparison

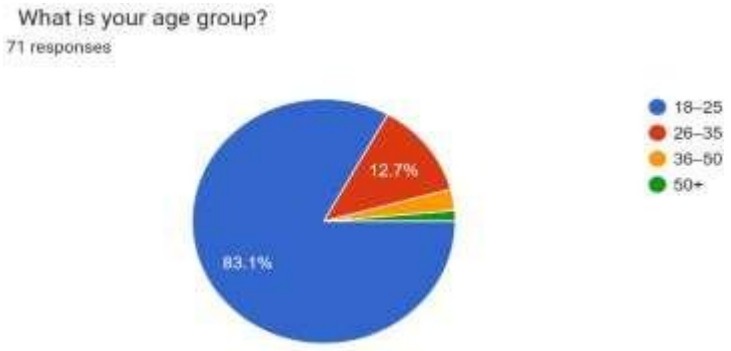
Section F: Behavioural Change

- Willingness to change lifestyle based on carbon insights
- Preferred area of lifestyle adjustment

The questionnaire was designed to align with the research objectives and measure both awareness and behavioural readiness.

Survey Question's

Q.1

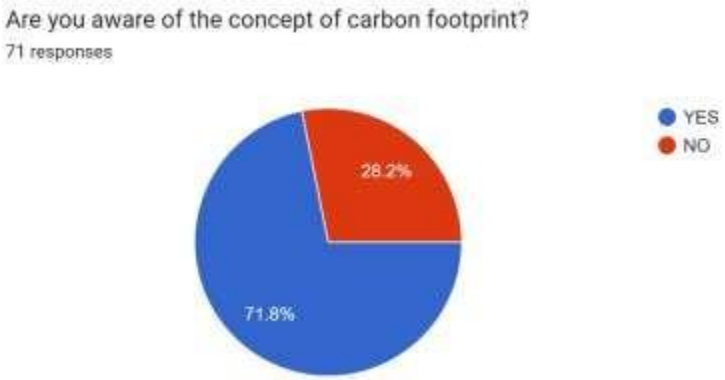


The survey data indicates major responses get from age 18-25 (83.1%). Due to the major responses from this category this made them primary contribution to the study. Study is more focused on based of behaviours, perspective, awareness level of young individuals (student and early-stage professionals). Add on the age group of 26-35 respondents contribute 12.7%. this shows limited participation from more experienced or older individuals.

Q.2 What is your occupation?

Survey data contain (57.7%) responses as a student and (32.4%) are working professions. Remain percentage leads to business professions. This indicates responses are likely shaped by younger and learning oriented perspective which have knowledge og recent trends, digital tools, AI-uses and current enviromental awareness. Working professions add practical experiences, grounded reality, makes the finding slightly balanced.

Q.3



In this study shows 71.8% individuals are aware of carbon footprint and 28.2% doesn't know. This indicate a good amount of sample understand carbon footprint and ¼ individual still lack to understand this term. Since this percentage includes environmentalist and non-environmentalist. Awareness levels are maximum according to the data.
Based on interview call

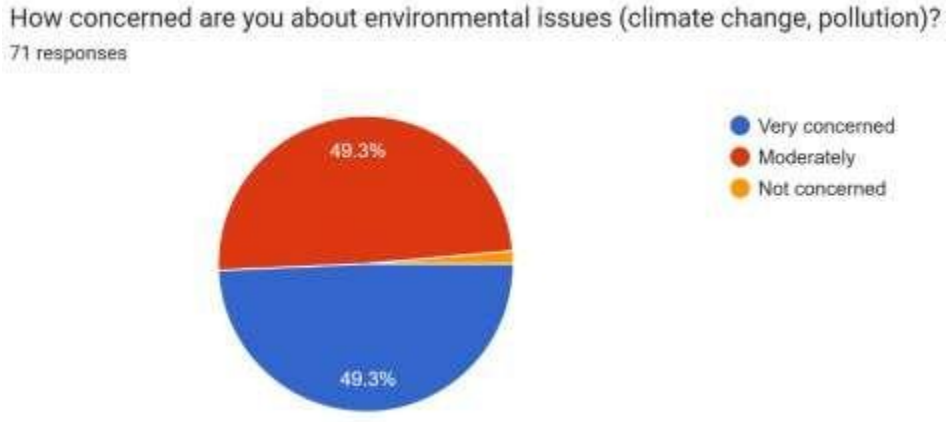
General Responses:

From the respondents' point of view, there is awareness about the concept of carbon footprint; but awareness is mostly at a basic level. When there was interaction with the respondents for the purpose of cold calling, it was noted that many people relate the carbon footprint concept to either carbon emissions or gas emissions. It can be said that the respondents have an idea about carbon footprints but do not completely understand what is meant by carbon footprint, how it is calculated, and its implications. The idea of the carbon footprint, among many respondents, only revolves around emitting carbon gases.

Environmentalist Responses:

For the environmentalists, the idea of carbon footprint has been very well understood. They understand that the carbon footprint represents the environmental impact of human actions and behaviours resulting in the release of carbon dioxide and other greenhouse gases into the atmosphere. As opposed to the general respondents, the environmentalists have a very thorough understanding of the concept of carbon footprint. They know what the carbon footprint is all about, why it matters, and how it can be measured.

Q.4



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From the results, it can be seen that most participants have been found to be concerned about the problems related to environment with 49.3% of participants being highly concerned and an equivalent 49.3% being moderately concerned. The near-equal numbers under "highly concerned" and "moderately concerned" suggest that while awareness is prevalent among the participants, the level of concern is variable from participant to participant. It can be observed that only a very small number of participants have been found to be uninterested in environmental problems.

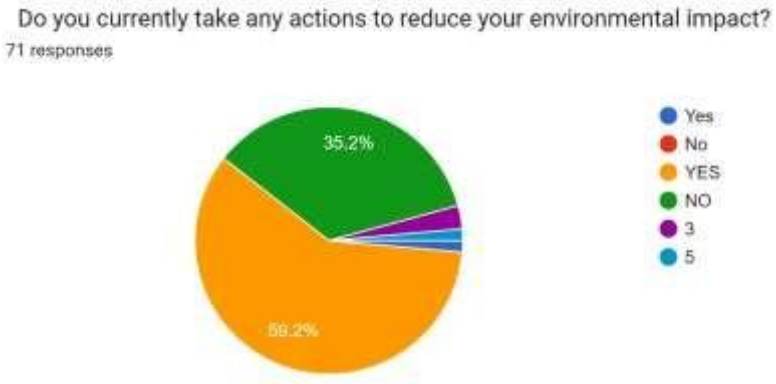
General responses:

From the perspective of general respondents, environmental issues are mostly understood through commonly visible and widely discussed problems such as pollution, global warming, water pollution, and deforestation. Their responses show that public understanding is primarily focused on direct and observable environmental challenges that affect daily life and are frequently highlighted in media and public discussions. This indicates a basic and practical awareness of environmental issues, mainly on broad and familiar concerns.

Environmentalist responses:

The environmentalists exhibited a deeper and more understanding of the environmental issues. The answers went beyond the broad issues to discuss habitat destruction, animal poaching, forest fragmentation, overfishing, agriculture-based economics, species extinction, and habitat degradation. Some even mentioned large-scale ecological disruptions and the relationship between the natural environment and the ecological environment. This shows that there is a greater and more technically inclined understanding of environmental issues, including knowledge of biodiversity, ecological imbalance, and the effects on the ecological environment.

Q.5



The majority of them (59.2% altogether) are trying to decrease their ecological footprint by adopting a sustainable outlook on life. However, a considerable number of individuals (35.2%) have never attempted to lower their ecological footprint, and some do not care about the problem at all. The most remarkable feature is that, despite seeming to be concerned about their ecological footprint, they lack motivation to act accordingly.

General responses:

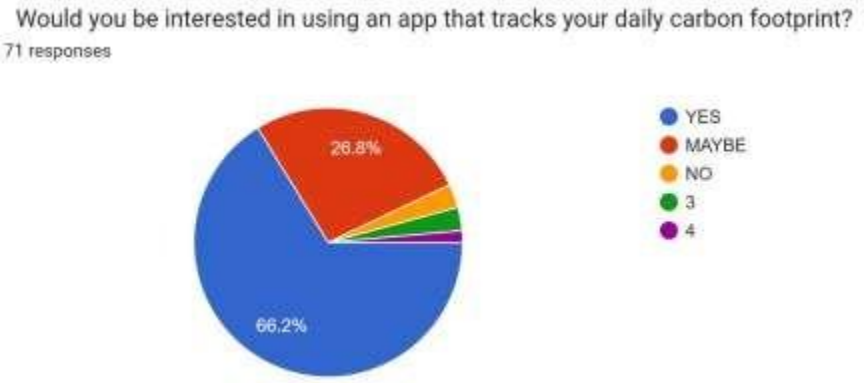
From the general responses, people are seen to indulge themselves in easy and doable tasks like planting smaller plants at home (for example, in the kitchen area), using less plastic, using reusable shopping bags, and sometimes taking public or shared transport modes of travel. Some respondents have also adopted the act of reusing by swapping their clothes and books in order to avoid any wastage. But one major trend found from the general responses is the tendency towards inconsistency when it comes to action. Most of the respondents confessed that their

efforts are sporadic or situation-based and are normally driven by external factors or social pressures. This tends to last for just a few days.

Environmentalist responses:

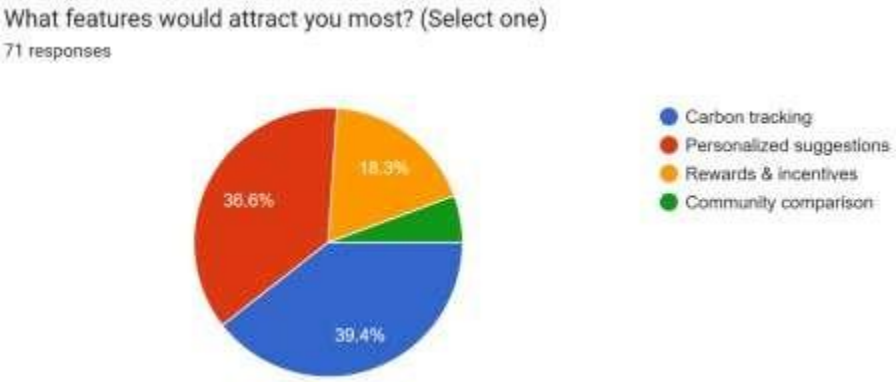
In contrast, environmentalists exhibit a more structured, consistent, and proactive approach. Their actions include spreading awareness, initiating environmental campaigns, practicing waste management, and adopting sustainable technologies such as solar panels. They also emphasize long-term behavioural changes like reducing air conditioner usage, conserving water, minimizing firecracker use, and actively participating in tree plantation initiatives. Environmentalists display **action-oriented and sustained commitment**, where their practices are deliberate, continuous, and aligned with long-term environmental goals.

Q.6



According to the data, there is a significant number of users (66.2%) who are willing to use an application that would allow monitoring their carbon footprint on a daily basis, which can be seen as a willingness to take advantage of modern technologies when it comes to the environment-related matters. Moreover, a relatively high percentage of respondents (26.8%) said that they might be interested in this application, but were not sure about the decision. The rest of the respondents did not express any interest at all. In other words, the data shows that even though there is definitely room for developing applications for carbon footprint tracking, some additional actions should be undertaken by the developers. 6.3 Future Scope of the Study.

Q.7



From the research, it can be seen that carbon tracking, accounting for 39.4%, is the feature that receives the greatest preference from respondents, reflecting the interest of respondents in monitoring their environmental impact. Personalized advice comes next, reflecting 36.6% of

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the preferences. This shows that respondents want to know how they can change their behaviour to lessen their carbon footprint. As opposed to this, rewards, which account for 18.3% of the preference, are seen as not very effective, while community comparison ranks last in terms of preferences. This reveals that respondents would prefer features that will assist them in self-awareness and improving themselves, as opposed to being motivated by gamification or competition.

General responses:

From the point of view of general respondents, their preferences are focused not only on functionality but also on the benefits of using the application, their impact on life, as well as a positive experience with the software. For instance, during the cold calls, one of the requirements emphasized by participants was the necessity to include reward-based elements into the application. Namely, some of the interviewees claimed that the implementation of the opportunity to lower their utility costs, including paying fewer bills for the use of electricity or gas, would become the motivation for adopting more environmentally friendly behaviours.

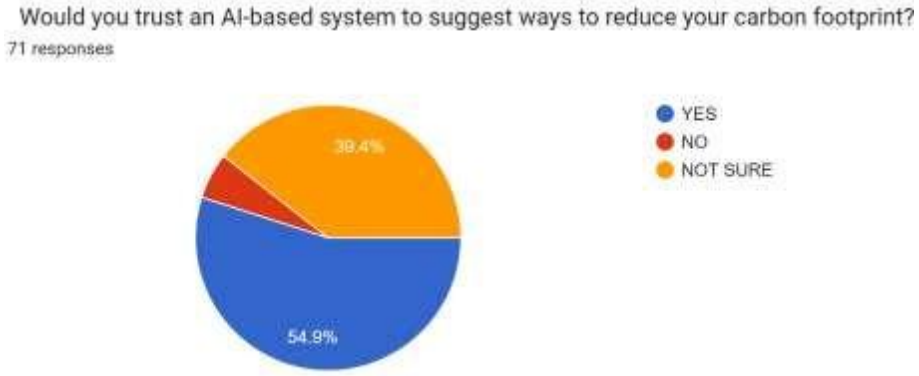
Furthermore, awareness-raising became another point mentioned by participants when speaking about their expectations from the application. To this end, they highlighted the necessity to involve more educational programs in schools or other educational institutions, as well as the usage of visual materials such as videos that demonstrate people performing various actions such as tree plantation, recycling, or donations. Besides, another requirement pointed out by interviewees was the need to measure the effects of users' actions and enable them to share information related to the results achieved via social media sites, including WhatsApp and Instagram. Finally, respondents noted their interest in the inclusion of personalization services enabled by AI in the application. Particularly, such services should be aimed at analysing users' routines, including travels made by them or other aspects of their lifestyles.

Environmentalist responses:

In terms of the environmentalists' expectations of a carbon footprint application, the demands are somewhat organized and educational. For instance, one of the suggestions was to make the application similar to the iNaturalist application, which is based on users uploading pictures of flora and fauna found in the local environment, allowing for an identification of the species, its habitat, and role within it. Moreover, from the environmentalists' point of view, a user-friendly design combined with an organized system of discipline is required, including a specific timeframe for actions, tasks for each day, and a checklist tracking system, which will allow users to keep up with their routines and lifestyle changes.

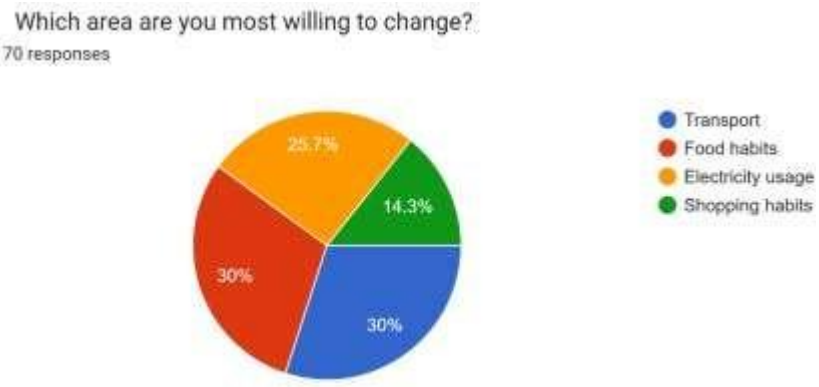
Furthermore, life tracking and notifications were highlighted by environmentalists, alongside the inclusion of streaks within the application, which will be able to show the users their performance throughout their efforts towards creating environmentally friendly habits. Another idea proposed was to connect the application with content platforms such as YouTube, which will provide educational materials to the users that are relevant to the activities they undertake within the application.

Q.8



Based on the results, most participants (54.9%) are ready to rely on an artificial intelligence program to propose ideas on how they can lessen their carbon footprints. This shows an average degree of trust in technology-related solutions to environmental issues. On the other hand, many participants (39.4%) were unsure, while a few did not believe in the capabilities of the technology. This distribution indicates that even if the participants are open-minded about the application of AI systems in their lives, some of them may still be apprehensive about their accuracy, effectiveness, and security. The overwhelming number of undecided participants demonstrates the importance of fostering trust among users.
In conclusion, even though there is potential in the use of AI technologies in environmental protection, the success of their deployment depends on solving problems associated with user distrust and misunderstanding.

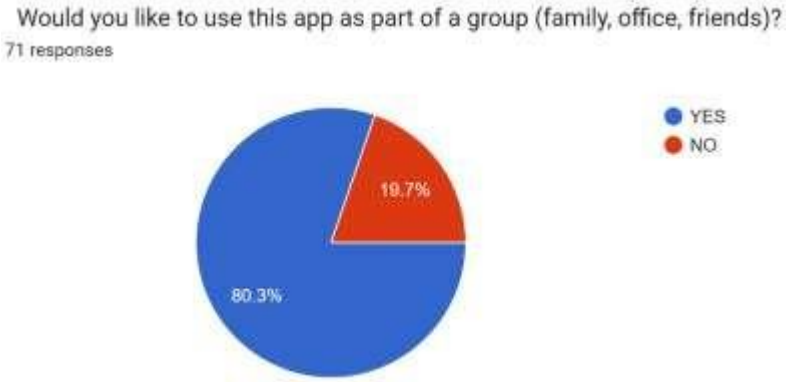
Q.9



From the statistics above, it is clear that people are willing to make the biggest changes in their lives in terms of the use of transportation and food (both at 30%). In fact, both categories seem to be the priority areas, since there is an awareness of their significant contribution to one's carbon footprint and willingness to change one's daily routine accordingly. Shopping is not the category that received the most attention; on the contrary, it is much less important (14.3%), whereas electricity usage is the least priority area among the selected four areas, receiving only 5.7% of answers. Thus, one can conclude that people seem to be more willing to make changes in those spheres where they feel more influence – transport and food are the spheres where actions matter, whereas electricity usage is somehow ignored.

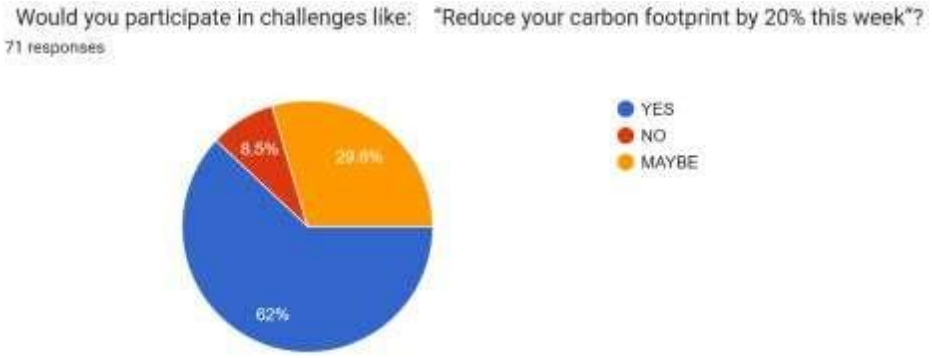
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Q.10



The findings indicate that a strong majority of respondents (80.3%) are willing to use the application as part of a group, such as with family, friends, or colleagues. This reflects a clear preference for collective engagement and shared participation in sustainability efforts.
Group-based usage suggests that individuals are more motivated when environmental actions are performed within a social context, as it encourages accountability, collaboration, and mutual influence. It also indicates potential for features like group challenges, shared goals, and collective progress tracking. However, a smaller proportion of respondents are not interested in group usage, possibly due to preferences for privacy or independent decision-making. Overall, the results highlight that incorporating social and community-based features in the application can significantly enhance user engagement and adoption.

Q.11



The findings show that a majority of respondents (62%) are willing to participate in challenges aimed at reducing their carbon footprint, indicating a positive attitude toward goal-oriented and interactive engagement. Additionally, 29.6% of respondents expressed a "maybe," suggesting potential interest but with some hesitation, possibly due to concerns about feasibility, time commitment, or consistency. Only a small proportion (8.5%) are not willing to participate.
This distribution suggests that while there is strong openness toward challenge-based activities, a significant segment requires motivation, simplicity, and clarity to convert their interest into active participation.

Findings of the Study

Based on the analysis of both quantitative survey data and qualitative interview responses, the following key findings were identified:

- The study is largely **youth-centric**, with 83.1% of respondents belonging to the 18–25 age group, indicating that findings primarily reflect the perspectives of young, digitally active individuals.
- A majority of respondents (71.8%) are aware of the concept of carbon footprint; however, qualitative insights reveal that this awareness is mostly **basic and surface-level**, especially among general individuals.
- Environmental concern is significantly high, with almost all respondents expressing either **moderate or strong concern** about environmental issues, indicating strong sensitivity toward sustainability.
- Despite high awareness and concern, only 59.2% actively take steps to reduce their environmental impact, highlighting a **gap between awareness and action**.
- General respondents tend to engage in **simple and inconsistent sustainable practices**, while environmentalists demonstrate **structured, consistent, and long-term commitment** toward sustainability.
- A strong majority (66.2%) show interest in using an AI-based carbon footprint tracking application, indicating **high adoption potential for digital sustainability tools**.
- Preferred features include **carbon tracking and personalized suggestions**, while rewards and social comparison are secondary motivators.
- However, qualitative findings reveal that users still value **practical incentives (e.g., reduced bills), measurable impact, and social sharing**, suggesting a need for real-world benefits.
- Trust in AI is moderate, with 54.9% trusting AI recommendations and 39.4% remaining uncertain, indicating the need for **transparency and credibility in AI systems**.
- Respondents are most willing to change **transportation and food habits**, while electricity usage is least prioritized.
- Social influence plays a key role, as 80.3% prefer **group-based participation**, and 62% are willing to engage in **challenge-based activities**, highlighting the importance of gamification and community features.

Conclusion

The study concludes that although consumers exhibit **high awareness and concern regarding environmental issues**, this does not consistently translate into **sustained sustainable behaviour**. A clear gap exists between knowledge and action, particularly among general individuals whose efforts are often inconsistent and short-term.

The research highlights that **AI-driven carbon footprint applications have strong potential** to bridge this gap by converting awareness into actionable behaviour. Respondents show significant interest in such applications, especially when they offer **personalized guidance, measurable impact tracking, and user-friendly experiences**.

However, the success of these applications depends on several critical factors, including:

- Building **trust in AI systems**
- Providing **practical and real-life benefits**
- Ensuring **engagement through gamification and social participation**
- Delivering **clear, actionable insights**

Environmentalists' perspectives further emphasize the importance of **structured, consistent, and education-driven approaches**, suggesting that future applications should integrate both **behavioural science and technological innovation**.

Overall, the study confirms that with the right combination of **AI, personalization, and engagement strategies**, carbon footprint applications can play a significant role in promoting **long-term sustainable behaviour** among consumers.

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Limitations of the Study

Despite providing valuable insights, the study has certain limitations:

- The sample size is limited to **70 respondents**, which may not fully represent the broader population.
- The study is heavily **skewed toward younger individuals (18–25 age group)**, limiting the generalizability of findings across different age groups.
- The use of **convenience sampling** may introduce bias, as respondents were selected based on accessibility and willingness to participate.
- The research is **geographically limited** and does not capture diverse regional or cultural variations in environmental behaviour.
- Responses are based on **self-reported data**, which may be subject to bias, exaggeration, or social desirability.
- The study focuses only on **behavioural and perception analysis** and does not include the actual development or testing of an AI-based application.
- Limited number of **qualitative interviews (cold calls)** may restrict the depth of behavioural insights.

Managerial Implications

The findings of the study provide several important implications for managers, developers, policymakers, and organizations aiming to design and promote AI-based carbon footprint applications:

1. Focus on Converting Awareness into Action

Although consumers show high awareness and concern about environmental issues, their actions remain inconsistent. Managers should focus on designing strategies that **bridge the gap between awareness and behaviour**, such as providing simple, actionable steps and continuous engagement mechanisms.

2. Emphasize Personalization through AI

Since users prefer personalized suggestions, organizations should leverage artificial intelligence to deliver **customized recommendations based on individual lifestyles, travel patterns, and consumption habits**. This will enhance user relevance and increase long-term adoption.

3. Integrate Practical Incentives and Real-Life Benefits

General respondents highlighted the importance of tangible benefits such as **reduced utility bills and monetary rewards**. Managers should consider partnerships with service providers (e.g., electricity or gas companies) to offer **real-world incentives**, making sustainability economically beneficial.

4. Build Trust and Transparency in AI Systems

A significant portion of respondents are uncertain about trusting AI. Therefore, it is essential to ensure **transparency in how recommendations are generated**, provide clear explanations, and maintain **data privacy and security** to build user confidence.

5. Develop User-Friendly and Engaging Interfaces

Applications should be designed with **simplicity, ease of use, and intuitive navigation** to attract a broader audience, especially those with only basic environmental knowledge. Complex systems may discourage adoption.

6. Incorporate Gamification and Social Features

High interest in group participation and challenges indicates the need for **gamified elements** such as:

- Challenges and goals
- Streak tracking
- Leaderboards or group comparisons

These features can enhance motivation, accountability, and sustained engagement.

"Organizational Benefits and ESG Impact of Employee Adoption"

How Individual Employee Actions Benefit the Organization

When employees use an AI-driven carbon footprint application and adopt sustainable practices, their individual behavioural changes collectively create measurable environmental, operational, and strategic benefits for the organization. Since organizations are made up of individuals, the combined sustainable actions of employees can significantly contribute to achieving corporate sustainability and ESG objectives.

1. Support Toward ESG Goals

Environmental (E)

Employees reducing daily emissions through:

- less paper usage,
- energy-efficient behaviour,
- sustainable commuting,
- reduced waste,

helps organizations lower their total carbon footprint.

Social (S)

Encourages:

- employee wellness,
- shared environmental responsibility,
- collaborative sustainability culture.

Governance (G)

Helps management:

- monitor sustainability participation,
- improve ESG reporting,
- align with sustainability compliance and transparency standards.

Organizational Working Model

Employee Uses App
↓
Tracks Daily Carbon Footprint
↓
Receives AI Suggestions / Challenges
↓
Improves Sustainable Behaviour
↓
Lower Resource Consumption at Work
↓
Collective Reduction in Organizational Emissions
↓
Improved ESG Performance + Cost Savings

Thesis

The adoption of AI-driven carbon footprint applications by employees can generate substantial benefits at the organizational level by promoting environmentally responsible workplace behaviour. When employees collectively engage in sustainable practices such as reducing energy consumption, minimizing waste, and adopting eco-friendly commuting habits, organizations can reduce their operational carbon footprint and achieve cost efficiencies. Furthermore, such initiatives support Environmental, Social, and Governance (ESG) goals by

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strengthening sustainability reporting, enhancing stakeholder trust, and improving corporate reputation. Organizations can encourage application adoption through incentives, gamified sustainability challenges, and recognition programs, thereby fostering a culture of environmental responsibility while aligning employee behaviour with strategic sustainability objectives.

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GAMING AS A PROFESSIONAL CAREER: PUBLIC AWARENESS AND PERCEPTION

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Abstract
The gaming industry has grown a lot over the past few years and people are starting to see it as more than just a hobby. With better internet and phones that can run games easily it has opened up things like esports and streaming as actual ways to make money. Still it feels like families and older people do not see it the same way younger folks do. Many know you can earn from gaming but they hesitate to treat it like a proper long term job. That gap in views is pretty much why this whole study happened. A questionnaire went out through google forms and got around 60 replies. Most came from the 21 to 25 group because they spend the most time on digital stuff these days. A few answers from the 15 to 20 range were added too for a wider look at what youth think. The numbers were checked with basic stats and some industry reports helped fill in the background. From the results it seems a lot of people play games often and have heard about careers in streaming or content creation. That awareness does not always turn into interest though. Common worries include money not being stable and not having family support which makes sense because parents usually push against gaming as a real path. Lack of training options and clear guidance came up as another big issue. Over half said they might go for it full time if the income felt secure. Social opinions seem to matter a lot here and many stayed neutral or leaned negative about gaming jobs. I think that shows the hesitation is more practical than anything else. Still there is no clear path forward without more structure around it. Better facilities and a shift in how society looks at these careers would probably help make gaming feel like a normal choice. Awareness by itself is not enough to change things.
Keywords: gaming industry, gaming jobs, Professional Career, Streaming, Content Creation.

Introduction:

The gaming industry has transformed significantly over the past few years, evolving from a simple pastime into a rapidly growing part of the global digital economy. Advances in technology, improved internet access, and the rise of platforms like Twitch and YouTube Gaming have created professional opportunities far beyond casual play. Today, careers in esports, content creation, coaching, and live streaming have become realistic possibilities for many young people.

Growing up in an environment where gaming was common among friends and classmates, it has been interesting to observe how public opinion has slowly changed. Earlier, pursuing gaming professionally was often dismissed immediately, whereas today it is at least considered a topic worth discussing. However, acceptance of gaming as a stable career path still remains limited, especially within families and traditional social circles.

The gaming industry itself evolved from individual entertainment into organised competitive gaming and eventually into a global online ecosystem. The introduction of live-streaming

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platforms played a major role in expanding career opportunities within the field. At the same time, mobile gaming has made gaming more accessible than ever, especially in India, where smartphones have reduced the barrier to entry and normalised gaming among students and young adults.

Despite growing awareness, many people still associate gaming with unproductive screen time rather than recognising it as a skill-based profession. Financial uncertainty also remains a major concern among students and parents, mainly because there is limited understanding of how income is generated within the industry.

This research focuses on three key aspects: awareness of gaming career opportunities, perceptions regarding income stability and career viability, and the influence of family and societal attitudes on career decisions. By studying these factors together, the research aims to provide a clearer understanding of the challenges preventing gaming from being fully accepted as a professional career option in today's digital economy.

Objectives:

Overview of Research Objectives

Before the questionnaire was designed or a single response was collected, it was important to establish exactly what this study was trying to find out. The objectives were kept focused and practical, rooted in observations made within our immediate environment and shaped by the broader questions surrounding gaming as a professional career. Three core objectives guided the entire research process.

Objective One — Understanding Awareness of Gaming Career Opportunities

The first objective was to assess how genuinely aware people are of the career opportunities that exist within the gaming industry. This goes beyond simply knowing that esports exists or that YouTubers make money. It involves understanding whether respondents recognise gaming as a legitimate part of the modern digital economy — one that includes not just competitive players and streamers, but also game developers, analysts, coaches, and event managers.

From interacting with peers daily, it became clear that awareness tends to be surface level. Many people know the popular examples but very few have a well-rounded understanding of the full range of professional roles the gaming industry supports. This objective was designed to measure exactly that depth of awareness.

Objective Two — Analysing Perception of Income Stability and Career Growth

The second objective was to analyse how respondents perceive gaming in terms of financial stability, income potential, and long-term career growth. Financial uncertainty came up repeatedly in peer conversations as the primary reason gaming was not being taken seriously as a career. Even those who followed streamers and esports closely expressed doubt about whether they themselves could earn a reliable living through gaming. This objective aimed to quantify those perceptions across different age groups.

Objective Three — Examining the Influence of Family and Society on Career Acceptance

The third objective was to examine how family opinions and broader societal attitudes influence whether young people feel encouraged or discouraged to pursue gaming professionally. Based on personal observation, it was evident that the decision to pursue an unconventional career like gaming is rarely made in isolation. Family approval plays a defining role, and so does the wider social environment. If gaming is broadly seen as an irresponsible choice by those around a young person, that social pressure becomes a genuine barrier — one just as significant as financial concerns or lack of training.

Why These Three Objectives Work Together

These three objectives cover the complete journey of career decision-making. Awareness tells us what people know. Perception tells us what people believe. And the influence of family and society tells us what people feel permitted to do. Studying all three together allows the research

to go beyond surface-level findings and get to the root of why the gap between gaming awareness and gaming acceptance continues to persist.

Literature Review:

Overview

To build a solid foundation for this research, several published studies and industry reports were reviewed. These sources helped contextualise the survey findings and provided a broader understanding of how gaming careers are being studied globally. The literature has been grouped thematically to make the discussion easier to follow.

Gaming Motivations and Career Intentions

One of the earliest and most relevant studies reviewed was conducted by Bányai et al. (2019), which explored how gaming motivations shape the intention to pursue esports as a career. The study found that career interest among gamers is strongly linked to a competitive mindset, a desire for skill improvement, and the need for social engagement. The research was based on a sample of 190 primarily young male competitive gamers, which does limit how broadly the findings can be applied, particularly across genders (Bányai et al., 2019).

Building on this, Demetrovics et al. (2011) examined the motivational factors that drive gaming engagement more broadly. Their study, which surveyed over 3,000 gamers, found that social connection, achievement, and immersion are the dominant motivations behind sustained gaming behaviour. While not specifically focused on professional esports, it provided useful context for understanding why young people invest so heavily in gaming in the first place.

Career Identity and Long-Term Commitment

Seo (2016) investigated how involvement in esports shapes a person's career identity and long-term professional commitment. Through interviews with esports players, the study found that those who strongly identify with gaming as part of their personal identity are significantly more likely to pursue it as a long-term career. The limitation here was a small sample size, which reduces the generalisability of the findings.

Similarly, Meng-Lewis et al. (2021) studied the structure and growth of esports career pathways. Their research, based on interviews with 35 professional players, highlighted that while career paths within esports are diverse, they are also often unstable and short-lived — a finding that directly supports the income concerns identified in our own survey.

Public Perception and Social Acceptance

Kowert and Quandt (2016) examined how society perceives esports as a legitimate career option. Their findings indicated that while public awareness of esports is gradually increasing, a significant portion of the general population continues to view gaming-related work as unstable and unreliable. The study relied heavily on perception-based survey data, which introduces some degree of subjectivity.

Reitman et al. (2020) conducted a broader review of over 100 studies globally to assess how esports are perceived across different cultures and regions. Their findings confirmed that acceptance is growing but remains contested — particularly in more traditional societies where conventional career expectations hold strong influence. This finding resonates strongly with observations made during our own research.

Income, Sustainability, and Career Risks

Lee et al. (2020) evaluated satisfaction levels among professional esports players and found that satisfaction is generally mixed, largely due to income instability and the short competitive lifespan of most players. Many reported feeling uncertain about their futures once their active playing careers ended.

Zhao et al. (2021) specifically examined the long-term sustainability of esports careers through interviews with retired players. The findings showed that a significant number of players transition into alternative roles — such as coaching, broadcasting, or content creation — once

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their competitive careers wind down, suggesting that the industry does offer pathways beyond active competition.

Streaming, Sponsorship, and Digital Opportunities

Johnson et al. (2019) explored streaming as a standalone career path and found that platforms like Twitch and YouTube significantly enhance both income potential and professional visibility for gamers. However, the study also noted a concerning level of platform dependency — the reality that a creator's income is vulnerable to algorithm changes and policy shifts.

Brown et al. (2020) studied the role of sponsorship and branding within the esports industry, finding that corporate sponsorship is one of the primary drivers of industry growth. The study acknowledged a regional bias in its sample, with most findings drawn from Western esports markets.

Newzoo's (2022) Global Games Market Report confirmed the billion-dollar scale of the global gaming market and highlighted its rapid expansion across both established and emerging markets. The report acknowledged that projections are subject to rapid change given the pace of technological development.

Health, Mental Well-being, and Career Challenges

Smith et al. (2019) examined the physical health implications of professional gaming, identifying concerns such as eye strain, poor posture, and elevated stress levels among professional players. Papp et al. (2021) further explored the psychological traits required for esports success, finding that emotional control, sustained focus, and mental resilience are critical qualities — findings that are insightful but limited in broader generalisability.

Education, Training, and Institutional Support

Research on the educational integration of esports found that an increasing number of academic institutions globally are beginning to incorporate esports into their curricula. However, formal gaming education infrastructure remains limited in many countries, including India. Studies on training and skill development further highlighted the importance of structured practice, while also identifying a significant lack of standardisation in training frameworks for aspiring gaming professionals.

Future Outlook and Professionalism

Anderson (2020) compared the career structures of esports and traditional sports, finding notable similarities in discipline and team dynamics but significant differences in career stability and post-career support systems. Deloitte's (2021) global report reinforced long-term optimism around the industry, projecting continued worldwide expansion driven by mobile gaming and growing youth engagement, while cautioning that rapid market shifts can alter projected outcomes.

Research Gap:

Overview

While reviewing the existing literature on gaming and esports careers, it became increasingly clear that although a considerable amount of research has been done in this space, there are still several important areas that have not been adequately addressed. These gaps are what gave this study its purpose and direction. Rather than simply repeating what others have already studied, this research was specifically designed to fill in what was missing.

Gap One — Awareness and Acceptance Studied Separately, Never Together

One of the most significant gaps identified across the existing literature is that prior studies have tended to examine either awareness of gaming careers or public perception of them — but rarely at the same time. This separation creates an incomplete picture. Knowing that someone is aware of esports or streaming as a career path tells us very little unless we also understand whether they actually believe it is a viable and stable option worth pursuing.

This study addresses that gap directly by measuring both dimensions simultaneously. By combining awareness and acceptance within a single research framework, it becomes possible to understand not just what people know, but what they genuinely think — and why the two often do not align.

Gap Two — Insufficient Focus on Developing Country Contexts

The majority of existing studies on gaming careers have been conducted in Western countries or within globally generalised contexts. Very little research has been done that specifically accounts for the cultural and social realities of developing nations, where career decision-making is shaped by very different forces. In countries like India, parental expectations, family pressure, and community opinion play an enormous role in determining whether a young person feels free to pursue an unconventional career path.

This study explicitly incorporates these contextual factors, making it more relevant to the environment in which it was conducted. The responses collected reflect the lived realities of young people navigating career decisions within a social and cultural setting that most global studies simply do not account for.

Gap Three — Single-Dimensional Studies Lacking a Comprehensive Framework

A further limitation of the existing literature is that most studies tend to focus on one specific aspect of gaming careers — motivation, identity, economic growth, or mental health — without connecting these dimensions into a unified picture. While each of these individual studies contributes valuable knowledge, they do not offer a holistic understanding of the challenges and opportunities involved in pursuing gaming professionally.

This study addresses that limitation by combining awareness, perception, income stability concerns, career opportunity recognition, and the influence of external factors into a single research framework. This broader approach allows for a more complete and practically useful analysis.

Gap Four — Over-Reliance on Specialised Samples

Many of the studies reviewed were conducted using highly specific samples — professional esports players, retired athletes, or elite competitive gamers. While these samples are valuable for understanding the experiences of those already in the industry, they tell us very little about how the general youth population perceives gaming careers. The perspectives of aspiring or undecided young people, who represent the vast majority of those actually making career decisions around gaming, remain underrepresented in the literature.

This study addresses this by collecting primary data from a broader and more diverse group of respondents across different age groups — people who are not already professional gamers, but who are actively thinking about their futures in relation to gaming.

Gap Five — Family and Societal Influence Remain Underexplored

Despite being one of the most practically significant barriers to pursuing gaming professionally — particularly in culturally conservative environments — the influence of family opinion and broader societal attitudes has not received adequate attention in the academic literature. Most studies acknowledge social barriers in passing, but very few treat them as a central focus of investigation.

This study gives family and societal influence the dedicated attention it deserves, treating it as a primary research dimension rather than a secondary consideration. Given how frequently parental disapproval and social pressure came up in peer conversations during the course of this research, addressing this gap felt not just academically appropriate but genuinely necessary.

Gap Six — Perceived Career Risks Rarely Quantified

Finally, while income instability and short career spans are frequently mentioned as concerns within the esports literature, they are rarely quantified or measured in relation to actual public perception. Most discussions of career risk in gaming are either anecdotal or drawn from the

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experiences of professionals already in the field. What is missing is a clear, data-driven picture of how these risks are perceived by young people who are still on the outside looking in.
This study contributes to filling that gap by directly asking respondents about their financial concerns, their assessment of income stability, and their overall confidence in gaming as a long-term career — providing measurable data where only assumptions previously existed.

Why These Gaps Matter

Taken together, these six gaps reveal that while the academic conversation around gaming careers has grown considerably, it remains incomplete in ways that have real consequences for real people. Young individuals who are trying to make informed decisions about whether to pursue gaming professionally deserve research that reflects their actual context — their cultural environment, their financial concerns, their family dynamics, and their level of awareness. This study was designed with precisely that in mind.

Methodology:

Overview

Before any responses were gathered, it was important to decide on the most appropriate method for answering the research questions. Given that the study aimed to measure awareness, perception, and attitudes across a group of respondents, a quantitative research design was chosen as the most suitable approach.

Research Design

The study followed a quantitative research design, meaning it focused on collecting numerical and measurable data rather than in-depth personal narratives. This approach was chosen deliberately because the goal was to identify broad patterns and trends across a group of respondents rather than exploring individual experiences in detail. Quantitative research is particularly well suited to studies that aim to measure the extent of something — in this case, the level of awareness and degree of acceptance of gaming as a career — across a defined population.

Data Collection Method

The primary tool used for data collection was a structured online questionnaire designed and distributed through Google Forms. This platform was chosen for practical reasons — it is easy to share across different networks and allows respondents to complete the survey at their own pace without social pressure. The questionnaire covered all three research objectives and included questions related to gaming habits, platform preferences, awareness of income sources, perception of career stability, willingness to pursue gaming professionally, and the influence of family and societal attitudes. Both closed-ended and scale-based questions were used to ensure responses could be quantified and compared effectively.

Sample Size and Demographics

A total of 60 responses were collected for the study. While modest, this sample size was considered appropriate for an exploratory undergraduate research study. The sample was drawn primarily from our immediate network of classmates, peers, and academic contacts, reflecting a convenience sampling approach.
The majority of respondents fell between the ages of 21 and 25, with a secondary segment from the 15 to 20 age group — both demographics actively engaged with gaming and digital platforms. The sample included both male and female respondents, though male participants were slightly higher in number, which is broadly consistent with general gaming community demographics.

Data Analysis

Once responses were collected, the data was analysed using descriptive statistics, frequency analysis, and percentage-based interpretation. These methods were chosen because they are

straightforward and well suited to the scale of the study, allowing findings to be presented clearly without requiring complex statistical tools.

Secondary Data Sources

In addition to primary survey data, secondary data was collected from credible external sources including the Newzoo Global Games Market Report (2022), Statista Gaming Industry Statistics, the Esports Earnings Database, and various academic research papers on esports careers and digital economy development. Combining both primary and secondary data provided a more balanced and credible basis for analysis — primary data captured local attitudes while secondary data supplied broader industry context.

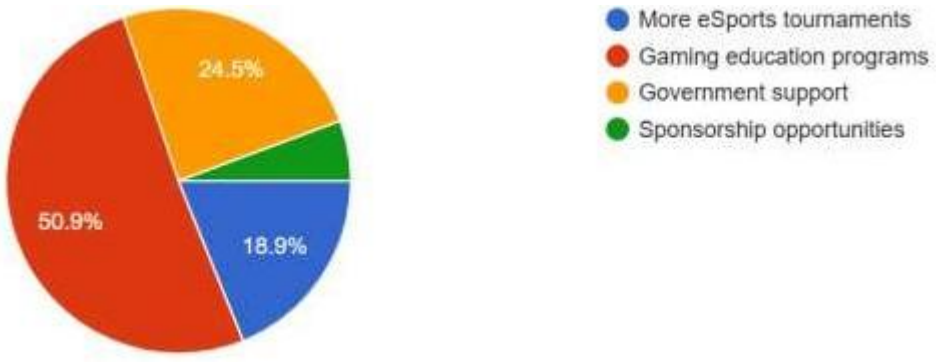
Limitations of the Methodology

It is important to acknowledge that the methodology comes with certain limitations. The sample size of 60 respondents is not large enough to make broadly generalisable claims, and the convenience sampling approach introduces the possibility of selection bias. Additionally, since data was self-reported, some degree of response inaccuracy cannot be ruled out. These limitations do not invalidate the findings but suggest that future research using larger, more diverse samples and qualitative methods could meaningfully build on what this study has established.

Results and Findings:

1. Steps to Promote Gaming Careers:

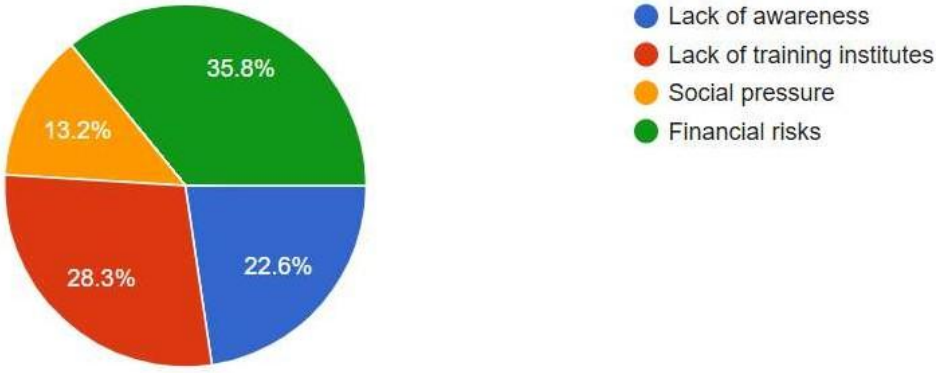
The responses indicate that gaming education programs are the most important step, with 50.9% of the response saying so. This shows that there is a strong need for structured learning and skill development. Next is government support at 24.5%, which shows how important policies and institutional support are. More eSports tournaments, which make up 18.9% of the total, show that there is a need for more chances to compete. Lastly, sponsorship opportunities got the fewest responses, which shows that people are less interested in getting money from them. Overall, the results show that people think that education and support from institutions are the most important things that can help people get into gaming careers.



2. Challenges in Gaming Careers:

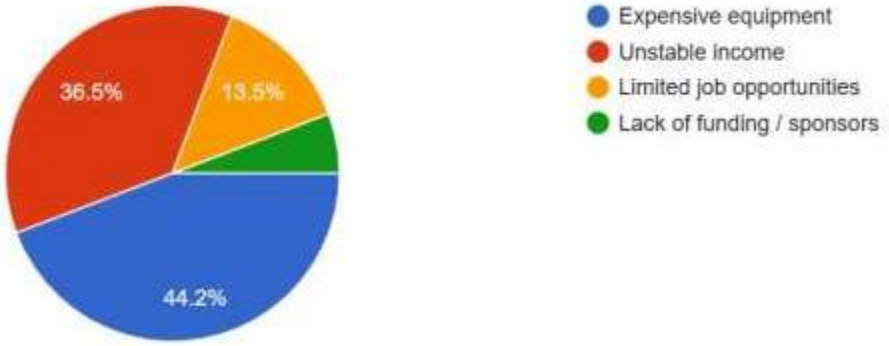
The responses show that 35.8% of the responses said that financial risks are the biggest problem. This shows that people are worried about income stability and long-term security. The next most common problem is the lack of training centres, which is 28.3%. This shows that there is a need for better infrastructure for skill development. 22.6% of people don't know about gaming career opportunities, which means that many people still don't know enough about them. Finally, social pressure accounts for 13.2%, showing that societal opinions have a smaller but still important effect. Overall, the responses show that the main problems with pursuing gaming careers are economic uncertainty and a lack of institutional support.

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3. Financial Challenges in Gaming Careers:

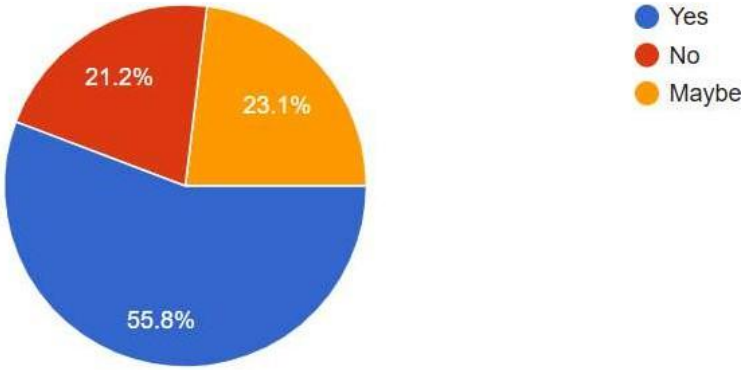
The response shows that the most common financial problem is expensive equipment, which got 44.2% of the responses. This shows how much money it costs to start. The next most common reason is unstable income, which is 36.5% of the time. This shows that people are worried about not making enough money. Limited job opportunities make up 13.5%, which means there are fewer stable career options in the field. Finally, the smallest share is for lack of funding or sponsorship, which shows that people are less worried about this issue. The results show that the main financial barriers to making a career out of gaming are prohibitive costs and not knowing how much money you will make.



4. Willingness to Choose Gaming as a Career:

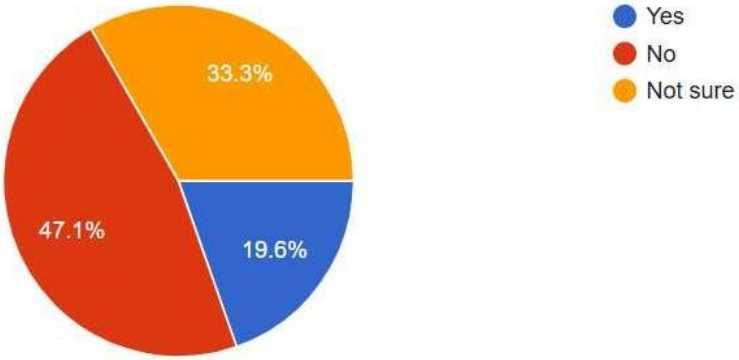
The results show that most of the people who answered (55.8%) would be willing to do their main job if it paid well. At the same time, 23.1% of those who answered are unsure and chose "maybe," which means they are only interested under certain conditions. Only 21.2% do not want to make gaming their job. In general, the results show that having a stable income is a big reason people are willing to accept gaming as a career.

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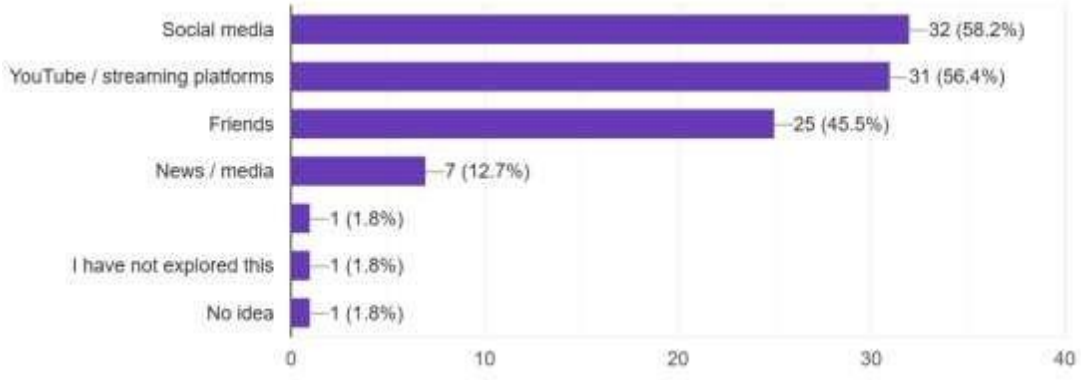
5. Family Support for Gaming Careers:

The findings show that most of the people who answered (47.1%) said that their parents or family do not support gaming as a job. At the same time, 33.3% of respondents are not sure, which shows that families are not sure or do not have a clear opinion. Only 19.6% said they got help from their family. Overall, the results show that not having family support is still a big reason people do not want to make gaming their job.



6. Findings on Source of Awareness of Gaming Careers:

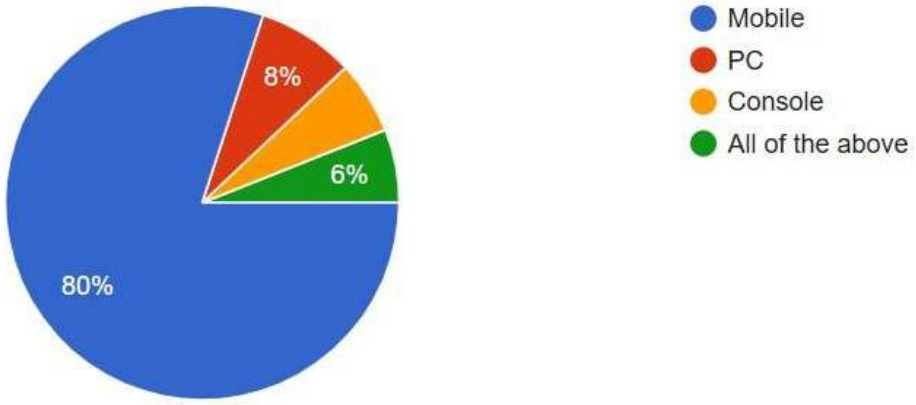
The findings show that social media (58.2%) is the most common way that people learned about gaming careers, followed closely by YouTube and streaming sites (56.4%). Friends (45.5%) also play a big part in getting the word out. Traditional sources like news and media (12.7%) add a lot less. Only a small number of people who answered said they had never heard of or been exposed to gaming careers. Overall, the results show that digital platforms are the best way to get people interested in gaming careers.



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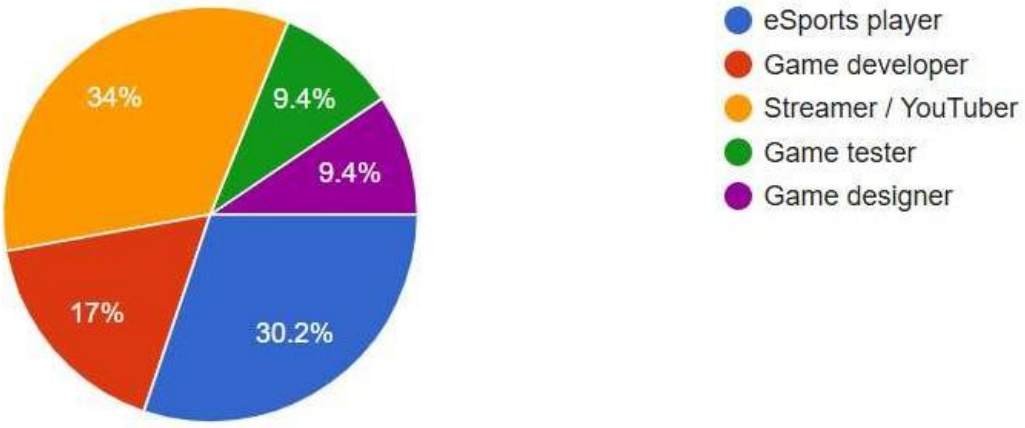
7. Findings on Preferred Gaming Platform:

The results show that most people (80%) use mobile gaming platforms, which is the most popular option. PC gaming makes up 8% of the total, while console gaming makes up a smaller part. Also, 6% of people who answered use all the platforms. Overall, the results show that most people prefer and can easily access mobile gaming.



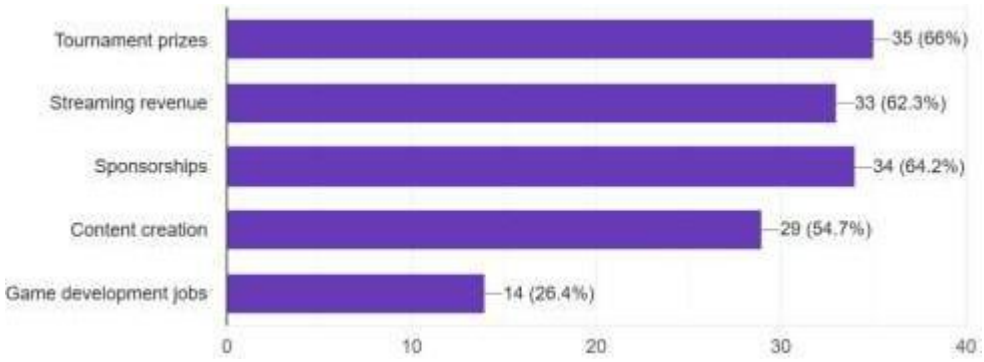
8. Findings on Preferred Gaming Career:

The findings show that the most popular gaming career among those who answered is Streamer/YouTuber (34%), followed by eSports player (30.2%). Seventeen percent of people said they want to be a game developer, while 9.4% said they want to be a game tester or a game designer. The results show that people are more likely to want to work in content creation and competitive gaming than in technical fields.



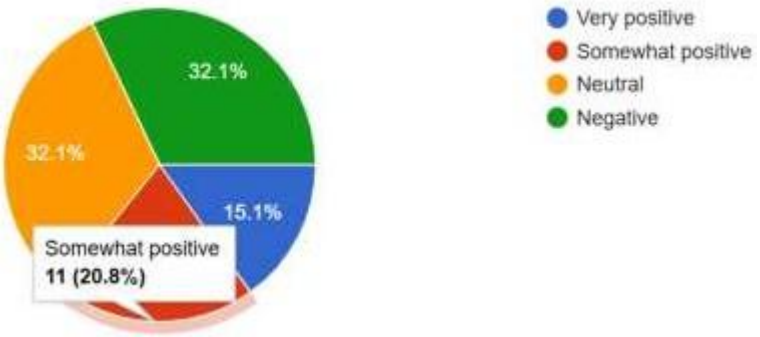
9. Findings on Awareness of Income Sources in Gaming:

The results show that most people (66%) know about tournament prizes, followed closely by sponsorships (64.2%) and streaming revenue (62.3%). Content creation (54.7%) is another common way to make money. However, only 26.4% of people know about jobs in game development.



10. Findings on Societal Perception of Gaming Careers:

The findings suggest that the societal attitude towards gaming careers is mixed. There is considerable skepticism as 32.1% see it as neutral and an exact 32.1% see it negatively. 20.8 percent of respondents see gaming careers as positive, compared to only 15.1 percent who see them as incredibly positive. Overall, the findings suggest that while awareness is increasing, gaming is still not perceived by the public as a truly positive and reliable career option.



Discussion:

Overview

The findings of this study, when looked at as a whole, paint a layered and genuinely interesting picture of how gaming careers are currently understood and perceived among young people. While several results were expected based on prior observations and existing literature, others were more revealing and added nuance to the conversation around gaming as a professional path.

Digital Platforms Dominate Awareness

One of the clearest patterns to emerge from the data was that digital platforms are by far the most influential source of information about gaming careers. Social media accounted for 58.2% of responses as the primary awareness channel, followed closely by YouTube and streaming platforms at 56.4%. Friends and peer networks also played a meaningful role at 45.5%, while traditional media sources such as news outlets contributed far less at only 12.7%.

This finding is consistent with what is observed in everyday student life. Most young people today do not learn about gaming careers through formal channels such as school counsellors or career guidance programs — they learn through what they watch, share, and discuss online. This has important implications for how awareness campaigns and educational initiatives around gaming careers should be designed and delivered.

Mobile Gaming Dominates Platform Preference

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The overwhelming preference for mobile gaming, reported by 80% of respondents, was one of the more striking findings of the study. PC gaming accounted for only 8%, with console gaming representing an even smaller share. This reflects the broader reality of gaming in the local context, where smartphones are the most accessible and widely owned devices. It also suggests that career opportunities and training programs related to gaming need to account for the mobile-first nature of the local gaming audience rather than assuming a PC or console-centric perspective.

Content Creation Preferred Over Technical Roles

When respondents were asked about their preferred gaming career, the most popular choices were Streamer or YouTuber at 34%, followed by esports player at 30.2%. Game development was preferred by 17% of respondents, while game testing and game design each attracted around 9.4%. This distribution suggests that young people are drawn more toward visible, personality-driven career paths than toward technical or behind-the-scenes roles. This may partly reflect a lack of awareness about what technical gaming careers actually involve, or it may simply reflect the influence of the content creators and competitive players they follow and admire online.

Awareness of Income Sources Remains Uneven

While awareness of income sources such as tournament prizes, sponsorships, and streaming revenue was reasonably high — ranging between 62% and 66% — awareness of game development as an income source was significantly lower at just 26.4%. This uneven awareness suggests that respondents associate gaming income primarily with competition and content creation rather than with formal employment opportunities within the industry. This is an important gap, as game development and related technical roles represent some of the more stable and consistently paid career paths within the broader gaming ecosystem.

Financial Concerns Remain the Primary Barrier

Financial risk was identified as the biggest challenge by 35.8% of respondents, with unstable income cited as a concern by 36.5% and expensive equipment flagged by 44.2%. These findings are consistent with conversations held with peers during the course of the research, where financial unpredictability was almost always the first concern raised when gaming careers came up. What is particularly significant, however, is that 55.8% of respondents indicated they would be willing to pursue gaming professionally if stable income could be guaranteed. This clearly positions financial security — rather than disinterest or lack of passion — as the central deciding factor.

Family Support Remains Largely Absent

The data on family support was one of the more sobering findings of the study. Nearly half of all respondents, specifically 47.1%, reported that their family does not support gaming as a career. Only 19.6% indicated receiving genuine encouragement from family members, while 33.3% described their family's attitude as uncertain or undecided. This finding reflects a reality that is very familiar within our social environment, where many students who are genuinely interested in gaming professionally feel they cannot pursue it openly without risking family disapproval. The fact that family opposition remains this widespread, even as the gaming industry continues to grow, highlights how slowly cultural attitudes shift compared to economic realities.

Societal Perception Remains Divided

The broader societal perception of gaming careers was found to be largely neutral to negative. Exactly 32.1% of respondents described societal attitudes as neutral, while another 32.1% viewed them negatively. Only 20.8% saw gaming careers as somewhat positive, and just 15.1% viewed them as very positive. This distribution confirms that despite growing industry visibility, gaming has not yet achieved the kind of broad social legitimacy that would make it a comfortably acceptable career choice in the eyes of the wider community.

What the Findings Mean Together

When these findings are considered together, a consistent and clear narrative emerges. Awareness of gaming careers is growing, largely driven by digital platforms and peer influence. Interest in gaming professionally is genuine and significant. But acceptance — both financial and social — remains limited. The gap between knowing about gaming careers and feeling confident and supported enough to pursue one is wide, and it is being maintained by a combination of financial uncertainty, absent family support, inadequate training infrastructure, and a societal perception that has not kept pace with the industry's actual growth.

Addressing this gap will require coordinated effort from multiple directions — better education about the full range of career opportunities in gaming, structured training programs, policy-level support, and a gradual but necessary cultural shift in how gaming is discussed and valued within families and communities.

Conclusion:

This study set out to understand how young people perceive gaming as a professional career — specifically in terms of awareness, income stability, and the influence of family and societal attitudes. What emerged from the data was a clear and consistent picture of a gap that many of us have observed firsthand in our own environments but rarely seen quantified.

Awareness of gaming careers is genuinely growing. Young people today know that esports exist, that streamers earn money, and that content creation is a viable profession. Digital platforms — particularly social media and YouTube — have done a great deal to make this information accessible and visible. In that sense, progress has been made.

But awareness alone is not enough. The data showed clearly that financial uncertainty, absent family support, limited training infrastructure, and a broadly neutral to negative societal perception continue to hold young people back from actually pursuing gaming professionally — even when the interest and passion are genuinely there. The finding that more than half of respondents would consider gaming as a career if stable income were guaranteed captures this tension perfectly. It is not disinterest that is the problem. It is insecurity — financial, social, and structural.

From a personal standpoint, conducting this research reinforced something that felt intuitively true before the data was collected: the biggest obstacle gaming faces as a career in our context is not the quality of the opportunities it offers, but the quality of the support systems available to those who want to pursue them. Training programs, family awareness initiatives, institutional recognition, and policy-level support are not optional extras — they are the foundational requirements for gaming to move from a career that people admire from a distance to one they feel genuinely empowered to build.

Future Scope:

This study opens the door to several directions for future research that could build meaningfully on what has been established here.

The most immediate need is for a larger and more geographically diverse sample. Expanding the study across multiple cities, regions, and demographic groups would significantly improve the reliability and generalisability of the findings. Including respondents from smaller towns and rural areas in particular would provide important insight into how gaming perceptions differ across different social and economic contexts.

Future research could also benefit from incorporating qualitative methods alongside quantitative ones. In-depth interviews or focus group discussions with aspiring gaming professionals, parents, and educators would add a layer of human context that survey data alone cannot fully capture. Understanding the reasoning behind attitudes — not just their frequency — would make for a much richer analysis.

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A longitudinal research design would also be valuable, tracking how awareness and perception of gaming careers evolve over time as the industry continues to grow and as more visible success stories emerge within the local context. This kind of tracking study would help identify whether current initiatives — such as the growth of mobile esports or the emergence of gaming education programs — are actually shifting attitudes in a meaningful way.

Finally, future studies could explore the specific experiences of those who have already attempted to pursue gaming professionally in the Indian context — what barriers they encountered, what support they received or lacked, and what ultimately determined whether they succeeded or stepped away. These lived experiences would provide the most grounded and practically useful insights of all and would complement the broader perceptual data that studies like this one are designed to capture.

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