International Journal of Scientific Research in Engineering and Management (IJSREM)
Volume: 09 Issue: 06 | June - 2025 SJIF Rating: 8.586 ISSN: 2582-3930

A Study on the Role of Financial Literacy in Mitigating Behavioral Biases

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Abstract - In India's rapidly evolving digital economy, young adults face unprecedented exposure to financial products—yet remain highly susceptible to behavioral biases that impair rational decision-making. This study examines the role of financial literacy in mitigating five key behavioral biases: overconfidence, loss aversion, present bias, anchoring, and herding. Using a cross-sectional survey of 55 Indian respondents aged 18–30, the study employs a structured financial literacy test and bias indicators on a Likert scale. Statistical analyses including correlation, regression, and moderation were used to evaluate relationships between literacy and biases, with demographic variables as moderators. Results reveal a strong negative association between financial literacy and all five biases, with the most pronounced effect on overconfidence and present bias. Income and education significantly moderate these relationships, amplifying the bias-reducing effects of financial literacy in lower-income and less-educated groups. These findings support behavioral finance theory and suggest that financial literacy not only improves knowledge but acts as a behavioral safeguard in emerging markets. The study contributes practical insights for educators, fintech designers, and policymakers aiming to foster more rational, inclusive financial participation among Indian youth.

Keywords
Financial Literacy; Behavioral Biases; Overconfidence; Herding; India; Emerging Markets; Financial Behavior; Young Adults

I. INTRODUCTION

The financial behavior of individuals is increasingly recognized as being shaped not just by information or logic, but by psychological tendencies, social pressures, and cognitive limitations. This is particularly evident in emerging economies like India, where young adults—often digital natives—are gaining rapid access to sophisticated financial products without a parallel rise in financial knowledge or decision-making maturity.

India's fintech revolution, driven by widespread internet penetration, UPI-enabled payments, and mobile-first investment platforms, has expanded financial access dramatically. However, access does not equate to capability. Despite the ability to invest in stocks, buy insurance, or obtain credit in just a few taps, many young adults remain vulnerable to behavioral biases—systematic deviations from rational financial judgment. Biases such as overconfidence, loss aversion, present bias, anchoring, and herding often result in poor financial outcomes, such as overtrading, under-saving, impulse spending, and herd-based investing.

At the same time, financial literacy in India remains alarmingly low. According to the National Centre for Financial Education (2023), only 27% of Indian adults demonstrate basic financial knowledge. Among young adults, who are often financially inexperienced yet active in digital markets, this knowledge gap can lead to long-term financial vulnerability.

While the global literature recognizes financial literacy as a buffer against irrational decision-making, few studies explore this relationship in non-Western, fast-digitizing contexts. Even fewer examine which specific biases are most mitigated by literacy, or how demographic factors such as income and education influence this relationship. This lack of contextual research creates a critical gap in behavioral finance theory and practice.

1.1 Statement of the Problem

Despite the surge in access to digital financial platforms and investment tools, a significant portion of India's young adult population lacks the necessary financial literacy to navigate these systems effectively. While they may be technologically adept, they often fall prey to cognitive and emotional biases that impair rational decision-making, such as overconfidence, herd behavior, and present bias. These behavioral tendencies not only lead to suboptimal financial outcomes but can also exacerbate long-term financial instability. Existing literature has focused on general investor behavior or financial literacy in isolation, with limited attention to the specific role financial literacy plays in mitigating such biases among young adults in emerging markets like India.

1.2 Research Objectives

The primary objective of this research is to examine the influence of financial literacy on behavioral biases among young adults in India. The specific objectives include:

- To assess the level of financial literacy among Indian youth.
- To identify the prevalence of behavioral biases such as overconfidence, loss aversion, present bias, anchoring, and herding.
- To evaluate the relationship between financial literacy and these behavioral biases.
- To analyze the moderating effects of demographic factors such as income, education, age, and gender on this relationship.
- To provide insights and recommendations for policymakers, educators, and fintech platforms to

enhance financial literacy and mitigate irrational investment behavior.

1.3 Scope of the Study

This study focuses on young adults aged 18 to 30 years in India, a demographic that is digitally active and increasingly involved in financial decisions through mobile apps, digital wallets, and online trading platforms. The research concentrates on five key behavioral biases and evaluates how financial literacy interacts with these tendencies. The geographic scope is limited to India, and the study adopts a cross-sectional survey design. The findings aim to contribute to both academic literature in behavioral finance and practical financial education strategies relevant to emerging economies.

1.4 Hypotheses of the Study

Based on the objectives and literature review, the following hypotheses were formulated:

- H1: There is a significant negative relationship between financial literacy and overconfidence bias among young adults.
- H2: Financial literacy negatively correlates with loss aversion.
- H3: Financial literacy is negatively associated with present bias.
- H4: Financial literacy reduces susceptibility to anchoring bias.
- H5: Financial literacy is inversely related to herding behavior.
- H6: The relationship between financial literacy and behavioral biases is moderated by demographic variables such as age, gender, income, and education.

1.5 Background of the Study

In contemporary financial environments, particularly in rapidly digitizing economies like India, individual investors are increasingly responsible for navigating complex financial markets. While traditional financial theories assume rational behavior in investment decisions, real-world evidence suggests that individual investors are often influenced by mental shortcuts, emotional impulses, and cognitive distortions—collectively termed behavioral biases. These biases, categorized into heuristics, framing effects, cognitive illusions, and herd mentality, significantly impact investment decisions and portfolio performance (Zamri et al., 2017).

Heuristics such as overconfidence, anchoring, and representativeness lead individuals to rely on limited information or flawed rules of thumb. Framing effects, including regret aversion and mental accounting, shape how choices are perceived, while cognitive illusions like hindsight and confirmation bias skew the interpretation of past and future financial outcomes. Additionally, herd mentality—a tendency to follow the crowd—can lead to bubbles and inefficiencies in the market (Bekiros et al., 2017).

Compounding this issue is the varying level of financial literacy among investors. Financial literacy comprises financial competency (understanding concepts), proficiency (applying knowledge), and opportunity (access to investment tools). It is essential for enabling people to make logical and well-informed judgments.

Without a solid foundation in financial knowledge, investors are more susceptible to behavioral traps and irrational behavior. In the Indian context, financial literacy remains relatively low, particularly among youth, despite increased access to digital finance platforms. This paradox—high access but low awareness—raises concerns about suboptimal decision-making in personal finance. Understanding how financial literacy can reduce behavioral biases and improve the caliber of investment decisions is crucial as digital platforms continue to spread and democratize investing options.

By investigating how financial literacy can lessen behavioral biases among young Indian adults, this study seeks to close this gap and encourage wise investment practices in a time of growing financial autonomy and digital engagement.

II. LITERATURE REVIEW

The rise of behavioral finance has significantly altered the traditional understanding of how individuals make financial decisions. Classical economic theories assume rational actors who optimize utility based on available information. However, pioneering work by Tversky and Kahneman (1974, 1979), particularly their development of Prospect Theory, challenged this notion. They demonstrated that individuals systematically deviate from rationality due to cognitive limitations and emotional responses, especially under conditions of uncertainty. These insights gave rise to the field of behavioral finance, which examines how heuristics and psychological biases—such as overconfidence, anchoring, herding, and loss aversion—influence investment decisions.

In India, where financial markets are expanding rapidly and participation is growing among young investors, these biases become particularly salient. Studies such as Shefrin and Statman (1995) and Thaler (1985) further elaborated on the mechanisms of these biases. For example, overconfidence bias causes people to overestimate their level of knowledge or influence over market outcomes. Present bias results in a preference for immediate rewards over future benefits, often at the expense of long-term financial planning. Herding, another prevalent behavior, involves mimicking the investment actions of others without independent analysis—often driven by social proof or fear of missing out. These behavioral distortions are not only irrational but can result in financial losses, under-diversification, and market instability.

Against this backdrop, financial literacy has emerged as a potential buffer against such irrational tendencies. Lusardi and Mitchell (2014) define financial literacy as the ability to process economic information and make informed decisions about saving, investing, and borrowing. More recent frameworks, such as those proposed by OECD/INFE (2018), emphasize the behavioral and attitudinal components of financial capability. Rather than merely understanding financial terms, a financially literate individual is one who can apply this knowledge in real-world decision-making under cognitive pressure. Fernandes et al. (2014) argue that contextual, continuous financial education is more effective at reducing biases than one-time interventions. While global literature generally confirms that financial literacy is negatively correlated with behavioral biases, the context- The

precise nature of this relationship is still not well understood, especially in developing nations like India. Suresh et al. (2021) provide one of the few Indian studies on this topic, reporting a significant inverse relationship between financial literacy and biases such as overconfidence and herding among young investors. However, their study is limited by its reliance on descriptive statistics and a lack of exploration into how this relationship varies across demographic lines. Moreover, the behavioral ecosystem in India is shaped by unique social, cultural, and digital dynamics—ranging from family-driven investment decisions to high exposure to social media influencers and fintech platforms—that are absent in many Western studies.

Additionally, empirical gaps persist in understanding which behavioral biases are most sensitive to financial education, and how variables such as age, gender, income, and education level might influence this effect. The existing literature largely treats these moderators as control variables rather than active factors that shape the effectiveness of financial literacy interventions. This gap is particularly important in the Indian context, where low-income groups and first-generation digital users may exhibit different financial behaviors compared to more educated urban segments.

This study addresses these limitations by proposing a conceptual framework that places financial literacy as the independent variable affecting five core behavioral biases: overconfidence, loss aversion, present bias, anchoring, and herding. Importantly, the model integrates demographic variables—age, gender, income, and education—as moderators that may strengthen or weaken this relationship. This structure draws on Prospect Theory for understanding risk behavior, and Human Capital Theory (Becker, 1964) for justifying the role of financial literacy as a learned and improvable skill that enhances rational behavior.

By combining behavioral finance insights with a localized, demographic-sensitive approach, this study aims to generate a more nuanced understanding of how financial education can serve not just as a knowledge source, but as a behavioral safeguard in India's rapidly changing financial landscape.

Conceptual framework

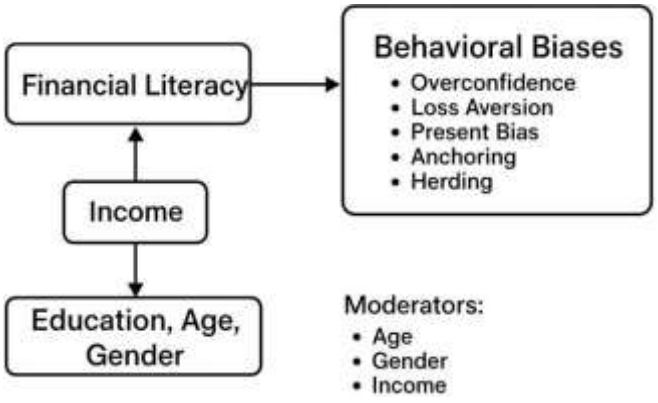

Figure 1: Conceptual Model Illustrating the Relationship Between Financial Literacy and Behavioral Biases

This model illustrates how financial literacy negatively influences behavioral biases such as overconfidence, loss aversion, present bias, anchoring, and herding. Demographic factors—age, gender, education, and income—are proposed to moderate this relationship, potentially strengthening or weakening the impact of financial literacy on bias reduction.

III. RESEARCH METHODOLOGY

This research adopts a quantitative, cross-sectional design to assess the relationship between financial literacy and behavioral biases among Indian youth. The approach allows for statistical analysis of the relationships between variables and the identification of moderating effects through regression techniques.

3.1 Sample and Data Collection

A purposive sampling method was used to recruit a total of 55 participants aged 18–30 from various educational institutions, workplaces, and digital financial user groups in India. Respondents were required to have basic experience with financial tools such as UPI apps, online wallets, or stock trading platforms. Data were collected via an online questionnaire distributed through academic and professional networks.

3.2 Instrument Design

Demographic information (age, gender, income level, and education) was collected in the first section. The second measured financial literacy using a five-item objective test adapted from Lusardi and Mitchell (2014), covering concepts such as interest rate, inflation, diversification, and risk. Each correct answer was scored as one point, yielding a total literacy score from 0 to 5.

The third section measured five behavioral biases—overconfidence, loss aversion, present bias, anchoring, and herding—using statements rated on a 5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree). Each bias was assessed using 3–4 statements adapted from validated behavioral finance scales (Kumar & Goyal, 2015; Suresh et al., 2021).

3.3 Reliability and Validity

Content validity was established through expert review, and the questionnaire was pilot tested with a small group of respondents The total literacy score ranged from 0 to 5, with each right response worth one point. Financial literacy questions were drawn from previously validated sources and standardized across respondents.

3.4 Data Analysis Techniques

Data were analyzed using standard quantitative statistical techniques. Descriptive statistics were applied to summarize the demographic characteristics of the respondents and to calculate average scores for financial literacy and behavioral biases. To investigate the direction and intensity of the associations between personal biases and financial literacy, Spearman's rank correlation coefficients were utilized.To assess the predictive effect of financial literacy on overall behavioral bias, multiple linear regression analysis was conducted. Additionally, hierarchical regression models incorporating interaction terms were used to test whether demographic variables—specifically income, education, age, and gender—moderated the relationship between financial literacy and behavioral biases.

IV. RESEARCH AND ANALYSIS

4.1 Descriptive Statistics

Demographic Variable	Category	Frequency	Percentage
Gender	Male	31	56%
	Female	24	44%
Age Group	18–22	29	52%
	23–25	17	31%
	26–30	9	17%
Income (INR/month)	<10,000	21	38%
	10k–30k	17	31%
	30k–50k	10	19%
	>50,000	7	12%
Education Level	UG	33	60%
	PG	17	30%
	Others	5	10%

Average financial literacy score was 4.12 (SD = 0.83) out of a maximum of 5, indicating a relatively high level of financial knowledge among the surveyed young adults. This suggests that while participants were generally informed, there may still be gaps in deeper or applied financial understanding that can affect behavioral decision-making.

4.2 Behavioral Bias Scores

Behavioral Bias	Mean Score (out of 5)	Standard Deviation
Loss Aversion	3.82	0.71
Overconfidence	3.68	0.65
Present Bias	3.57	0.66
Anchoring	3.46	0.62
Herding	3.32	0.58

4.3 Correlation Results

Variable	Spearman's ρ	p-value
Overconfidence	–0.47	<0.01
Loss Aversion	–0.39	<0.05
Present Bias	–0.44	<0.01
Anchoring	–0.36	<0.05
Herding	–0.32	<0.05

Financial literacy had significant **negative correlations** with all five biases.

Interpretation of Behavioral Bias Scores and Correlations

- **Loss Aversion**
  The highest mean score (3.82) indicates that loss aversion is the most dominant bias among participants. The negative correlation ($\rho = -0.39$, $p < 0.05$) suggests that individuals with higher financial literacy are less likely to exhibit loss-averse behavior, implying they may be more willing to accept short-term losses for long-term gains.
- **Overconfidence**
  With a mean score of 3.68, overconfidence is also highly prevalent. A strong negative correlation ($\rho = -0.47$, $p < 0.01$) shows that financial literacy significantly reduces overconfidence, helping individuals better assess their financial knowledge and avoid risky or impulsive decisions.
- **Present Bias**
  Present bias scored a mean of 3.57, reflecting a moderate tendency to favor immediate rewards. The significant inverse correlation ($\rho = -0.44$, $p < 0.01$) indicates that higher financial literacy encourages more future-oriented thinking, reducing impulsive or short-sighted financial choices.
- **Anchoring**
  With a mean score of 3.46, anchoring bias was moderately observed. Its negative correlation with financial literacy ($\rho = -0.36$, $p < 0.05$) suggests that financially literate individuals are less influenced by initial information and more capable of making objective, data-driven decisions.
- **Herding**
  Herding had the lowest mean score (3.32), indicating it is the least prominent bias among respondents. Nevertheless, the negative correlation ($\rho = -0.32$, $p < 0.05$) implies that increased financial literacy reduces the likelihood of individuals blindly following group behavior, promoting independent financial decision-making.

4.4 Regression and Moderation

Predictor	β Coefficient	p-value	R^2 (Model)
Financial Literacy	–0.61	<0.001	0.39
Income (moderator)	Significant	0.046	
Education (moderator)	Significant	<0.05	

Regression results confirm that financial literacy significantly predicts lower behavioral bias levels. Moderation analysis showed the effect was **stronger in low-income and less-educated groups**.

4.5 Limitations of the Study

While the findings of this study provide valuable insights into the relationship between financial literacy and behavioral biases among young adults in India, several limitations must be acknowledged. First, the sample size of 55 respondents, although analytically sufficient for preliminary correlations and regressions, restricts the generalizability of results to the broader population. Second, the use of purposive sampling may introduce selection bias, as respondents with greater interest or exposure to financial topics might be overrepresented.

Third, data were collected using self-reported questionnaires, which are subject to response bias and social desirability effects. Fourth, the cross-sectional nature of the study limits the ability to infer causality between financial literacy and behavioral biases. Finally, the study focused solely on five specific biases and did not account for other potentially relevant

behavioral factors such as risk perception, time inconsistency, or emotional spending patterns.
Future research should address these limitations by using larger, randomized samples, incorporating longitudinal designs, and including broader behavioral variables to enrich the understanding of financial behavior in emerging economies.

V. DISCUSSION

The results of this study reinforce the established theoretical proposition that financial literacy plays a critical role in moderating irrational financial behaviors. The significant inverse relationship observed between financial literacy and all five measured behavioral biases—overconfidence, loss aversion, present bias, anchoring, and herding—demonstrates that higher levels of financial knowledge are associated with a reduced susceptibility to cognitive distortions. These findings are in alignment with those reported by Kramer (2016) and Fernandes et al. (2014), who emphasized the role of financial education in reducing heuristic-driven errors. Of particular interest is the strong negative correlation between financial literacy and overconfidence bias. This result supports the contention that individuals with greater financial knowledge are more likely to recognize the limits of their own expertise and avoid high-risk financial behaviors based on misplaced confidence. Similarly, the inverse association with present bias indicates that financial literacy may foster long-term thinking and reduce impulsive decision-making—an essential trait in emerging markets where instant digital transactions are prevalent.

Moderation analysis further revealed that the beneficial effects of financial literacy were amplified among lower-income and less-educated participants, suggesting that financial education can have a disproportionately positive impact on economically vulnerable populations. This supports findings from Fernandes et al. (2014) and highlights the importance of targeted, context-sensitive financial literacy programs.

However, certain biases such as loss aversion and anchoring, while significantly correlated with financial literacy, remained partially resistant. This suggests that deeply emotional or socially reinforced biases may require more than just cognitive interventions. Emotional intelligence training, behavioral nudges, and adaptive design in fintech applications may complement literacy-based approaches to fully mitigate these effects.

Overall, this study extends the theoretical understanding of behavioral finance by empirically validating the moderating role of financial literacy in an Indian context. It also provides practical evidence for institutions seeking to integrate financial capability with behavioral awareness, especially within youth-focused financial programs.

VI. CONCLUSION AND IMPLICATIONS

This research confirms the significant role that financial literacy plays in mitigating behavioral biases among young adults in an emerging economy like India. By examining the influence of financial literacy on overconfidence, present bias, loss aversion, anchoring, and herding, the study finds robust evidence that knowledge and understanding of financial concepts can act as a behavioral safeguard. Notably, financial literacy was shown to have the strongest negative association with overconfidence and present bias—biases that are particularly prevalent in impulsive, digitally influenced environments.

The study's findings have both theoretical and practical relevance. Theoretically, it advances the behavioral finance literature by empirically demonstrating that demographic factors—particularly income and education—moderate the literacy–bias relationship. Practically, it suggests that targeted financial education programs can be especially effective among lower-income and less-educated youth, who are both behaviorally vulnerable and digitally active.
Policymakers, educators, and fintech platforms must recognize that improving financial literacy is not merely a question of knowledge dissemination but one of behavioral empowerment. Educational interventions must be culturally contextual, digitally accessible, and designed to account for the emotional and social roots of financial decision-making.

Future research should expand the sample size and diversity, consider longitudinal tracking of behavioral changes, and explore the integration of emotional intelligence and behavioral design alongside financial education. As India continues its rapid digital financial integration, building cognitive resilience through financial literacy will be key to fostering a more inclusive and rational financial ecosystem.

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