

The Structural Impact of Perceived Parental Financial Transparency on the Objective Financial Literacy and Behavioral Decision-Making Heuristics of Urban Adolescents (Aged 15-18) in India: A Case Study of Pune

Arhan Shaikh

arhaaikh2749@gmail.com

Research Article

Keywords: parental financial transparency, financial literacy, behavioral decision-making heuristics, adolescents, family financial socialization, India

Posted Date: August 14th, 2026

DOI: <https://doi.org/10.21203/rs.3.rs-10682760/v1>

License: © ⓘ This work is licensed under a Creative Commons Attribution 4.0 International License.
[Read Full License](#)

Additional Declarations: No competing interests reported.

Abstract

This study examined the structural relationship between perceived parental financial transparency and two outcome domains, objective financial literacy and behavioral decision-making heuristics, among 200 urban adolescents aged 15 to 18 in Pune, India, in what is, to the author's knowledge, the first joint test of these three constructs in an Indian adolescent sample. Guided by family financial socialization theory and Bandura's social cognitive theory, a cross-sectional survey measured perceived parental financial transparency (PFT; $\alpha = .84$), objective financial literacy (FL; $\alpha = .73$, decomposed into basic and sophisticated subscales), and behavioral decision-making heuristics (BDMH; $\alpha = .75$). PFT was unrelated to basic financial knowledge or total BDMH, but was consistently and specifically associated with sophisticated FL across bivariate and multivariate tests. Mediation analysis found a significant positive indirect association between PFT and BDMH through sophisticated FL ($B = 0.031$, 95% CI [0.008, 0.067]), despite a non-significant total effect, a pattern in which the indirect pathway appears offset by a weak, opposing direct effect (inconsistent mediation, or suppression), though this interpretation is provisional given the direct effect's wide confidence interval. Female respondents scored higher than males on BDMH ($p = .015$, uncorrected), but this did not survive false discovery rate correction (corrected $q = .150$); household income and family structure showed no reliable association with any variable. The sample skewed toward advantaged, high-literacy households. Parental transparency predicts sophisticated but not basic financial literacy, suggesting the home operates as a narrower, more specialized channel than current theory or policy generally assumes.

Introduction

Financial literacy is low in India relative to global benchmarks: only 24% of Indian adults met the criteria for financial literacy in the 2015 Standard and Poor's Global Financial Literacy Survey, and India's National Centre for Financial Education reached a similar figure, 27%, in 2019 (Klapper et al., 2015; NCFE, 2019), both discussed further in the Literature Review. India's policy response, formalized in the Reserve Bank of India's National Strategy for Financial Education: 2020–2025, concentrates on school-based instruction (RBI, 2020; detailed in the Indian Context and Research Gap section), leaving comparatively unaddressed the informal channel through which children are understood, in the developmental literature, to acquire much of their early financial understanding: the family. Parents transmit financial understanding through everyday interaction rather than formal teaching alone (Danes, 1994; Gudmunson & Danes, 2011), a process this study formalizes in the Theoretical Framework using family financial socialization theory and Bandura's social cognitive theory together. If these frameworks apply to urban Indian adolescents, the family sits alongside the classroom as a second, largely unaddressed channel for financial education, an empirical question this study takes up directly.

Possessing financial knowledge does not guarantee that a person applies it consistently. Simon (1955) describes decision-makers as operating under bounded rationality, selecting an acceptable option rather than searching exhaustively for the optimal one; Kahneman and Tversky (1979) show that people weigh losses and gains asymmetrically; Thaler (1999) describes mental accounting, evaluating money within

separate mental categories rather than against a single budget. Agarwalla et al. (2015), studying urban Indian young adults, caution against summing knowledge, attitude, and behavior into a single composite score, since two respondents with an identical total can have very different underlying profiles. The present study follows this logic, measuring objective financial literacy and behavioral decision-making as two related but distinct constructs, so that any gap between what an adolescent knows and what an adolescent would do can be observed directly rather than assumed away. No identified study examines parental financial transparency, objective financial literacy, and behavioral decision-making heuristics jointly within a school-age adolescent population in India; family financial socialization theory itself rests overwhelmingly on studies conducted in the United States, with only a small number of recent extensions elsewhere (Agnew & Sotardi, 2025; Ghafoor & Akhtar, 2024), and no prior Indian study combines this population, these constructs, and this measurement approach, detailed in Table 1.

The purpose of this study, accordingly, is to examine the structural relationship between perceived parental financial transparency (PFT) and two outcome domains, objective financial literacy (FL) and behavioral decision-making heuristics (BDMH), among urban adolescents aged 15 to 18 in Pune, India. Five objectives follow: to measure the levels of all three constructs in this population; to examine the association between transparency and financial literacy; to examine the association between transparency and decision-making; to examine whether financial literacy mediates that relationship; and to examine whether these relationships differ across gender, school type, family structure, and household income. The study draws on a convenience sample of 202 respondents in Grades 9 through 12 in Pune, Maharashtra, reduced to a final analytic sample of 200 after data screening (detailed in the Methodology); perceived parental financial transparency is measured as reported by the adolescent respondent rather than independently verified against parental behavior, and the decision-making measure is a researcher-constructed instrument that received a single-expert content relevance review rather than the full expert panel that would be conventional, with its performance, including any ceiling or floor effects, reported in the Results and treated as a limitation in the closing sections.

Three contributions follow from this design. Prior Indian studies either used composite rather than subscale-level literacy scores (Sruthiya, 2021), sampled emerging adults who had generally left the parental home rather than school-age adolescents (Kaur & Singh, 2025), or did not test a mediation model linking transparency, literacy, and decision-making (Jayaraman & Jambunathan, 2018); this is, to the author's knowledge, the first study to jointly examine these three constructs within a school-age (15–18) Indian adolescent sample using an adapted transparency measure and a mediation framework. Second, testing literacy at the subscale rather than composite level identifies a specific, sophisticated-only association that a composite measure would mask, consistent with, and offering a plausible explanation for, prior null findings such as Sruthiya's (2021), though confirming that explanation directly would require reanalysis of that data at the subscale level, which the present study cannot provide. Third, tracing an indirect pathway from transparency through sophisticated literacy to decision-making speaks directly to India's school-centered financial education strategy by identifying a narrower channel through which the family may contribute alongside, rather than in place of, the classroom, a contribution

proportionate to its size: the underlying PFT-Sophisticated FL association is modest ($R^2 = .036$), so the policy implication is a differentiated role for family communication rather than a large or decisive one.

Literature Review

Financial Literacy: Definitions, Measurement, and Global Evidence

Financial literacy has been defined in different ways, but most definitions converge on a combination of knowledge, skill, and applied behavior. Lusardi and Mitchell (2014) treat it as a form of human capital that affects a person's capacity to process economic information and make informed decisions about saving, borrowing, and investing. The OECD's International Network on Financial Education operationalizes this into a three-part framework, financial knowledge, attitudes, and behavior, treated as related but conceptually separable domains rather than a single trait (OECD, 2020). This distinction matters methodologically: a person can score well on a knowledge test and still behave in financially unsound ways, and the reverse is equally possible.

Cross-national survey evidence indicates financial literacy, measured this way, is low almost everywhere. Klapper et al.'s (2015) Standard and Poor's Global Financial Literacy Survey found that only around a third of adults worldwide answered enough questions correctly to be classified as financially literate. India's National Centre for Financial Education documented a comparable figure: 27% of Indian adults met the survey's threshold in 2019, with lower rates among women, rural residents, and less educated respondents (NCFE, 2019). Both surveys sampled adults, not adolescents, one reason the present study is confined to a school-age population whose financial literacy has not been assessed by any comparable national or international instrument; India's absence from PISA's 2022 financial literacy module (OECD, 2024) leaves this gap unaddressed at the international level.

Indian studies below the national survey level tell a broadly consistent story. Jayaraman and Jambunathan (2018), testing 608 high school students, found percentage-correct scores of 45% on basic and 44% on sophisticated financial literacy items, both below developed-country comparators, with literacy higher among commerce and economics students than science students and significantly associated with parental involvement; their finding that female students outperformed male students ran contrary to the direction typically reported in developed-country samples, a reversal this study's own results also produced for a related outcome, discussed later. Gala (2022), surveying 205 young adults across Mumbai, Thane, and Navi Mumbai, reported a similar pattern of adequate theoretical knowledge paired with weak practical application, and Maheria (2023) situates these findings within India's broader financial education policy, arguing India's literacy levels, while low in absolute terms, compare favorably with several South Asian neighbors. None of these studies measured financial literacy alongside a validated measure of the family communication environment, the specific gap the present study addresses.

Family Financial Socialization: Theoretical Origins and Empirical Development

Danes (1994) introduced financial socialization as the process by which individuals acquire the values, attitudes, standards, knowledge, and behaviors supporting financial viability and wellbeing, identifying the family as the primary agent during childhood and adolescence. Gudmunson and Danes (2011) formalized this into the field's dominant framework, detailed in the Theoretical Framework below. LeBaron and Kelley's (2021) decade review of research in the *Journal of Family and Economic Issues* found continued support for the model and identified parent-child financial discussion as its central mechanism, while noting most studies relied on retrospective adult recall rather than concurrent adolescent reports. LeBaron-Black et al.'s (2026) meta-analysis of 39 studies found parent financial socialization positively associated with financial attitudes, behavior, knowledge, and wellbeing overall, but not with the narrower category of financial capability specifically, a null the authors attribute to fewer studies measuring capability directly rather than to the absence of a true effect, one reason the present study measures literacy and decision-making as separate constructs.

Individual studies specify particular transmission mechanisms. Shim et al. (2010) found financial socialization during adolescence predicted financial learning, attitudes, and behavior once students reached college, with the parental pathway outweighing peer and school pathways. Jorgensen and Savla (2010) similarly found perceived parental influence carried a lasting, if partly indirect, effect on young adults' financial attitudes and behaviors, and Kim and Chatterjee (2013) linked retrospective childhood socialization to young adults' financial management practices. LeBaron et al. (2018), drawing on matched reports from emerging adults, parents, and grandparents, found explicit teaching and modeling both recalled as influential, though family members frequently disagreed about how much socialization had occurred, bearing directly on this study's reliance on a single informant, addressed in the Limitations. Deenanath et al. (2019), analyzing 4,473 high school students, separated purposive socialization (deliberate teaching) from unintentional socialization (simply witnessing family financial activity) and found both positively associated with subjective financial knowledge; their finding that obtaining money exclusively through parents, rather than earning it independently, was negatively associated with behavior complicates any assumption that more parental involvement is uniformly beneficial, and is one basis for treating the present study's transparency measure as capturing communication volume rather than the full range of experiential learning.

This evidence base draws overwhelmingly on adult and emerging-adult US samples. Two recent studies extend it further: Agnew and Sotardi (2025), on New Zealand adolescents, and Ghafoor and Akhtar (2024), on Gen Z respondents in Pakistan, both discussed in full in the Theoretical Framework below, where their pairing of family financial socialization theory with Bandura's social cognitive theory motivates this study's own approach. Within India, Kaur and Singh (2025) surveyed 242 Punjab undergraduates and, using structural equation modeling, found family financial socialization significantly associated with financial attitudes, self-efficacy, and wellbeing among emerging adults who had generally already left the parental home, limiting extension to school-age adolescents. Closer in age

range is Sruthiya's (2021) study of 15- to 24-year-olds, which tested four socialization dimensions as predictors of financial literacy using multiple linear regression and found none explained a statistically significant share of variance, with a Mann-Whitney test likewise finding no gender difference. This null result, obtained with a broader age band and a single undifferentiated literacy score, sits in productive tension with the present study's own finding of a narrower, subscale-specific association, developed further in the Discussion.

Financial Literacy and Financial Decision-Making as Distinct Constructs

A separate strand, rooted in behavioral economics, supplies the basis for treating financial knowledge and decision-making as empirically distinguishable. Simon (1955) describes bounded rationality, cognitive and informational limits leading people toward acceptable rather than optimal choices. Kahneman and Tversky's (1979) prospect theory documents loss-averse choices a purely rational-actor model would not predict, and Thaler (1999) describes mental accounting, evaluating money within separate, non-fungible mental categories rather than a single household budget. Bruine de Bruin et al. (2007) formalize decision-making competence as a measurable construct distinguishable from general cognitive ability and declarative financial knowledge.

Two further lines of evidence indicate self-efficacy and self-control, rather than declarative knowledge alone, may carry much of the explanatory weight. Lone and Bhat (2022) found financial literacy positively associated with financial wellbeing, partially mediated by financial self-efficacy, and Pulungan et al. (2024) found parental financial teaching shaped students' financial attitudes partly through self-control. Neither construct was measured here; their omission is addressed in the Limitations, since the mediation model tested specifies financial literacy, not either psychological construct, as the pathway.

Taken together, this literature supports three conclusions motivating the present design: financial literacy is measurably low in India with no validated comparative adolescent measure; family financial socialization theory, grounded mainly in American samples, predicts parental communication matters, but its size and specificity have not been established for Indian adolescents using a basic/sophisticated distinction; and because financial knowledge and decision-making are theoretically and empirically separable, a study of parental influence is incomplete if it examines knowledge alone. This gap is developed further in the Indian Context and Research Gap section.

Theoretical Framework

This study draws on two complementary theories: a macro-level account of how financial socialization operates within families, and a micro-level account of the mechanism transmitting it from parent to child.

Family Financial Socialization Theory

Gudmunson and Danes's (2011) model, building on Danes's (1994) definition of financial socialization as the acquisition of financially relevant values, attitudes, standards, knowledge, and behavior, provides the study's organizing framework. The model specifies three process categories, personal and family characteristics, family interaction and relationships, and purposive financial socialization, theorized to shape outcomes: attitudes, knowledge, and capabilities; behavior; and wellbeing. Perceived Parental Financial Transparency operationalizes the purposive-socialization and family-interaction components specifically. It is not a measure of financial behavior or wellbeing in its own right; it captures the extent to which an adolescent perceives their parents as communicating openly about household finances, one process among several rather than a proxy for family financial socialization as a whole.

Social Cognitive Theory and the Mechanism of Transmission

Family financial socialization theory specifies an association between family process and financial outcome without explaining the mechanism. Bandura's social learning theory, later social cognitive theory, supplies this: individuals acquire behaviors and attitudes partly by observing and imitating a model, without requiring direct instruction (Bandura, 1977, 1986). Applied to the family, a parent's visible financial conduct and communication function as a model from which an adolescent can acquire financial understanding, independent of formal schooling. Combining the two frameworks follows the precedent set by Agnew and Sotardi (2025) and Ghafoor and Akhtar (2024), consistent with the closest available precedents for an adolescent or South Asian sample.

One limitation follows directly. Because observational learning transmits whatever the model does, a transparency measure cannot distinguish a parent who models financially sound behavior from one who models poor behavior with equal openness; both register as high transparency (developed further in the Parental Financial Transparency section below). The mediation model tested here, routing transparency through objective financial literacy rather than assuming a direct effect on decision-making, is partly a response to this: transparency that fails to build measurable financial knowledge is, under this model, unlikely to translate into sounder decision-making regardless of how open the communication.

Conceptual Model and Hypotheses

Figure 1 integrates these frameworks into the structural model tested here. Perceived parental financial transparency is the predictor; objective financial literacy, specifically its sophisticated subscale, is the mediator; and behavioral decision-making heuristics is the outcome. Gender is included as a covariate in models predicting decision-making, on the basis of the group comparisons reported in the Results. Four hypotheses follow:

H1. Perceived parental financial transparency is positively associated with objective financial literacy.

H2. Perceived parental financial transparency is positively associated with behavioral decision-making heuristics.

H3. Objective financial literacy is positively associated with behavioral decision-making heuristics.

H4. Objective financial literacy mediates the relationship between perceived parental financial transparency and behavioral decision-making heuristics.

H1 is stated at the level of overall financial literacy; the basic-versus-sophisticated comparison reported in the Results was not itself pre-specified and is reported as an exploratory refinement rather than a directly pre-registered prediction.

As reported in the Results, the data support H1 only for the sophisticated subscale rather than total or basic financial literacy; do not support H2 as a direct, unconditioned effect; support H3; and support a specific form of H4 in which financial literacy carries a significant same-time-point indirect effect despite the absence of a significant total effect, discussed in the Discussion.

Parental Financial Transparency

Parental financial transparency is treated here as a specific, communication-based construct within the broader field of family financial socialization, worth distinguishing before turning to methodology and results.

Defining the Construct

Within the Gudmunson and Danes (2011) model, financial socialization spans personal and family characteristics, family interaction and relationships, and purposive financial socialization, broad enough to include household income, parenting style, sibling structure, and explicit financial teaching. Parental financial transparency, as operationalized here, is narrower: the extent to which an adolescent perceives their parents as communicating openly about household financial matters, everyday expenses, budgeting decisions, the reasoning behind delayed or avoided purchases, and the family's general situation. This follows Danes's (1994) original emphasis on parent-child financial communication rather than the model's broader family-characteristics component. Because the scale asks the adolescent to characterize their parents' communication rather than recording it directly, scores may also encode aspects of the broader relationship, such as trust or closeness, consistent with LeBaron et al.'s (2018) finding of systematic parent-child disagreement when both characterize the same household's socialization; revisited in the Limitations.

The distinction matters because the literature attributes different consequences to different components. Deenanath et al. (2019) separate purposive socialization, deliberate teaching, from unintentional socialization, what a child absorbs simply by living within a household's financial environment, finding both relate to subjective financial knowledge through somewhat different

mechanisms. The present scale captures the purposive, communicative dimension only; it does not capture unintentional exposure, such as a child inferring financial stress from overheard conversation, a limitation discussed further below.

Transparency as Volume Rather Than Quality

A second distinction, implicit in the social cognitive account, is between the volume of parental financial communication and the quality of the financial conduct being communicated. Under Bandura's (1977, 1986) framework, a child learns by observing a model's behavior, not merely hearing it described; a parent who openly discusses finances while modeling poor habits, such as habitual overspending, would score highly on a transparency measure despite transmitting content a purely volume-based instrument cannot distinguish from constructive modeling. The twelve-item PFT scale used here, described in the Methodology, measures the extent and openness of financial communication, not the soundness of the behavior communicated. This is one reason the mediation model routes transparency through an objective, externally scored measure of financial literacy rather than treating transparency itself as a proxy for sound modeling: an adolescent whose parents are transparent about unsound behavior would not, under this model, be expected to show a corresponding gain in objective literacy, since the literacy items do not depend on the specific content a given family discusses.

Transparency in the Indian Household Context

Existing transparency and financial-socialization instruments were developed predominantly for adult or college-aged US populations (Danes, 1994; Gudmunson & Danes, 2011; Jorgensen & Savla, 2010; Kim & Chatterjee, 2013; LeBaron et al., 2018; Shim et al., 2010). The present scale adapts item content from six such instruments for an urban Indian adolescent sample, a linguistic and contextual adaptation rather than a wholesale re-derivation. Two features of Indian household structure bear on interpretation. First, most of the present sample lives in nuclear rather than joint or extended family arrangements (76.0% versus 24.0%; Table 2), consistent with the ongoing urban shift documented in the Indian family economics literature; the scale asks specifically about parents rather than grandparents or other extended-family members who retain a financial role in some households. Second, more than half the sample reports both parents jointly managing household finances (55.5%), rather than a single financially dominant parent, which shapes how "parental" transparency, addressed to both parents collectively, maps onto the household's actual decision structure. Both considerations are revisited in the Limitations.

The Indian Context and Research Gap

Policy Landscape

India's financial education policy is coordinated primarily through the National Centre for Financial Education, formalized in the Reserve Bank of India's National Strategy for Financial Education: 2020–2025 (RBI, 2020), organized around five pillars, content, capacity, community, communication, and collaboration, with particular attention to school curricula in Classes 6 through 10. Maheria (2023)

documents NCFE initiatives following from this strategy, including nationally coordinated financial literacy weeks and school outreach, and situates India’s performance relative to South Asian neighbors. What this architecture addresses only indirectly, mainly through general calls for “community” engagement rather than any specific parent-facing program, is the home as an independent site of financial socialization, distinct from and prior to formal instruction. This is the specific policy gap that motivates treating the family, rather than the school, as this study’s unit of analysis.

The Existing Indian Evidence Base

A small number of Indian studies have examined financial literacy or parental financial socialization directly, but none combines the population, constructs, and measurement approach used here. Table 1 summarizes the closest available comparators.

Table 1
Comparison of Existing Indian Studies on Financial Literacy and Parental Financial Socialization

Study	Sample and population	Constructs examined	Key finding
Agarwalla et al. (2015) India	Working young adults, urban ; dimen financially independent	Demographic/employment factors; composite and sional literacy attit	Warns against combining knowledge, ude, and behavior into one literacy score
Jayaraman & Jambunathan (2018)	608 high school students, India sophi	General parental involvement; basic and sticated literacy signi	Literacy low overall; parental involvement ficant; no validated transparency measure
Gala (2022) Mumba	205 young adults, i region self-	Awareness/demographics; reported literacy excee and behavior	Theoretical knowledge ds practical application
Kaur & Singh (2025) under	242 graduates, socia Punjab; largely independent of parental household	Family financial lization posit (composite); attitudes, self-efficacy, wellbeing	Socialization ively associated with all three outcomes
Sruthiya (2021) India	Youth aged 15–24, ; dimen adolescents and emerging adults combined	Four socialization sions; single of so undifferentiated literacy score	No significant effect cialization on literacy; no gender difference
Present study	200 adolescents aged 15–18, Pune	Content-valid transparency scale adapted from six instruments; basic/sophisticated literacy and (mediation model)	Transparency specifically predicts sophisticated literacy, which mediates a path to decision-making

Three gaps emerge from this comparison. Studies measuring financial literacy in an Indian adolescent sample, such as Jayaraman and Jambunathan (2018), do not pair that measurement with a validated parental transparency scale. Studies measuring parental financial socialization with a validated instrument, such as Kaur and Singh (2025) and Sruthiya (2021), either sample emerging adults who have generally left the parental household or combine adolescents and emerging adults into a single age band spanning nearly a decade of developmental change, and neither disaggregates literacy into basic and sophisticated components. And no identified Indian study tests financial literacy as a mediating variable between parental transparency and a behavioral, rather than purely attitudinal or self-reported, outcome. Sruthiya's (2021) null finding, tested at the level of a single undifferentiated literacy score across a broader 15-to-24 age range, is a particularly relevant point of contrast, a result the present study's own subscale-level findings help explain rather than simply contradict, developed in the Discussion.

Statement of the Research Gap

No identified study examines parental financial transparency, objective financial literacy, and behavioral decision-making heuristics jointly within a school-age adolescent population in India, treating them as distinct but related constructs rather than a single composite. This is the specific gap the present study addresses, contributing to family financial socialization theory and social cognitive theory by testing their combined application, following the precedent of Agnew and Sotardi (2025) and Ghafoor and Akhtar (2024), in a population, urban Indian adolescents, where this combination has not previously been examined. It also responds directly to Agarwalla et al.'s (2015) caution against collapsing financial knowledge and behavior into a single score, and to Sruthiya's (2021) null finding, by disaggregating financial literacy into basic and sophisticated components rather than testing socialization against a single composite score.

Methodology

Research Design

This study employs a quantitative, cross-sectional, correlational design to examine the structural relationship between perceived parental financial transparency and two outcome domains, objective financial literacy and behavioral decision-making heuristics, among urban adolescents in Pune, India. Data on all three constructs were collected from each respondent at a single point in time. This design supports describing statistical association and testing a specified directional pathway; it does not by itself establish causal direction, addressed in the Limitations.

The cross-sectional design follows the dominant approach in the family financial socialization literature on adolescent and youth populations, including Agnew and Sotardi (2025), Kaur and Singh (2025), Ghafoor and Akhtar (2024), and Jayaraman and Jambunathan (2018). The unit of analysis is the individual adolescent ($N = 202$ collected; $N = 200$ analyzed after screening, below). PFT is the primary explanatory variable; FL and BDMH are outcome variables, with FL additionally specified as a mediator per the Theoretical Framework.

Study Area

The study was conducted in Pune, Maharashtra, one of India's largest urban centers and a long-established education hub. Per the 2011 Census, the most recent conducted (the 2021 census was postponed), Pune district had a population of 9,429,408, with Pune city accounting for approximately 3.1 million (Census of India, 2011); district and city literacy rates (86.15% and 89.56%) both exceeded the Maharashtra state average of 82.34%. Pune's secondary education system spans the Maharashtra State Board, CBSE, ICSE, and international curricula across government, government-aided, private, and international institutions, a structural diversity making it a reasonable single-city setting for examining variation across school type and socioeconomic background (see Limitations).

Population, Sample, and Sampling Technique

The target population is adolescents aged 15 to 18 in Grades 9 through 12 in Pune. The achieved sample was 202 respondents; two rows were identified as embedded summary statistics (a column-sum and column-mean row) rather than individual responses and removed, yielding $N = 200$ with no missing data on the three primary composites or the demographic variables in Table 2.

A non-probability convenience and purposive sample was recruited via a self-administered online form, consistent with the comparator literature on South Asian youth: Kaur and Singh (2025) distributed online through social media in Punjab; Ghafoor and Akhtar (2024) used purposive convenience sampling for 333 Gen Z respondents in Pakistan; Jayaraman and Jambunathan (2018) used school-based access for 608 Indian high school students.

No prospective power analysis was conducted; $N = 200$ reflects convenience recruitment rather than a pre-specified target. Two retrospective benchmarks support its adequacy. Applying the convention of five to ten respondents per scale item (Hinkin, 1995), the 22 combined PFT and BDMH items imply a recommended sample of 110 to 220, which $N = 200$ falls within. Kaur and Singh (2025) report an a priori power calculation for a comparable South Asian regression design ($f^2 = .15$, $\alpha = .05$, power = .80; Cohen, 1988) yielding a minimum of 134, which the present sample exceeds. A design-specific sensitivity analysis further indicates 80% power at $N = 200$ to detect $f^2 = .040$ ($R^2 \geq .038$) in the single-predictor models (Table 10), $R^2 \geq .047$ for the two-predictor model (Table 11), and $R^2 \geq .053$ for the three-predictor moderation models (Table 12). Against these thresholds, the study's central effect, PFT predicting Sophisticated FL ($R^2 = .036$), corresponded to roughly 78% achieved power, and the weaker total-FL effect ($R^2 = .022$) to roughly 56%, indicating the design was reasonably, though not comfortably, powered for the effects actually observed.

Research Instrument

Data were collected using a structured questionnaire with a demographic section and three construct-measurement sections, all adapted from previously published sources or established item frameworks.

Demographic and background information. Age, gender, grade, school type, parents' highest education level, primary earning parent's occupation, approximate household income, family structure, receipt of formal financial education, plus single items on proactive financial questioning, peer influence on spending, and who manages household finances.

Perceived Parental Financial Transparency (PFT) scale. A twelve-item, five-point Likert scale adapted from six published instruments: Danes (1994), Gudmunson and Danes (2011), Shim et al. (2010), Jorgensen and Savla (2010), Kim and Chatterjee (2013), and LeBaron et al. (2018). Five items are reverse-scored (2, 5, 8, 10, 12), distributed evenly to reduce acquiescence bias. Total score ranges 12 to 60.

Objective Financial Literacy (FL) test. A twelve-item multiple-choice test, localized to Indian rupee currency and retail contexts, adapted from the OECD/INFE framework (OECD, 2020), Lusardi and Mitchell's (2011) three-item screen, and PISA's financial literacy modules (OECD, 2024), covering asset identification, budgeting, credit and interest, inflation, investment volatility, diversification, and applied numeracy. Following Jayaraman and Jambunathan (2018), items split into a seven-item Basic and five-item Sophisticated subscale, dichotomously scored (0–12 total).

Behavioral Decision-Making Heuristics (BDMH) scale. A ten-item scale presenting short scenarios (a monthly allowance, a discretionary purchase, an unexpected expense) with four response options each. Respondents selected the option they would most likely actually choose rather than the option believed correct, reducing social desirability pressure relative to direct self-assessment. Options are scored 0, 1, or 2 according to alignment with bounded rationality (Simon, 1955), prospect theory and loss aversion (Kahneman & Tversky, 1979), and mental accounting (Thaler, 1999). Total score ranges 0 to 20. This researcher-constructed instrument was pilot-tested prior to administration (below); a full multi-expert content-review panel was not feasible within an independent, single-researcher study's constraints, so a single-expert relevance review was conducted after data collection instead, reported below and discussed as a limitation.

Post Hoc Content Validity Review

Because a full expert panel was not feasible before data collection, a single-expert review was conducted afterward, a retrospective check rather than a pre-administration step, itself a limitation since it could not inform item revision. Matt Williams (Access Fellow, Jesus College, Oxford; background in political science) rated each PFT and BDMH item for relevance on a four-point scale, following standard content validity index procedures (Lynn, 1986); for FL items, which have an objectively correct answer, he instead confirmed the accuracy of each keyed answer.

Item-level content validity index (I-CVI) was calculated as the proportion of raters scoring an item 3 or 4, scale-level index (S-CVI) as the mean (Polit & Beck, 2006). With a single rater, I-CVI can only take the value 0 or 1, and conventional interpretive benchmarks (e.g., $I-CVI \geq .78$) were derived for panels of three or more and lack an established meaning for a single rater; figures below are reported descriptively rather than as a validated index in the usual sense.

All twelve PFT items were rated 3 or 4 (S-CVI = 1.00). Seven of ten BDMH items were rated 3 or 4; the discretionary-purchase, recurring-cost, and emergency-expense scenarios were each rated 2, somewhat relevant (S-CVI = 0.70). For FL, the reviewer confirmed all twelve keyed answers as accurate, including two items whose response options had been reconstructed during item development; relevance ratings for this section are not available. The reviewer's comments on individual PFT items are integrated into the Limitations.

Pilot Study

The complete questionnaire was administered to a pilot sample of 30 adolescents meeting the same eligibility criteria, recruited separately from the main 200. The pilot confirmed clear item wording, a functioning online form, and acceptable to good preliminary reliability (PFT $\alpha = .78$; FL $\alpha = .66$; BDMH $\alpha = .78$); estimates from a sample this small carry wide confidence intervals and are reported only as a preliminary check. No items warranted revision, and the questionnaire was administered to the main sample unmodified.

Data Collection Procedure

The questionnaire was administered as a single self-administered online form, consistent with the comparator literature (Ghafoor & Akhtar, 2024; Jayaraman & Jambunathan, 2018; Kaur & Singh, 2025). Respondents completed all sections in a fixed, non-randomized order within a single sitting, a constraint discussed in the Limitations. The form recorded a timestamp and email address to prevent duplicates, kept separate from the analytic dataset. Because all respondents were under 18, the questionnaire opened with a mandatory eligibility item requiring respondents to confirm they were between 15 and 18 years old, lived in an urban area, had their parent or guardian's permission to participate, and agreed to take part. This self-report item followed a separate, prior consent process: signed physical consent forms were collected from parents or legal guardians before data collection, for respondents recruited both through the author's school and through other personal and community connections (tuition classes, training programs, and community organizations). Signed documentation is currently retained for 178 of the 200 respondents (89%); forms for the remaining 22 were reportedly collected at the same time but have since been lost, so consent for this subset rests on the researcher's records rather than retrievable documentation, discussed further in Ethical Considerations and the Limitations. Participation was voluntary, and respondents could decline any item or withdraw at any point without penalty.

Validity and Reliability

Content validity for the PFT scale rests on its construction from six previously peer-reviewed instruments; for the FL test, on items drawn from three internationally established item banks (Lusardi & Mitchell, 2011; OECD, 2020, 2024). The BDMH section, being researcher-constructed, has weaker content validity in the conventional sense.

Internal consistency was assessed using Cronbach's alpha (the Kuder-Richardson Formula 20 equivalent for the dichotomous FL test). All three scales exceeded the conventional .70 threshold (DeVellis, 2016; Nunnally & Bernstein, 1994), summarized in Table 3. On the transparency scale, eleven of twelve items exceeded the conventional item-total correlation minimum of .20, with item 8 falling below ($r = .11$) and flagged for revision. On the FL test, items 1 and 2 were answered correctly by most respondents, limiting discrimination, and item 3 showed a weak correlation ($r = .07$) despite moderate difficulty. All ten BDMH items exceeded .20. Because data collection was complete before these item-level results were obtained, no items were excluded or reweighted; this constraint is discussed further in the Limitations.

Data Analysis Plan

All analyses were conducted in JASP (JASP Team, 2024). The dataset was screened for data-entry artifacts, and distributional properties were examined via Shapiro-Wilk tests alongside skewness and kurtosis, since Shapiro-Wilk detects trivial departures as significant at larger sample sizes (Kim, 2013). All five continuous variables departed significantly from normality (Table 4), so non-parametric procedures, Spearman's rho, Mann-Whitney U, and Kruskal-Wallis H, served as the primary inferential statistics, with parametric equivalents reported alongside wherever they crossed $p = .05$ in a different direction. Ordinary least squares regression was retained for multivariate hypothesis tests because its central assumption concerns residuals rather than the raw dependent variable; residual diagnostics are reported alongside each model. Mediation was tested using maximum-likelihood path estimation with bias-corrected bootstrapped confidence intervals (10,000 resamples) for the indirect effect, specifying PFT as predictor, sophisticated FL as mediator, and BDMH as outcome. Common method bias was assessed using Harman's single-factor test (Podsakoff et al., 2003). Alpha = .05 throughout unless noted.

The four pre-specified hypothesis tests (H1-H4) are treated as confirmatory and not corrected against one another (Bender & Lange, 2001). The 20 exploratory demographic comparisons (four factors across five outcomes) are corrected using Benjamini-Hochberg false discovery rate, reported alongside the uncorrected result (Benjamini & Hochberg, 1995); findings are described as robust to correction only where the corrected value remains significant. Gender receives more discussion than the other three demographic factors because it produced this family's one significant uncorrected result, not because it was specified in advance as a primary covariate.

Ethical Considerations

All respondents were minors between 15 and 18. Signed consent forms were collected from parents or legal guardians prior to data collection; documentation is currently retained for 178 of the 200 respondents, with forms for the remaining 22 reportedly collected but lost afterward. All respondents additionally confirmed via a mandatory eligibility item that they had their parent or legal guardian's permission to participate. Data collection at the participating school took place with the class teacher's permission to administer the questionnaire during school hours; respondents recruited outside the school were reached through the author's personal and community connections. Participation was voluntary, with the right to decline any item or withdraw at any time. The email address collected for duplicate-prevention was kept separate from the analytic dataset. No item required disclosure of exact household financial figures beyond a banded range, and the questionnaire framed participation as voluntary and non-evaluative.

This study was conducted independently, without access to a formal Institutional Review Board. The safeguards actually in place, signed parental consent forms for the large majority of respondents, the eligibility item's self-reported confirmation of parental permission for all respondents, school-level permission from the class teacher, voluntary participation, and separation of identifying information from the analytic dataset, are disclosed as the standard applied in the absence of institutional review, informed by the Belmont Report's principles (National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, 1979) and India's National Ethical Guidelines for Biomedical and Health Research Involving Human Participants (ICMR, 2017), rather than presented as equivalent to independent ethics committee review, revisited in the Limitations.

Use of Generative Artificial Intelligence

A generative AI tool (Claude, Anthropic) was used during manuscript preparation to assist with statistical analysis code, editorial revision and condensing of manuscript text, and formatting. All research design, data collection, data analysis decisions, interpretation of results, and conclusions are the author's own; the tool was not used for autonomous content generation or data analysis. This use is documented here in accordance with the journal's editorial policy on large language models, and is further summarized in the Declarations section.

Results

Analyses were conducted in JASP (JASP Team, 2024). Given confirmed normality violations across all continuous variables (below), non-parametric procedures (Spearman's rho, Mann-Whitney U, Kruskal-Wallis H) served as the primary inferential statistics, with parametric equivalents reported alongside where relevant, per the Methodology's data analysis plan. Alpha = .05 throughout unless noted.

Descriptive Statistics

Data Screening and Participants

The exported response file contained 202 rows; the final two were embedded summary statistics (a column-sum and column-mean row) rather than individual responses, inadvertently retained during file preparation, and were removed, yielding $N = 200$ with no missing data on any primary composite or demographic variable.

The final sample comprised 200 secondary-school respondents (126 male, 63.0%; 72 female, 36.0%; 2 “prefer not to say,” 1.0%), aged 15 to 18 ($M = 16.77$, $SD = 0.84$), 77.5% in Grade 12. Table 2 presents the full demographic profile.

Table 2
Sample Demographic Characteristics (N = 200)

Characteristic	n	%
Gender		
Male	126	63.0
Female	72	36.0
Prefer not to say	2	1.0
Grade		
9th	2	1.0
10th	13	6.5
11th	30	15.0
12th	155	77.5
Type of school		
Private	159	79.5
Government	30	15.0
International	11	5.5
Parents' highest education level		
Up to 10th grade	1	0.5
12th grade	8	4.0
Graduate	46	23.0
Postgraduate	145	72.5
Primary occupation of earning parent		
Private-sector employee	89	44.5
Business owner / self-employed	68	34.0
Government / public-sector employee	43	21.5
Approximate monthly household income (Rs.)		
Below 50,000	4	2.0
50,001–1,00,000	19	9.5
1,00,001–1,50,000	36	18.0
1,50,001–2,50,000	54	27.0

Characteristic	n	%
Above 2,50,000	87	43.5
Family structure		
Nuclear family	152	76.0
Joint / extended family	48	24.0
Household financial manager		
Both parents	111	55.5
Father	75	37.5
Mother	12	6.0
Other	2	1.0
Received formal financial education		
No	107	53.5
Yes	93	46.5

Note. Age was assessed as a continuous variable ($M = 16.77$, $SD = 0.84$, range = 15–18) and is not tabulated above. Percentages sum to 100% within each characteristic, subject to rounding. The sample is concentrated in Grade 12 and skews toward private schooling, postgraduate parental education, and higher household income, a pattern discussed as a limitation on generalizability in the Limitations and Future Research section. The gender counts above reflect the three response options offered on the demographic item; the gender-based comparisons reported later in this paper (see the note to Table 6) rely on a binary recoding of this variable in which the two respondents who selected “prefer not to say” were classified as male or female, a discrepancy noted there rather than reconciled here.

Reliability of Study Measures

Three composite scales were used: a 12-item PFT scale (12–60), a 12-item FL test (0–12, decomposable into 7-item Basic and 5-item Sophisticated subscales), and a 10-item BDMH scale (0–20). Internal consistency, evaluated using Cronbach’s alpha and McDonald’s omega against conventional benchmarks (DeVellis, 2016), was good for PFT (alpha = .84, 95% CI [.79, .87], omega = .85, 95% CI [.80, .88]; item-rest correlations .11 to .64, with item 8’s removal raising alpha only marginally from .839 to .860, so all 12 items were retained) and acceptable for FL (alpha = .73, 95% CI [.67, .78], omega = .74, 95% CI [.67, .79], a lower coefficient than PFT’s expected for a knowledge-based instrument spanning heterogeneous content; Schmitt, 1996) and BDMH (alpha = .75, 95% CI [.68, .82], omega = .75, 95% CI [.70, .80]; item-rest correlations .27 to .56, all items retained). One FL item (credit score knowledge) showed a weak item-rest correlation ($r = .07$) but was retained to preserve domain coverage.

Table 3
Internal Consistency Reliability of Study Scales

Scale	k	alpha	omega	95% CI for alpha
PFT	12	.839	.845	[.789, .874]
Financial Literacy (FL)	12	.725	.740	[.666, .783]
Behavioral Decision-Making Heuristics (BDMH)	10	.749	.753	[.679, .820]

Note. k = number of items. α = Cronbach's alpha. ω = McDonald's omega. CI = confidence interval. All coefficients based on $N = 200$.

Distributional Properties and Assumption Checks

All five variables were negatively skewed, most pronounced for BDMH (skewness = -1.46, $M = 16.26/20$, $SD = 3.55$; excess kurtosis = 2.08), indicating a pronounced ceiling effect: 46.5% of respondents scored at or above 18 of 20, 13.0% scored the maximum, and the highest-scoring option was selected by 63.5% to 84.5% of respondents across the ten vignettes, indicating compression distributed across the instrument. This reduces sensitivity among moderately and highly competent decision-makers and may bias BDMH associations toward the null; restricting the sample to the 107 respondents below the ceiling (BDMH < 18) found the PFT-BDMH association remained near zero and non-significant ($\rho = -.07$, $p = .498$), similar to the full-sample estimate ($\rho = .01$, $p = .940$), suggesting the null is not merely an artifact of restricted variance. This ceiling effect is discussed further as a limitation of the BDMH instrument.

Shapiro-Wilk tests indicated significant departures from normality for all five variables (all p 's < .002); because this test detects trivial departures as significant at large sample sizes, skewness and kurtosis were interpreted alongside W statistics (Kim, 2013). PFT showed only a minor departure ($W = .977$), BDMH the most substantial ($W = .853$), consistent with the ceiling effect. Spearman's ρ was accordingly adopted as the primary bivariate statistic, and non-parametric tests as the primary group-comparison tests throughout.

Table 4
Descriptive Statistics and Shapiro-Wilk Normality Tests for Key Study Variables

Variable	N	M	SD	Min	Max	Skewness	Kurtosis	W	p
PFT	200	45.47	7.06	23	60	-0.42	0.71	.977	.002
Financial Literacy (total)	200	8.85	2.53	1	12	-0.84	0.10	.915	< .001
Behavioral Decision-Making Heuristics	200	16.26	3.55	2	20	-1.46	2.08	.853	< .001
Basic Financial Literacy	200	5.21	1.52	0	7	-0.91	0.65	.894	< .001
Sophisticated Financial Literacy	200	3.64	1.32	0	5	-0.72	-0.51	.857	< .001

Note. Possible ranges: PFT, 12–60; Financial Literacy, 0–12; Behavioral Decision-Making Heuristics, 0–20; Basic Financial Literacy, 0–7; Sophisticated Financial Literacy, 0–5. Basic and Sophisticated Financial Literacy sum to total Financial Literacy. *W* = Shapiro-Wilk statistic.

Common Method Bias

Because all study variables derived from a single self-report instrument at one time point, Harman's single-factor test evaluated common method bias (Podsakoff et al., 2003). All 34 PFT, FL, and BDMH items entered an exploratory factor analysis constrained to a single factor, which accounted for 17.4% of variance (eigenvalue = 5.93), well below the 50% flagging threshold. PFT items showed minimal loading on this general factor (uniqueness > .90 for every item) while FL and BDMH loaded higher, consistent with substantively distinct constructs rather than a uniform response-style artifact, though this conservative, minimum-bar test does not categorically rule out shared-method influence.

Group Comparisons and Correlations

Bivariate Correlations Among Study Variables

Spearman's correlations were computed among PFT, FL, BDMH, the two FL subscales, and two single-item covariates (peer influence, proactive financial questioning); Pearson correlations, computed in parallel, produced highly convergent results except where noted. Table 5 presents the full matrix. PFT showed a weak positive association with total FL, significant under Pearson's *r* ($r = .150, p = .034$) but not Spearman's ρ ($\rho = .128, p = .071$), addressed in the regression analyses below; no meaningful association with BDMH ($\rho = .005, p = .940$); a significant positive association specifically with Sophisticated FL ($\rho = .155, p = .028$); and no association with Basic FL ($\rho = .065, p = .360$). FL and

BDMH were moderately correlated ($\rho = .288, p < .001$). Peer influence and proactive questioning showed no significant association with any variable (all p 's $> .05$).

Table 5
Spearman Rank-Order Correlations Among Study Variables

Variable	1	2	3	4	5	6	7
1. PFT	–						
2. Financial Literacy (total)	.128	–					
3. Behavioral Decision-Making Heuristics	.005	.288***	–				
4. Basic Financial Literacy	.065	.884***	.248***	–			
5. Sophisticated Financial Literacy	.155*	.865***	.271***	.548***	–		
6. Peer Influence	– .067	– .014	– .063	.057	– .079	–	
7. Proactive Financial Questioning	– .017	.030	– .081	– .001	.041	.109	–

Note. $N = 200$. Spearman's ρ reported as the primary association statistic given confirmed violations of normality (Table 4). * $p < .05$. *** $p < .001$.

Group Comparisons

Mann-Whitney U tests (two groups) and Kruskal-Wallis H tests (three or more groups) characterized how the key variables varied across four demographic factors, gender, receipt of formal financial education, household income, and family structure, to identify covariates for the regressions below. Parental education could not be tested reliably (one category had $n = 1$) and was excluded.

Gender. No significant differences emerged in PFT, total FL, Basic FL, or Sophisticated FL between male ($n = 127$) and female ($n = 73$) respondents (all p 's $> .10$). BDMH differed significantly, $U = 5587.0, p = .015$, rank-biserial $r = - .21$, with females ($M = 16.97, SD = 3.20$) scoring higher than males ($M = 15.80, SD = 3.68$), a small-to-moderate effect that does not survive correction for the full family of comparisons (below) and is treated as exploratory. No corresponding gender difference in financial knowledge indicates the decision-making gap was not attributable to knowledge differences.

Table 6
Mann-Whitney U Test Results by Gender (Male vs. Female)

Variable	U	p	Rank-biserial r
PFT	3990.0	.101	.139
Financial Literacy (total)	4496.0	.721	.030
Behavioral Decision-Making Heuristics	5587.0	.015	– .205
Basic Financial Literacy	4810.0	.652	– .038
Sophisticated Financial Literacy	4106.0	.164	.114

Note. The n's above (127 male, 73 female) differ from the three-category breakdown reported in Table 2 (126 male, 72 female, 2 prefer not to say). The two respondents who selected "prefer not to say" on the demographic item were, at some point during analysis, classified as male or female for the purpose of this and other gender-based comparisons; this recoding is reflected in the analysis file underlying the results reported here but is not independently documented, and it is noted rather than resolved, consistent with the transparency standard applied throughout this paper. As a check, all five comparisons were re-run excluding these two respondents entirely ($n = 126$ male, 72 female); the significant BDMH difference was essentially unchanged ($U = 5476.5$, $p = .015$, rank-biserial $r = -.21$), and all four non-significant comparisons remained non-significant. Positive rank-biserial values favor the male group; negative values favor the female group.

Receipt of formal financial education. Comparing respondents who had ($n = 93$) and had not ($n = 107$) received formal financial education, PFT differed significantly, $U = 3979.0$, $p = .015$, rank-biserial $r = .20$, with those who had received it reporting higher transparency ($M = 46.83$, $SD = 6.92$) than those who had not ($M = 44.29$, $SD = 7.00$); no significant differences emerged for FL, BDMH, or either subscale (all p 's $> .20$), indicating an association with the family communication environment rather than knowledge or decision-making, and it was not retained as a covariate.

Table 7
Mann-Whitney U Test Results by Receipt of Formal Financial Education (Yes vs. No)

Variable	U	p	Rank-biserial r
PFT	3979.0	.015	.200
Financial Literacy (total)	4725.0	.536	.050
Behavioral Decision-Making Heuristics	4831.0	.722	.029
Basic Financial Literacy	4955.0	.959	.004
Sophisticated Financial Literacy	4474.0	.204	.101

Note. Positive rank-biserial values indicate higher scores among respondents who had received formal financial education.

Household income and family structure. Household income showed no significant differences for any variable (Table 8); Dunn's Holm-corrected pairwise comparisons likewise found none, and income was not retained as a covariate. Family structure (nuclear $n = 152$; joint/extended $n = 48$) showed no significant differences for PFT, BDMH, or Basic FL (all p 's $> .20$; Table 9); total FL approached significance, $H(1) = 3.14$, $p = .076$, and Sophisticated FL showed a marginal, non-significant difference non-parametrically, $H(1) = 3.78$, $p = .052$, though the parametric equivalent narrowly crossed threshold, $F(1, 198) = 3.95$, $p = .048$. Given the non-parametric test's primacy, this is treated as a non-significant trend, and family structure was not retained as a covariate.

Table 8
Kruskal-Wallis Test Results by Household Income Bracket (Five Levels)

Variable	H	df	p	eta-sq(rank)
PFT	7.259	4	.123	.017
Financial Literacy (total)	2.567	4	.633	.000
Behavioral Decision-Making Heuristics	3.427	4	.489	.000
Basic Financial Literacy	2.333	4	.675	.000
Sophisticated Financial Literacy	5.122	4	.275	.006

Note. eta-sq(rank) = rank epsilon-squared / eta-squared effect size. Dunn's pairwise post hoc comparisons (Holm-corrected) identified no significant pairwise differences for any variable.

Table 9
Kruskal-Wallis Test Results by Family Structure (Nuclear vs. Joint/Extended)

Variable	H	df	p	eta-sq(rank)
PFT	0.135	1	.713	.000
Financial Literacy (total)	3.141	1	.076	.011
Behavioral Decision-Making Heuristics	0.972	1	.324	.000
Basic Financial Literacy	1.511	1	.219	.003
Sophisticated Financial Literacy	3.775	1	.052	.014

Note. eta-sq(rank) = rank epsilon-squared / eta-squared effect size. The parametric equivalent for Sophisticated Financial Literacy reached significance, $F(1, 198) = 3.95$, $p = .048$; this discrepancy is noted in the text.

Applying Benjamini-Hochberg correction across the full family of 20 exploratory comparisons (Benjamini & Hochberg, 1995), no comparison remains significant at corrected $q < .05$, including the two significant uncorrected: BDMH by gender (raw $p = .015$, corrected $q = .150$) and PFT by financial education (raw $p = .015$, corrected $q = .150$). This does not mean these patterns are artifacts, the correction is a conservative adjustment for the exploratory family’s size, not a re-estimate of the underlying effect, and the gender difference is directionally consistent with Jayaraman and Jambunathan (2018). It does mean neither should be treated as confirmed against the full family tested; both are carried into the Discussion with this qualification rather than as established results.

Regression and Mediation

Regression Analyses

Ordinary least squares regression tested whether PFT predicted total FL, BDMH, and the two FL subscales, modeled separately since Basic and Sophisticated FL are additive components of total FL. Model fit and residual diagnostics (Q-Q and residuals-versus-predicted plots) were inspected for each.

PFT significantly predicted total FL, $F(1, 198) = 4.54, p = .034, R^2 = .022$ (Table 10, Model 1), though significant only under Pearson’s r , not Spearman’s ρ , so this association is interpreted as weak and not fully robust across estimators. PFT significantly predicted Sophisticated FL, $F(1, 198) = 7.32, p = .007, R^2 = .036$ (Model 3), consistent across both estimation methods and thus the most robust direct association observed, though an R^2 of .036 remains a small effect by conventional benchmarks (Cohen, 1988), accounting for well under 5% of variance. PFT did not significantly predict Basic FL, $F(1, 198) = 1.44, p = .231, R^2 = .007$ (Model 4). Together, Models 3 and 4 indicate PFT is specifically associated with the applied, reasoning-based dimension of financial literacy rather than basic factual knowledge.

Table 10
Summary of Simple Regression Models Predicting Financial Literacy Outcomes from PFT

Outcome	B	SE	beta	t	p	R ²
Model 1: Financial Literacy (total)	0.054	0.025	.150	2.130	.034	.022
Model 3: Sophisticated Financial Literacy	0.035	0.013	.189	2.706	.007	.036
Model 4: Basic Financial Literacy	0.018	0.015	.085	1.201	.231	.007

Note. $N = 200$ for each model. Predictor in every model is total PFT. Model 1: $F(1, 198) = 4.54, p = .034$. Model 3: $F(1, 198) = 7.32, p = .007$. Model 4: $F(1, 198) = 1.44, p = .231$.

Residual diagnostics for Model 1 showed a mild S-shaped Q-Q departure at both tails, consistent with the negative skew in Table 4, and no evidence of autocorrelation (Durbin-Watson = 1.96, $p = .805$); banding in the residuals-versus-predicted plot reflects the discrete, bounded FL outcome rather than misspecification. Model 3’s diagnostics paralleled Model 1’s (Durbin-Watson = 1.81, $p = .184$).

Because gender was the only demographic variable significantly associated with BDMH, it was entered as a covariate alongside PFT (Model 2, Table 11). The overall model approached but did not reach significance, $F(2, 197) = 2.85, p = .060, R^2 = .028$; PFT was not a significant predictor, $B = -0.028, \text{beta} = -.055, p = .438$, consistent with the near-zero bivariate correlation, while gender remained significant, $B = -1.112, p = .034$, with males scoring lower. No multicollinearity concern ($VIF = 1.02$ for both predictors).

Table 11
Regression Model Predicting Behavioral Decision-Making
Heuristics from PFT and Gender (Model 2)

Predictor	B	SE	beta	t	p
Intercept	18.223	1.628	–	11.191	< .001
PFT	-0.028	0.036	– .055	-0.776	.438
Gender (Male)	-1.112	0.521	–	-2.135	.034

Note. $N = 200$. $F(2, 197) = 2.85, p = .060, R^2 = .028$. Reference category for Gender is female. Standardized coefficients (beta) are not computed for categorical predictors and are omitted for Gender. One case with a markedly large negative residual (approximately -15) was visible in the residuals-versus-predicted plot; given the moderate effect size of the Gender coefficient and the sample size, this case was retained. The Durbin-Watson statistic reached significance, $D = 1.70, p = .031$, most plausibly attributable to clustering in response submission order rather than a substantive violation, given the cross-sectional design.

Moderation Analysis: Peer Influence

Two moderation models, entering PFT, peer influence, and their product term as simultaneous predictors of total FL and Sophisticated FL, tested whether peer influence altered the PFT-literacy association. Predictors were not mean-centered, inflating main-effect VIFs without affecting the interaction term's own significance test. The PFT x Peer Influence interaction was not significant for either outcome (total FL: $B = -0.023, \text{beta} = -.421, p = .408$; Sophisticated FL: $B = -0.023, \text{beta} = -.797, p = .115$; Table 12). The overall model predicting Sophisticated FL remained significant, $F(3, 196) = 3.30, p = .021$, driven by PFT's main effect ($\text{beta} = .457, p = .014$), corroborating the robustness of the PFT-Sophisticated FL association. No moderation by peer influence was found for either outcome.

Table 12
Moderation Analyses: Peer Influence as a Moderator of the Effect of PFT on Financial Literacy Outcomes

Outcome	Predictor	B	SE	beta	p
Financial Literacy (total)	PFT	0.105	0.066	.294	.115
	Peer Influence	1.132	1.264	.438	.372
	PFT x Peer Influence	-0.023	0.028	– .421	.408
Sophisticated Financial Literacy	PFT	0.085	0.034	.457	.014
	Peer Influence	0.999	0.652	.741	.127
	PFT x Peer Influence	-0.023	0.014	– .797	.115

Note. $N = 200$ for both models. Financial Literacy model: $F(3, 196) = 1.83, p = .144, R^2 = .027$. Sophisticated Financial Literacy model: $F(3, 196) = 3.30, p = .021, R^2 = .048$. Predictors were not mean-centered; interaction-term significance tests are unaffected by this, but the standard errors of the main-effect terms are inflated (see text).

Mediation Analysis

The pattern above, a significant PFT-Sophisticated FL association, a significant Sophisticated FL-BDMH association, and a null direct PFT-BDMH association, is consistent with an indirect-only mediation structure, tested using maximum-likelihood path estimation with bootstrapped standard errors (10,000 resamples; PFT as predictor, Sophisticated FL as mediator, BDMH as outcome).

The same-time-point indirect effect of PFT on BDMH through Sophisticated FL was significant, $B = 0.031, SE = 0.013, z = 2.36, p = .018, 95\% \text{ CI } [0.008, 0.067]$ (Table 13). The direct effect, controlling for the mediator, was negative and sat at the conventional significance boundary, $B = -0.069, SE = 0.035, z = -1.96, p = .050, 95\% \text{ CI } [-0.137, 0.001]$, while the total effect was small and non-significant, $B = -0.038, SE = 0.035, p = .288$.

This pattern, a significant positive indirect effect alongside a negative, borderline direct effect, suggests inconsistent mediation, or suppression (MacKinnon et al., 2000), though the direct effect's wide confidence interval means its sign is imprecisely estimated, so the suppression label is treated as provisional. If it holds, the positive pathway through Sophisticated FL and a weak, opposing direct pathway would offset one another, producing a small, non-significant total effect that would obscure the underlying indirect relationship if examined in isolation. Substantively, this is consistent with parental transparency being associated with decision-making specifically through sophisticated financial reasoning rather than any direct pathway; because this is a same-time-point, cross-sectional estimate, it describes an association consistent with the hypothesized mechanism rather than a demonstrated causal process, developed further in the Limitations. Because the direct effect's p-value sat exactly at

.050 rather than comfortably below it, this specific pattern warrants replication before being described as an established finding.

Table 13
Mediation Analysis: Indirect Effect of PFT on Behavioral Decision-Making
Heuristics Through Sophisticated Financial Literacy

Effect	B	SE	z	95% CI
Path a: PFT -> Sophisticated FL	0.035	0.013	2.685	[0.008, 0.061]
Path b: Sophisticated FL -> BDMH	0.875	0.207	4.232	[0.487, 1.295]
Direct effect (c'): PFT -> BDMH	-0.069	0.035	-1.960	[-0.137, 0.001]
Indirect effect (a x b)	0.031	0.013	2.364	[0.008, 0.067]
Total effect (c): PFT -> BDMH	-0.038	0.035	-1.063	[-0.108, 0.033]

Note. $N = 200$. Estimator: maximum likelihood. Confidence intervals are bias-corrected bootstrap intervals based on 10,000 resamples. The direct effect's p-value of exactly .050 and confidence interval narrowly spanning zero indicate this estimate sits at the boundary of conventional significance and should be interpreted cautiously. BDMH = Behavioral Decision-Making Heuristics; FL = Objective Financial Literacy; PFT = Perceived Parental Financial Transparency.

Summary of Findings

The pattern above carries forward directly into the Discussion: PFT was unrelated to basic financial knowledge and to BDMH directly, but consistently and specifically related to sophisticated financial literacy, which in turn carried a significant same-time-point indirect effect to BDMH; the gender difference in BDMH and the null income and family-structure results are addressed there as well.

Discussion

Key Findings

Four findings anchor this study: a specific, robust association between parental transparency and sophisticated, not basic, financial literacy; a significant indirect path from transparency to decision-making through sophisticated literacy despite no significant total effect; a provisional gender difference favoring female respondents on decision-making, not surviving multiple-comparison correction; and no reliable association involving household income, family structure, or peer influence. Each is interpreted in turn below.

Interpretation of Findings

The specificity of the transparency-literacy relationship, present for sophisticated items but absent for basic ones, is the study's most consistent result. Two untested, equally plausible hypotheses could explain it. One is curricular: basic items (budgeting logic, interest rates, inflation) overlap with school mathematics, so a student could acquire this content in the classroom regardless of parental communication. The other is a ceiling effect: with 77.5% of respondents in Grade 12 and 79.5% in private schools, most have likely already covered this content, which could itself mask any family influence. Comparing academic streams could distinguish these, but stream was not recorded, so the present data cannot adjudicate.

Sophisticated items measure investment volatility, diversification, and risk-return tradeoffs, topics rarely in a standard secondary curriculum. Such content may arise more often in the aspirational financial conversation a relatively affluent, highly educated household, like much of this sample (Table 2), is more likely to have. If parental transparency operates as a supplementary channel for content the school system does not otherwise cover, a subscale-specific effect of exactly this shape is what the data would show.

One possible explanation for Sruthiya's (2021) null result is that a composite literacy score masked a subdomain-specific effect: if the true relationship is concentrated in one subdomain and absent in another, a composite score would understate or wash out the effect. However, Sruthiya's sample differed in age range (15 to 24 versus 15 to 18), socialization measure (four dimensions rather than transparency alone), and literacy instrument, so other explanations, including sample heterogeneity or measurement differences, remain equally plausible; confirming the composite-score explanation directly would require subscale-level reanalysis of Sruthiya's data, which the present study cannot provide. The present finding is consistent with, though it does not definitively explain, Sruthiya's null result, and is a direct illustration of Agarwalla et al.'s (2015) caution against collapsing financial literacy into a single composite: doing so here would have reproduced something closer to Sruthiya's null finding.

The practical magnitude of the PFT-Sophisticated FL association, while statistically robust, is modest: a one-SD increase in PFT (7.06 points) corresponds to a 0.25-point increase in Sophisticated FL (0.035×7.06), about 5% of that subscale's 0–5 range. Parental transparency is best understood as one contributor among several rather than a dominant one; classroom instruction, peer learning, and independent financial engagement likely carry comparable or larger weight.

The mediation result must be interpreted cautiously. The indirect effect is a same-time-point association, not a longitudinal estimate; cross-sectional mediation estimates are known to be systematically biased relative to true longitudinal parameters, and can indicate a real indirect effect when the true longitudinal indirect effect is zero (Maxwell & Cole, 2007). The direct effect's confidence interval, $[-0.137, 0.001]$, narrowly includes zero, so it could plausibly be zero, negative, or trivially positive, too imprecise to support a strong claim of a genuine negative pathway or a confirmed suppression pattern (MacKinnon et al., 2000). The safest interpretation is that any association between transparency and decision-making in this sample appears to operate through sophisticated financial literacy rather than a separate,

unmediated channel, though the cross-sectional design cannot rule out reverse causation or a shared third factor; this pattern should accordingly be treated as a hypothesis for replication rather than an established result.

The gender finding, with the caveat that it did not survive correction for the full family of comparisons, adds a further layer. Female respondents outperformed males on decision-making despite no difference on any knowledge measure, indicating that the decision-making gap is not explained by a corresponding difference in financial knowledge. This directionality is consistent with Jayaraman and Jambunathan's (2018) finding that female Indian high school students outperformed males on a financial literacy measure, a reversal of the pattern more common in developed-country adult samples, though their finding concerned knowledge rather than decision-making and used a different sample. Because the present data cannot speak to why this gap exists, whether risk tolerance, response carefulness, susceptibility to the social-desirability pressures the vignette format was designed to reduce, or another factor, this finding is best treated as a replication target.

Finally, the absence of any reliable association involving household income, family structure, or peer influence should not be over-interpreted. This is directionally consistent with Ghafoor and Akhtar's (2024) finding that active parental socialization outweighed socioeconomic characteristics in Pakistan, though their income distribution differed, offering only weak corroboration; the null income finding here is most plausibly explained by the sample's restricted socioeconomic range (43.5% of households above Rs. 2,50,000/month; Table 2), which limits power to detect an income effect even if a modest one exists in the broader population (see Limitations). It should be read as "no effect detected within a narrow, affluence-skewed range," not as household income being generally irrelevant to adolescent financial outcomes in India.

Theoretical Implications

These findings bear on family financial socialization theory in three ways. They support treating socialization outcomes as multidimensional rather than assuming a uniform effect across every facet of financial understanding, an idea implicit in the Gudmunson and Danes (2011) model's separation of attitudes, knowledge, capability, and behavior but rarely tested at the sub-domain level within a single outcome measure, as here through the basic and sophisticated subscales. The suppression-consistent mediation pattern, though borderline, illustrates a methodological risk for this literature: a bivariate or total-effect test can return a null result even when a real, indirect pathway exists beneath it, and Sruthiya's (2021) null finding in a similarly Indian, similarly non-probability sample is a plausible candidate for exactly this kind of masked effect, though this cannot be confirmed without that study's own subscale-level or mediation data. And this study extends the still-thin evidence base for family financial socialization theory outside the United States, and specifically for an adolescent rather than retrospective emerging-adult sample, adding a data point to a literature Agnew and Sotardi (2025) and Ghafoor and Akhtar (2024) have only recently begun to extend beyond its American base.

The findings also sharpen, rather than resolve, a limitation inherent to the social cognitive mechanism discussed in the Parental Financial Transparency section: because the present scale measures the volume and openness of communication without independently assessing the financial soundness of what is communicated, a positive transparency-literacy association is consistent with, but does not prove, constructive financial modeling. The effect's specificity to sophisticated content is suggestive of a substantive mechanism, aspirational conversation associated with knowledge the curriculum does not typically cover, but remains an inference from the pattern of results rather than a directly measured process.

Practical Implications

For India's National Strategy for Financial Education (RBI, 2020), which concentrates on curriculum content, teacher capacity, and community outreach, these findings suggest a hypothesis worth testing rather than a recommendation the current data can support. Because transparency was unrelated to basic financial literacy in this sample, one possibility is that the school system serves as the primary channel for foundational numeracy, with the family contributing specifically to sophisticated content; however, this is a pattern observed in a single, convenience-sampled city with a restricted socioeconomic range, and this cross-sectional design cannot establish which channel is causally primary. A causal claim or policy recommendation would require experimental or quasi-experimental evidence across a more representative sample. If the pattern holds under such testing, a complementary parent-facing component, focused narrowly on encouraging discussion of investment logic, risk, and return rather than generic encouragement to "talk about money," is the kind of intervention this pattern would point toward.

For schools and parents directly, parents concerned with their adolescent's grasp of investment and risk concepts, increasingly relevant as India's retail investment participation grows, may find open discussion at home relates to measurably higher performance here, independent of school provision; parents focused on foundational competence should not assume household openness substitutes for structured numeracy instruction. For schools, the finding that transparency reached decision-making only indirectly, through sophisticated literacy, suggests behavioral decision-making, as distinct from knowledge, may be a domain where structured instruction plays the larger role, though the cross-sectional design cannot establish this directly.

Limitations and Future Research

Several limitations bear on how the findings should be interpreted, each with a corresponding direction for future research.

Cross-sectional design. A single-wave survey cannot establish direction. The mediation model specifies a hypothesized pathway from transparency through sophisticated financial literacy to decision-making,

but a reciprocal relationship, or a third factor producing both, remains equally consistent with the same data. Cross-sectional mediation estimates are known to be systematically biased relative to true longitudinal parameters, and can indicate a real indirect effect when the true longitudinal effect is zero (Maxwell & Cole, 2007; Maxwell et al., 2011); the indirect effect here should be read as a same-time-point association, not a longitudinal estimate. A related econometric concern is that observed financial literacy-behavior associations may partly reflect a shared trait, such as self-control, rather than a one-directional effect, applying here as well.

Self-report and social desirability bias. All three constructs were adolescent self-report. This is partially mitigated by using situational vignettes rather than direct self-rating, since forced choices among realistic trade-offs are harder to game, though a literate respondent may still detect the more socially desirable option.

A decision-making instrument without formal expert validation. The BDMH scale was constructed for this study and pilot-tested on 30 adolescents, but not validated through a prospective, multi-expert panel. A single-expert review, conducted after data collection, could not inform item revision beforehand. The reviewer's background was in political science rather than financial literacy or behavioral economics, a mismatch that limits the validity of the content review, particularly for the BDMH items, which are grounded in specific behavioral economics constructs (bounded rationality, loss aversion, mental accounting) the reviewer was not positioned to evaluate against. He rated seven of ten items relevant (S-CVI = 0.70), with the discretionary-purchase, recurring-cost, and emergency-expense scenarios rated only somewhat relevant; a single rater falls short of conventional three-to-six-expert panels, so this figure is descriptive rather than a validated index. Internal consistency was acceptable at both pilot ($\alpha = .78$) and main-sample ($\alpha = .75$) stages, but the ceiling effect in Table 4 (46.5% scoring at or above 18 of 20) is a serious limitation indicating the instrument does not adequately discriminate among moderately and highly competent decision-makers; it requires revision, potentially through a continuous rating scale or a more difficult set of vignettes, before further use. Future content validation should seek a reviewer with a background in financial literacy or behavioral economics specifically.

Single-informant measurement. Both predictor and outcome were reported by the same adolescent at the same time, raising the possibility that response style inflates the association. Harman's test (a single factor explaining only 17.4% of variance) is one piece of evidence against a strong version of this concern, but a conservative, minimum-bar check. Adolescents who are more generally engaged could both rate parents as more transparent and perform better on outcomes, an alternative the present data cannot rule out; LeBaron et al. (2018) document meaningful parent-child disagreement on the same household's socialization, suggesting this is not merely theoretical. A design collecting independent parent reports would address this directly.

Omitted variable bias and single-item covariates. Exact household income was not collected beyond a banded range; school type and formal financial education served as imperfect socioeconomic proxies, and the restricted income range observed (see Discussion) further limits power to detect a genuine

effect. Peer influence and proactive financial questioning were each single items, typically carrying more measurement error than a composite and attenuating true associations toward zero; their consistently null results (Tables 5, 12) should be read accordingly.

Convenience sample and generalizability. The sample was drawn through non-probability convenience and purposive sampling from a single Tier-1 city, concentrated in Grade 12 (77.5%), private schooling (79.5%), postgraduate-educated parents (72.5%), and higher household income (43.5% above Rs. 2,50,000/month; Table 2), and does not represent the full adolescent population of Pune or urban India. This skew could attenuate SES-related associations toward the null, or a ceiling among advantaged, high-literacy households could mask a stronger association visible across a fuller socioeconomic range; the null income finding is most plausibly explained by restricted variance, while the subscale-specific transparency-literacy association may generalize more broadly if the mechanism is aspirational conversation rather than income-driven access, an open question. Generalization to lower-income or rural adolescents requires replication in a more stratified, pan-Indian sample.

Purposive versus unintentional socialization, and omitted alternative mediators. The transparency scale measures purposive communication, not unintentional exposure such as inferring financial stress from an overheard argument; Deenanath et al. (2019) find both pathways relate to financial knowledge, sometimes differently, so a purposive-only instrument provides an incomplete account. The mediation model specifies objective financial literacy as the sole mediator; financial self-efficacy and self-control may carry independent weight (Lone & Bhat, 2022; Pulungan et al., 2024), and neither was measured, so some portion of the pathway may reflect confidence or self-regulation rather than cognitive knowledge. Relatedly, as discussed in the Parental Financial Transparency section, the scale measures communication extent, not the soundness of the behavior communicated, so a transparent parent modeling unsound habits scores similarly to one modeling sound ones.

Fixed item order and item-level weaknesses. Because the sequence was not randomized, later items, particularly the decision-making vignettes, may be affected by anchoring or fatigue. Item-level analysis identified one weak transparency item and two low-discrimination FL items (Methodology) warranting review; the content expert independently flagged the same transparency item as conflating several ideas, and two further items for ambiguous wording, though his comments assumed a binary format rather than the scale's actual five-point structure, so these are noted as a prompt for revision rather than a confirmed flaw.

Absence of institutional ethical review. This study was conducted independently, without a formal Institutional Review Board. Signed parental consent forms, collected prior to data collection, are currently retained for 178 of the 200 respondents (89%); forms for the remaining 22 were reportedly collected at the same time but have since been lost, so consent for this subset rests on the researcher's records and the survey's self-report eligibility item rather than retrievable documentation. Combined with school-level permission from the class teacher, voluntary participation, and separation of identifying information, these safeguards are disclosed as the standard applied in the absence of institutional

review, informed by the Belmont Report (National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, 1979) and India's National Ethical Guidelines (ICMR, 2017), not presented as equivalent to independent ethics committee review. Research under institutional oversight would undergo a level of external ethical scrutiny, and a documentation standard, this study did not have access to, disclosed as a limitation of its institutional context.

Future research. A multi-informant design incorporating independent parent reports would address the single-informant limitation directly. A longitudinal or panel design would allow the directional and reciprocal-causation questions raised throughout to be tested rather than assumed. A larger, stratified sample spanning wider household income and multiple Indian cities, including non-metropolitan centers, would extend these findings beyond a single affluence-skewed sample and provide power to test income effects the present design cannot rule out. A model incorporating financial self-efficacy and self-control alongside objective financial literacy as competing or complementary mediators would clarify how much of the pathway runs through cognitive knowledge specifically. Future studies should pair transparency measurement with an independent assessment of financial behavior quality, so communication volume can be distinguished from the soundness of what is communicated. Finally, studies replicating this design in institutional settings should obtain prospective ethical approval before data collection, particularly given the involvement of minors and the sensitivity of family financial topics.

Conclusion

This study examined whether perceived parental financial transparency relates to objective financial literacy and behavioral decision-making among urban Indian adolescents, and whether financial literacy carries that relationship forward to decision-making itself. The answer, from a sample of 200 adolescents in Pune, is neither a simple yes nor no. Parental transparency showed no relationship with basic financial knowledge and no direct relationship with decision-making, but was specifically and consistently associated with sophisticated financial literacy, investment, risk, and diversification content a standard secondary curriculum does not typically cover, and that association carried forward, through a significant same-time-point indirect pathway, to behavioral decision-making even without a detectable total effect. This cross-sectional pattern does not establish causation; confirming the hypothesized directional pathway requires longitudinal replication.

This pattern qualifies, more than confirms, the assumption underlying much of India's current thinking about financial education: that the classroom is the primary lever and the home, at best, secondary reinforcement. The present results suggest a more specific division of labor. Foundational financial competence remains the domain most reliably reached by formal instruction; household financial communication, where it matters at all in this sample, reaches further into content formal instruction leaves comparatively untouched. Neither channel does the other's job. This study offers three contributions: the first joint examination of parental financial transparency, subscale-level financial literacy, and behavioral decision-making heuristics in an Indian adolescent sample; a subscale-specific finding that helps explain why prior composite-level tests in comparable samples returned null results;

and an indirect-pathway result speaking directly to where family communication may fit alongside India's school-centered strategy.

The study's methodological contribution is substantive: subscale disaggregation and mediation analysis revealed a specific pathway a composite-score approach would have missed, reaching a more differentiated conclusion than Sruthiya's (2021) prior null finding for a closely related question in a comparable Indian sample. That contrast is itself a caution for future work: an aggregate null result can conceal a real, if narrower, effect operating beneath it, and a literature that continues testing composite outcomes risks underestimating exactly this kind of domain-specific relationship.

Because the sample is concentrated among relatively advantaged households, these findings may not generalize to lower-income or rural adolescents, for whom the family's socialization role and the school's compensatory function may differ substantially. None of this should be read as a settled account of how Indian families shape their adolescents' financial lives: the design is cross-sectional, the sample a convenience sample concentrated in one affluent city, the decision-making instrument new and unvalidated beyond this administration, and the mediation result rests on a direct effect that sat exactly at the edge of conventional significance. What the study offers instead is a specific, falsifiable pattern, tested with real data from a population the existing literature has not yet examined in this combination, that future research, ideally longitudinal, multi-informant, and drawn from a wider and less affluence-skewed sample, is now positioned to confirm, qualify, or overturn.

Declarations

Funding. This research received no external funding and was not commissioned, sponsored, or otherwise supported by any individual or organization with a stake in its outcome.

Competing interests. The author declares no financial or non-financial competing interests relevant to the content of this article.

Ethics approval. This study was conducted independently, without access to a formal Institutional Review Board. All respondents were minors between 15 and 18 years of age. Signed consent forms were collected from parents or legal guardians prior to data collection; documentation is currently retained for 178 of the 200 respondents (89%), with forms for the remaining 22 reportedly collected but lost afterward. All respondents additionally confirmed via a mandatory eligibility item that they had their parent or legal guardian's permission to participate. Data collection at the participating school took place with the permission of the class teacher; respondents recruited outside the school were reached through the author's personal and community connections. These safeguards, together with voluntary participation, the right to withdraw at any time, and separation of identifying information from the analytic dataset, followed the general principles of the Belmont Report (National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, 1979) and India's National Ethical Guidelines for Biomedical and Health Research Involving Human Participants (ICMR, 2017), applied as

the standard in the absence of institutional review rather than presented as equivalent to it. This is discussed further, as a limitation, in the Limitations and Future Research section.

Consent to participate. Signed informed consent was obtained from parents or legal guardians prior to data collection for 178 of the 200 respondents; documentation for the remaining 22 was reportedly collected at the same time but has since been lost. All respondents additionally confirmed, via a mandatory item at the start of the questionnaire, that they had parental or guardian permission to participate, and separately confirmed their own agreement to take part. Participation was voluntary, and respondents were informed they could decline any item or withdraw at any time without penalty.

Consent to publish. Not applicable. No identifying images, quotations, or case details of individual participants are reported in this article; all data are reported in aggregate.

Data availability. The dataset analyzed in the present study is available from the corresponding author on reasonable request.

Author contributions. As a single-author study, the author was solely responsible for conceptualization, study design, data collection, formal analysis, and writing of the manuscript.

Generative AI use. In preparing this manuscript, the author used Claude (Anthropic) to assist with statistical analysis code, editorial revision and condensing of manuscript text, and formatting, consistent with Springer Nature's editorial policy on the use of large language models (<https://www.springernature.com/gp/policies/editorial-policies>). All research design, data collection, data analysis decisions, interpretation of results, and conclusions are the author's own. The author reviewed and edited all AI-assisted content and takes full responsibility for the accuracy and integrity of the manuscript.

References

1. Agarwalla, S. K., Barua, S. K., Jacob, J., & Varma, J. R. (2015). Financial literacy among working young in urban India. *World Development*, 67, 101–109. <https://doi.org/10.1016/j.worlddev.2014.10.004>
2. Agnew, S., & Sotardi, V. A. (2025). Family financial socialisation and its impact on financial confidence, intentions, and behaviours among New Zealand adolescents. *Journal of Family and Economic Issues*, 46, 246–258. <https://doi.org/10.1007/s10834-024-09990-8>
3. Bandura, A. (1977). *Social learning theory*. Prentice-Hall.
4. Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Prentice-Hall.
5. Bender, R., & Lange, S. (2001). Adjusting for multiple testing—when and how? *Journal of Clinical Epidemiology*, 54(4), 343–349. [https://doi.org/10.1016/S0895-4356\(00\)00314-0](https://doi.org/10.1016/S0895-4356(00)00314-0)
6. Benjamini, Y., & Hochberg, Y. (1995). Controlling the false discovery rate: A practical and powerful approach to multiple testing. *Journal of the Royal Statistical Society: Series B (Methodological)*, 57(1),

- 289–300. <https://doi.org/10.1111/j.2517-6161.1995.tb02031.x>
7. de Bruine, W., Parker, A. M., & Fischhoff, B. (2007). Individual differences in adult decision-making competence. *Journal of Personality and Social Psychology*, 92(5), 938–956. <https://doi.org/10.1037/0022-3514.92.5.938>
 8. Census of India. (2011). *District census handbook: Pune*. Directorate of Census Operations.
 9. Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Lawrence Erlbaum Associates.
 10. Danes, S. M. (1994). Parental perceptions of children's financial socialization. *Financial Counseling and Planning*, 5, 127–149.
 11. Deenanath, V., Danes, S. M., & Jang, J. (2019). Purposive and unintentional family financial socialization, subjective financial knowledge, and financial behavior of high school students. *Journal of Financial Counseling and Planning*, 30(1), 83–96. <https://doi.org/10.1891/1052-3073.30.1.83>
 12. DeVellis, R. F. (2016). *Scale development: Theory and applications* (4th ed.). SAGE.
 13. Gala, S. (2022). Financial literacy among the youth: The first step to financial independence. *International Journal of Creative Research Thoughts*, 10(7), a287–a293.
 14. Ghafoor, K. A., & Akhtar, M. (2024). Parents' financial socialization or socioeconomic characteristics: Which has more influence on Gen-Z's financial wellbeing? *Humanities and Social Sciences Communications*, 11., Article 522. <https://doi.org/10.1057/s41599-024-03007-3>
 15. Gudmunson, C. G., & Danes, S. M. (2011). Family financial socialization: Theory and critical review. *Journal of Family and Economic Issues*, 32(4), 644–666. <https://doi.org/10.1007/s10834-011-9275-y>
 16. Hinkin, T. R. (1995). A review of scale development practices in the study of organizations. *Journal of Management*, 21(5), 967–988. <https://doi.org/10.1177/014920639502100509>
 17. Indian Council of Medical Research. (2017). *National ethical guidelines for biomedical and health research involving human participants*. ICMR.
 18. JASP Team (2024). JASP (Version 0.18) [Computer software]. <https://jasp-stats.org>
 19. Jayaraman, J. D., & Jambunathan, S. (2018). Financial literacy among high school students: Evidence from India. *Citizenship Social and Economics Education*, 17(3), 168–187. <https://doi.org/10.1177/2047173418809712>
 20. Jorgensen, B. L., & Savla, J. (2010). Financial literacy of young adults: The importance of parental socialization. *Family Relations*, 59(4), 465–478. <https://doi.org/10.1111/j.1741-3729.2010.00616.x>
 21. Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica*, 47(2), 263–292. <https://doi.org/10.2307/1914185>
 22. Kaur, R., & Singh, M. (2025). Influence of family financial socialization on emerging adults' financial well-being. *LBS Journal of Management & Research*, 23(2), 186–202. <https://doi.org/10.1108/LBSJMR-04-2024-0024>
 23. Kim, H. Y. (2013). Statistical notes for clinical researchers: Assessing normal distribution (2) using skewness and kurtosis. *Restorative Dentistry & Endodontics*, 38(1), 52–54.

<https://doi.org/10.5395/rde.2013.38.1.52>

24. Kim, J., & Chatterjee, S. (2013). Childhood financial socialization and young adults' financial management. *Journal of Financial Counseling and Planning*, 24(1), 61–79.
25. Klapper, L., Lusardi, A., & van Oudheusden, D. (2015). *Financial literacy around the world: Insights from the Standard & Poor's Ratings Services Global Financial Literacy Survey*. Global Financial Literacy Excellence Center.
26. LeBaron, A. B., Hill, E. J., Rosa, C. M., & Marks, L. D. (2018). Whats and hows of family financial socialization: Retrospective reports of emerging adults, parents, and grandparents. *Family Relations*, 67(4), 497–509. <https://doi.org/10.1111/fare.12335>
27. LeBaron, A. B., & Kelley, H. H. (2021). Financial socialization: A decade in review. *Journal of Family and Economic Issues*, 42(Suppl. 1), 195–206. <https://doi.org/10.1007/s10834-020-09736-2>
28. LeBaron-Black, A. B., Leonhardt, N. D., Sucho-Sanchez, S. C., Rich, E., & Broadbent, F. M. (2026). Parent financial socialization and financial outcomes: A systematic review and meta-analysis. *Journal of Family Theory & Review*, 18(1), 230–250. <https://doi.org/10.1111/jftr.70037>
29. Lone, U. M., & Bhat, S. A. (2022). Impact of financial literacy on financial well-being: A mediational role of financial self-efficacy. *Journal of Financial Services Marketing*, 29(1), 122–137. <https://doi.org/10.1057/s41264-022-00183-8>
30. Lusardi, A., & Mitchell, O. S. (2011). Financial literacy around the world: An overview. *Journal of Pension Economics and Finance*, 10(4), 497–508. <https://doi.org/10.1017/S1474747211000448>
31. Lusardi, A., & Mitchell, O. S. (2014). The economic importance of financial literacy: Theory and evidence. *Journal of Economic Literature*, 52(1), 5–44. <https://doi.org/10.1257/jel.52.1.5>
32. Lynn, M. R. (1986). Determination and quantification of content validity. *Nursing Research*, 35(6), 382–386. <https://doi.org/10.1097/00006199-198611000-00017>
33. MacKinnon, D. P., Krull, J. L., & Lockwood, C. M. (2000). Equivalence of the mediation, confounding and suppression effect. *Prevention Science*, 1(4), 173–181. <https://doi.org/10.1023/A:1026595011371>
34. Maheria, S. D. (2023). A theoretical study of financial literacy in India. *GAP Interdisciplinarity*, 6(3), 86–93.
35. Maxwell, S. E., & Cole, D. A. (2007). Bias in cross-sectional analyses of longitudinal mediation. *Psychological Methods*, 12(1), 23–44. <https://doi.org/10.1037/1082-989X.12.1.23>
36. Maxwell, S. E., Cole, D. A., & Mitchell, M. A. (2011). Bias in cross-sectional analyses of longitudinal mediation: Partial and complete mediation under an autoregressive model. *Multivariate Behavioral Research*, 46(11), 816–841. <https://doi.org/10.1080/00273171.2011.606716>
37. National Centre for Financial Education (2019). *Financial literacy and inclusion in India: Final report 2019* (NCFE-FLIS 2019). NCFE.
38. National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research. (1979). *The Belmont report: Ethical principles and guidelines for the protection of human subjects of*

- research. U.S. Department of Health, Education, and Welfare.
39. Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). McGraw-Hill.
 40. OECD. (2020). OECD/INFE 2020 international survey of adult financial literacy. *OECD Publishing*.
<https://doi.org/10.1787/145f5607-en>
 41. *PISA 2022 results (Volume IV): How financially smart are students?* OECD OECD, & Publishing (2024).
<https://doi.org/10.1787/5a849c2a-en>
 42. Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88(5), 879–903. <https://doi.org/10.1037/0021-9010.88.5.879>
 43. Polit, D. F., & Beck, C. T. (2006). The content validity index: Are you sure you know what's being reported? Critique and recommendations. *Research in Nursing & Health*, 29(5), 489–497.
<https://doi.org/10.1002/nur.20147>
 44. Pulungan, A. H., Abdurrahman, D. A., Canara, B., & Ramadhan, R. (2024). The impact of parental financial teaching on university students' financial attitudes: The mediating role of self-control. *Jurnal Pendidikan Bisnis dan Manajemen*, 10(1), 43–57.
<https://doi.org/10.17977/um003v10i12024p043>
 45. Reserve Bank of India. (2020). *National strategy for financial education: 2020–2025*. Reserve Bank of India.
 46. Schmitt, N. (1996). Uses and abuses of coefficient alpha. *Psychological Assessment*, 8(4), 350–353.
<https://doi.org/10.1037/1040-3590.8.4.350>
 47. Shim, S., Barber, B. L., Card, N. A., Xiao, J. J., & Serido, J. (2010). Financial socialization of first-year college students: The roles of parents, work, and education. *Journal of Youth and Adolescence*, 39(12), 1457–1470. <https://doi.org/10.1007/s10964-009-9432-x>
 48. Simon, H. A. (1955). A behavioral model of rational choice. *The Quarterly Journal of Economics*, 69(1), 99–118. <https://doi.org/10.2307/1884852>
 49. Sruthiya, V. N. (2021). Role of parental financial socialisation on financial literacy among youth. *Pacific Business Review International*, 14(3), 120–131.
 50. Thaler, R. H. (1999). Mental accounting matters. *Journal of Behavioral Decision Making*, 12(3), 183–206. [https://doi.org/10.1002/\(SICI\)1099-0771\(199907\)12:3<183::AID-BDM318>3.0.CO;2-F](https://doi.org/10.1002/(SICI)1099-0771(199907)12:3<183::AID-BDM318>3.0.CO;2-F)

Figures

Note. Standardized paths from the hierarchical regression and mediation models reported in Table 9 and Table 12 (N = 200).
† p = .050 (borderline). * p < .05. ** p < .01. *** p < .001.

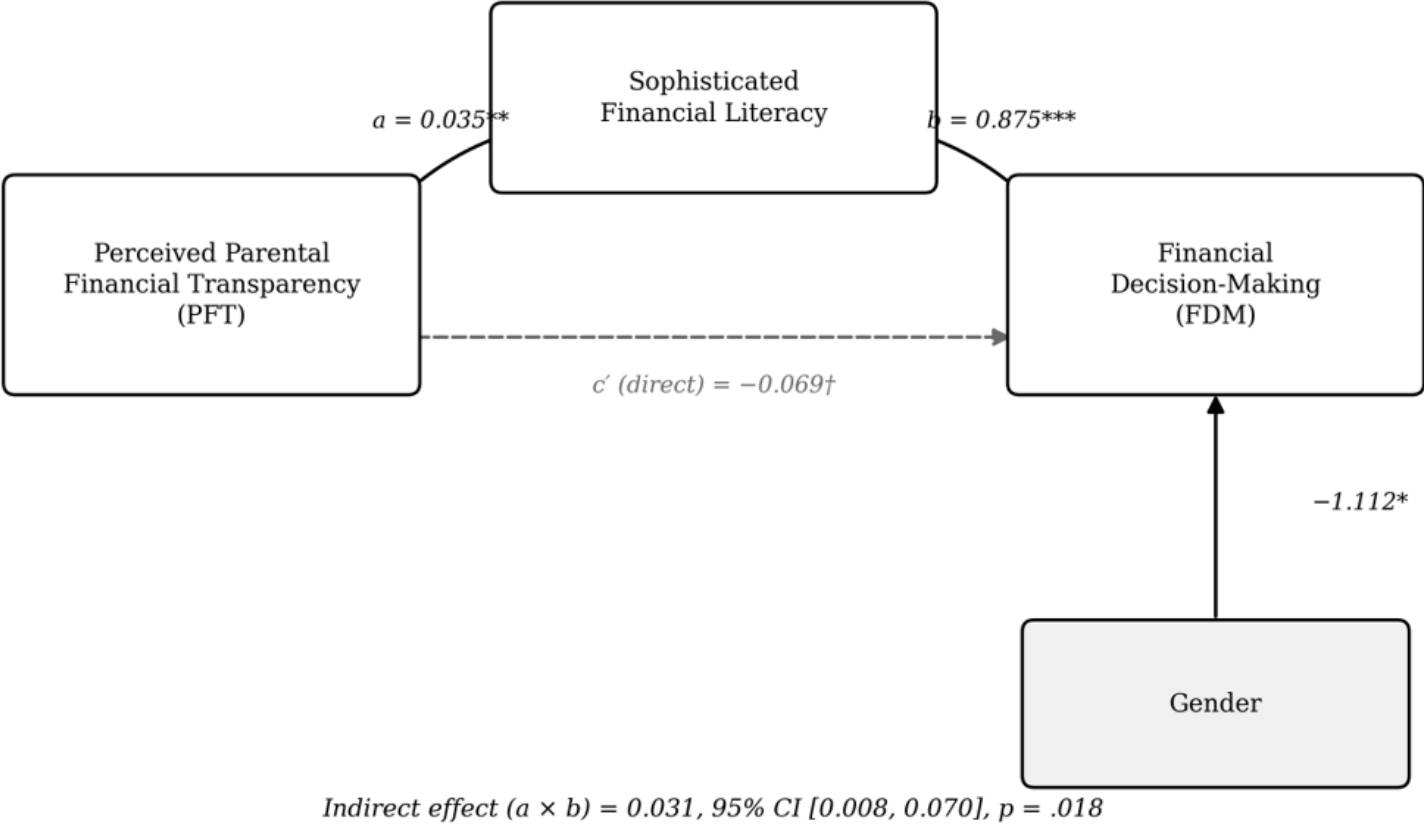


Figure 1

Conceptual model of the relationship among perceived parental financial transparency, sophisticated financial literacy, and behavioral decision-making heuristics

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- [SupplementaryInformationSurveyInstrument.docx](#)