

Beyond the Gender Binary: Financial Awareness and Inclusion among Men, Women and Transgender Individuals in Kolkata

Pallobi Chattopadhyay

Assistant Professor

Department of Commerce, St. Xavier's College(Autonomous), Kolkata

Dr. Soheli Ghose

Assistant Professor and Dean

Department of Commerce, St. Xavier's College(Autonomous), Kolkata

Abstract

This study investigates gender differences in financial awareness, investment knowledge, risk preferences, and barriers to financial inclusion among 500 respondents in Kolkata, comprising 200 men, 200 women, and 100 transgender individuals. Using a quantitative cross-sectional design, the study applies the Kruskal–Wallis test and Cliff's Delta to assess statistical and practical differences across groups. Men and women displayed broadly comparable awareness, whereas transgender respondents reported significantly lower knowledge of income concepts ($H=55.588, p<.001$), financial risk ($H=89.480, p<.001$), equity ($H=66.415, p<.001$), and bonds ($H=59.574, p<.001$). Large effect sizes were observed for financial-risk awareness between men and transgender respondents ($\delta=.580$) and between women and transgender respondents ($\delta=.560$). Awareness of physical gold, fixed deposits, Post Office services, and zero-balance accounts was relatively similar across groups. Transgender respondents also reported stronger barriers related to identity documents, banking awareness, insufficient funds, and poor institutional treatment. The study extends gender-finance research beyond binary comparisons and demonstrates that apparent parity in familiar products can coexist with substantial inequality in advanced financial knowledge and formal financial access.

Keywords: *Financial awareness; financial inclusion; transgender individuals; gender differences; investment behaviour; Kolkata*

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I. Introduction

1.1 Background and Context

In emerging markets, household financial decision-making has become more complicated as they have to select between traditional saving vehicles, securities, insurance instruments, digital financial services and government-assisted investment schemes. They must be guided by knowledge of interest rates, inflation, diversification, risk, and return, as well as appropriateness of products. Financial literacy then has direct implications for the nature of household decisions as well as on the extent to which households adopt formal financial markets. People with low financial knowledge have considerably lower rates of share investment, and higher financial knowledge is associated with greater investment in stocks, which helps them to understand stock products and take stock risk into account (van Rooij et al., 2011; Zhao et al., 2024). Access to relevant information and the effect of limited attention on financial behaviour is also a factor of financial literacy (Xu et al., 2022). More older people with high literacy tend to pay their debt on time, have an account in the stock markets and diversify their risk (Fong et al., 2021). But knowledge does not necessarily lead to inclusion. However, it is income, wealth, resilience, advice and previous investment experience that will enable some people to put the awareness into market participation (Oehler & Horn, 2023; Abreu et al., 2025). Thus, these inequalities render gender of special relevance for family finance in the emerging economies.

1.2 Gender and Financial Awareness

Although the financial-literacy gap seems to be skewed towards men, this varies based on variables such as age, socioeconomic factors, education, socialisation, confidence, and computational skills (Haag & Brahm, 2025). The findings in this study suggest that, on average, men may be slightly more knowledgeable and risk-

tolerant compared to women; while women are more hesitant and risk-averse, at the same time they may be at a disadvantage when it comes to wrong financial practices (Damong & Perez, 2024). In urban India, this is also evidenced as women are more likely to pick gold, deposits, savings, etc., which are more secure investments, while men tend to invest in market-related products and make significant decisions about the house (Tiwari & Dubey, 2024). Women might also be less likely to participate given reduced confidence and fear of losses (Lebleci Teker et al., 2024). However, professional financial advice positively affects women's willingness to take investment risks, showing that gender differences are not necessarily behavioural traits (Baeckstrom et al., 2021). Financial literacy can also reduce behavioural biases of the male and female investors (Adil et al., 2021). Research must consequently go beyond a binary approach and take account of transgender and gender-diverse financial experiences.

1.3 Transgender Financial Exclusion in India

The adoption of a perspective that transcends the dichotomy of male and female is especially crucial in India, where transgenders often face precarious jobs and sporadic earnings, social ostracism and a lack of access to formal accumulation of assets. Even if there is financial knowledge, these conditions may limit the resources that need to be accessed to save, buy insurance or engage in securities markets. Knowledge from some other emerging markets indicates that financial literacy encourages investment decisions, while at the same time risk tolerance and structural conditions determine if this knowledge will translate into actual investment (Naiwen et al., 2021). While government interventions and new financial technologies can help to widen participation, the impact of these hinges on the offering and how households perceive and engage with it (Filippin, 2025). Access to legitimate and dependable financial information, trans-specific banking, and accessing and changing identity documents can also support exclusion for transgender individuals. Inclusive finance can no longer therefore stop at merely individual financial literacy and needs to take into account institutional access, confidence and product knowledge, as well as income security.

1.4 Research Problem and Gap

The majority of research on financial literacy to date has still been based on a binary male/female context, and they are not often viewed beyond that. Available scholarship on transgender people predominantly focuses on employment, health, discrimination and social exclusion rather than financial knowledge and participation of transgender people in investments. Thus, there is limited evidence that compares male and female, and transgender people in the same questionnaire, geography, and analysis. But pre-existing studies often focus on statistical significance and do not take into consideration whether group differences discovered in their research have a meaningful or practical impact. While recent studies highlight the interaction of factors like literacy, resilience, socio-economic status, behavioural biases, and policy design on participation, city-level literature on Kolkata remains limited (Abreu et al., 2025; Adil et al., 2021). This study aims to overcome these limitations by taking into account three-group significance testing and pairwise effect-size analysis.

1.5 Aim and Research Objectives

The aim is to compare financial awareness, investment-related knowledge, investment preferences, and barriers to financial inclusion among men, women, and transgender individuals in Kolkata.

The objectives are as follows:

1. To compare awareness of basic and market-linked financial instruments across the three gender groups.
2. To examine differences in financial-risk awareness and investment preferences among men, women, and transgender individuals.
3. To assess gender-based differences in access to banking and digital financial services.
4. To identify the principal barriers to financial inclusion experienced by transgender individuals.

1.6 Contribution of the Study

The study has three contributions. Empirically, by design it contains 100 transgender respondents in a comparative sample of 500 people, and takes household-finance research beyond the traditional binary distinction. In terms of methodology, it utilizes Kruskal Wallis tests to examine the statistical significance, then Cliff's Delta to examine the magnitude of the group differences. On the policy side, it helps to identify the financial instruments, digital services, information channels and institutional barriers where the awareness gaps are largest, to inform targeted financial literacy programmes, inclusive banking practices and evidence-based financial-inclusion policies in emerging markets.

II. Literature Review and Hypothesis Development

2.1 Financial Awareness and Financial Behaviour

Financial literacy is broadly defined as knowledge and competence in understanding financial concepts and making decisions related to them; financial awareness is defined as awareness of financial products, services, risk/reward and institutional set up at all. Financial capability is broader as it includes knowledge, confidence, access, and the capability to do something. Financial behaviour encompasses visible activities, such as budgeting, saving, borrowing, investing and repaying, and financial inclusion is the effective access and use of low-cost formal financial services. While interrelated, the concepts are not synonymous; merely being aware of a financial product does not mean it is used, and the use of a financial product does not mean that informed decision-making has occurred.

Objective and subjective financial knowledge are consistently linked to responsible behaviours, with subjective knowledge or perceptions and confidence sometimes being more influential on behaviour than factual knowledge (Aristei & Gallo, 2021; Robb & Woodyard, 2011). In general, financial education works to enhance knowledge and downstream behaviour, which is dependent on the design of the program, when it is conducted and who is targeted (Kaiser et al., 2020; Stolper & Walter, 2017). Situations of complex commitments like housing finance can be strengthened by financial awareness and professional advice, which can enhance planning and decision-making capacities (Chaniago et al., 2026). Likewise, financially literate consumer groups have improved opportunities for cost-benefit analysis, but the awareness must be supplemented by applicable knowledge and institutional entities (Garai-Fodor, 2023). Research also indicates that women entrepreneurs and household decision makers benefit from literacy as well because it creates a positive impact on poorer financial management (Andarsari & Ningtyas, 2019). Hence, awareness is an important prerequisite for behaviour and socioeconomic resources, and opportunities will be impacted if knowledge translates into saving or investment.

2.2 Gender Differences in Investment Behaviour

Studies have also indicated in gender-based investment research that men tend to invest in market-linked investment options and take part in such activities with a greater frequency, show higher levels of confidence and risk in financial investments compared to women, who tend to possess greater confidence in retaining stability, protecting their capital, as well as conventional saving options. The following patterns, however, should not be interpreted as definite biological differences. Fisher and Yao (2017) attribute the apparent gender gap in risk appetite partially to net worth, income uncertainty, and other individual factors. Likewise, Cupák et al. (2020) found a strong relationship between confidence in financial literacy and gender inequalities regarding risky-asset ownership.

Other research also shows that socioeconomic status, emotional attachment, autonomy in taking investment decisions, family influence, social attitudes, and accessibility of information are also significant factors affecting the investment behaviour of women (Ajabnoor & Faisal, 2023; Singh, 2025). While male students might be more inclined to invest in equities, there is gender parity in terms of financial attitude and risk appetite (Lyngdoh et al., 2025). A study of the work-related population also reveals that risk-taking and risk-taking attitudes depend on gender (Thanki et al., 2022). Women have the potential to be less risk-tolerant and/or more herding than men without suffering a less favourable return from investment (Carneiro & Quelhas, 2025). Yarasheva and Alikperova (2020) also found that women tend to play safe, while men are more inclined to take risks.

Previous as well as Indian studies indicated that awareness and socio-economic factor would affect their mutual-fund selection process, and it was also observed that working women prefer banking products or gold and insurance along with Post-office products (Harini & Savithri, 2021; Kaur & Kaushik, 2016). Sharma and Lyall (2022) also found that the risk propensities and frequency of investment differ between genders. There has been a growing pushback in the field of investment for recent scholars to explore whether it's really all about gender or whether other factors such as literacy, experience, behavioural biases and risk tolerance are key factors in investment differences (Jhansi & Muthukumaran, 2026).

2.3 Financial Exclusion of Transgender Individuals

Current studies focused solely on finance and transgenderism are scarce, yet at the same time, financial exclusion can be attributed to a confluence of economic, institutional, and social disadvantage. Barik and Sharma (2021) conclude that transgender people of Odisha encounter both barriers on the demand side, including lower financial literacy, lack of documentation, irregular jobs, and limited awareness, and on the supply side, including lack of friendly bank staff and limited outreach. Aneesha and Baag (2021) also discussed how the binary method in financial inclusion fails to consider transgender communities' particular challenges to access formal financial services.

But the notion of financial exclusion also must be read in conjunction with job precarity, poverty, the housing market, and the experiences of discrimination. Transgender and gender non-conforming people have

experienced unemployment, and a high incidence of poverty and food insecurity, as well as diminished support networks (Russomanno et al., 2019). Housing insecurity is also associated with economic denial, social isolation and mental anguish (Glick et al., 2020). The COVID-19 outbreak exacerbated the vulnerability of transgender and non-binary communities due to the economic turmoil and lack of gender-affirming support in the wake of the pandemic (Jarrett et al., 2021).

Recent financial-wellness literature indicates trans-spectrum students were less optimistic about their finances, had less self-efficacy and less perceived financial wellness than cisgender students (Rehr & Regan, 2022). White et al. (2022) also discovered that financial socialisation, an optimistic mindset and the quality of management practices predicted higher levels of financial strain among transgender and gender-diverse students. Indian evidence, for example, shows how inclusive financial services can enhance economic resilience and psychological well-being by lowering institutional barriers (Mohini & Sinha, 2022). Similarly, Mundi (2023) found during a qualitative study that an instability of income, as well as limited knowledge and exclusion from mainstream services, contribute to transgender financial behaviour. This is underlined by evidence from research on health and welfare: financial hardship, stigma, bureaucratic obstacles, and lack of institutional sensitivity constrict access to key services in various environments (Farah et al., 2023; Gonçalves et al., 2026; Khapre et al., 2024). The challenges and concerns of digital exclusion include digital illiteracy, financial barriers, cybersecurity issues and administrative hurdles (Dubey & Rawat, 2025).

2.4 Financial Socialisation, Information and Digital Access

Financial behaviour is a product of formal education and the process that is referred to as everyday socialisation. Knowledge and confidence are influenced by family conversations, parent role-modelling, peer influences, work experiences and financial institution contact. The results from Khawar and Sarwar (2021) showed that there is a partial mediation of literacy on behaviour by family financial socialisation. Mireku et al. (2023) also found family conversations and parents' level of education as significant determinants of good financial habits.

The range of consumer access to financial information, from internet platforms to television, financial advisors, banks, and community organisations, has widened. But having the information is not enough to understand or trust it. Digital exposure can help increase awareness of mobile banking, electronic payment and investing products, and marginalisation due to low digital literacy can be re-created. Thus, NGOs and community networks are especially vital to groups which have less engagement with formal institutions. Professional guidance can also help raise awareness and turn it into action on products and boost confidence, explaining the risks of products (Chaniago et al., 2026). Financial socialisation must therefore be considered not just a family-based process, but as a phenomenon that is connected with knowledge, confidence, access and behaviour.

2.5 Research Gap

The literature identifies a relationship between literacy, confidence, socialisation, risk-taking and financial behaviour; however, there are several gaps identified. Firstly, most gender based research focuses on the differences between individual men and women as a comparative group without examining transgender people, or examining them indirectly as part of studies of health, poverty or discrimination. Second, previous transgender-finance studies often surveyed small qualitative and/or descriptive samples of transpeople, and few use a common instrument across three gender groups. Third, research can blend both knowledge of "simple" products and knowledge of the "complex" market-based instruments—important distinctions in basic and advanced financial capability can be hidden. Fourth, many studies report statistical significance but not the amount (or "pragmatic" magnitude of the differences between groups. Lastly, there is scarce comparative evidence from any of the metros of India, if at all done, mainly Kolkata. The present study aims to fill these gaps, performing a comparison of men, women and transgender persons in a single analytical framework and simultaneously using statistical significance tests and effect size.

2.6 Hypothesis Development

Previous studies indicate that the gender groups vary with financial knowledge, financial confidence, financial risk attitude, financial socialisation, socioeconomic status and institutional accessibility. The differences might be more marked between respondents identifying as transgender and the two traditionally studied gender groups. As a consequence, the following hypothesis is put forward:

- H₀: Financial awareness and financial inclusion do not differ significantly among men, women, and transgender individuals.
- H₁: Financial awareness and financial inclusion differ significantly among men, women, and transgender individuals.

III. Data and Research Methodology

3.1 Research Design

This study used a quantitative research model, which is a descriptive research design by survey. An exploratory and comparative study involving gender-wise differences between men, women and transgender individuals, financial awareness, financial knowledge of investment, investment preference and financial inclusion in Kolkata was conducted. The descriptive component summarised the respondents' awareness and investment related response and for the inferential statistics, the differences among the three gender groups were tested for statistical significance but also practical meaning. As the data were collected at a single point in time, the design captured prevailing patterns of financial awareness and inclusion across the three groups.

3.2 Study Area

The study was done in Kolkata, West Bengal. Considering its population, Kolkata can be regarded as a major metropolitan as well as a major commercial centre, which has a socially, economically and occupationally diverse population. The city has facilities of formal banking institutions, Post Office schemes, insurance, market-linked investment products and digital financial facilities. It is thus a relevant umbrella under which the questioning of awareness of the traditional and modern financial products can be addressed. Transgender people have NGO and community organisations at various locations of the city of Kolkata, which makes it feasible for inclusion of transgender population, which can be difficult to sample using a conventional household sample.

3.3 Population and Sample

The study population comprised adult men, women and transgender individuals residing in Kolkata. A final sample of 500 respondents was obtained (200 males, 200 females and 100 transgender). Respondents were women and men selected from households within 10 wards that were under the Kolkata Municipal Corporation, and transgender respondents were gathered from a transgender community serviced by an NGO. For the household sample, the eligible respondents were determined based on the age and income ranges mentioned in the questionnaire. Households were analysed based on the presence of a qualifying adult male/female or both. Respondents had to live within the defined wards and had to complete the appropriate question items on the forms. The transgender population sample comprised 100 transgender individuals whose ID is associated with the area served by the selected NGO that answered all questionnaire items.

3.4 Sampling Procedure

These sampling techniques differed, depending on whether the respondent was male or female, or transgender, because there did not exist a common sampling frame for all three groups. The 144 wards under Kolkata Municipal Corporation (KMC) were taken as the geographical basis for the selection of men & women. The top ten wards in terms of household population were identified based on household data from the Census 2011 databook. The wards selected were the following ward Nos. 1, 3, 14, 58, 59, 65, 66, 67, 108, and 109, comprising a total of 185,083 households (Office of the Registrar General & Census Commissioner, India, 2011). The data were collected over the span of April 2022 to May 2025.

Appropriate sampling of men and women ($n = 200$ in each of 40 wards) was performed according to the principle of proportional allocation. Each ward's allocation depended on the proportion of households in the area compared to all ten wards, and the required sample size for each gender group.

$$n_i = (N_i / N) \times n$$

where N_i is the number of households in ward i , n_i is the number of respondents allocated to ward i , N is the actual number of households in the 10 selected wards, and n is the desired sample size for each gender group.

Ward 1 allocation = $(11,328 / 185,083) \times 200 \approx 12$ respondents

The same percentage process was used for the other wards. Households were then surveyed, and eligible adult men and women identified based on age and income brackets listed in the questionnaire.

A total of seven NGOs that are operational in Kolkata have been identified and given a unique identification number for transgender respondents. Random selection was done for one organisation named Forum of Peace and Unity. The organisation engages in the work of over 200 transgender people in places like Burrabazar, Shyambazar, Alipore and Southern Avenue. All 100 transgender respondents were interviewed face-to-face to answer all questionnaire items. Given the lack of ward-wise information about transgender residents, and the inability to set up a regular (household) sampling frame for this group, NGO-assisted recruitment was adopted.

Table 1

Sampling Distribution of Men and Women across Selected Kolkata Municipal Corporation Wards

Ward	Number of households	Proportion of total	Men, n	Women, n
1	11,328	6.12%	12	12
3	11,338	6.12%	14	14
14	11,563	6.25%	14	14

58	20,093	10.85%	22	22
59	20,176	10.90%	22	22
65	18,125	9.79%	20	20
66	19,572	10.57%	22	22
67	18,987	10.24%	22	22
108	23,140	12.50%	26	26
109	23,361	12.62%	26	26
Total	185,083	100.00%	200	200

Note. Household figures were obtained from the 2011 Census databook. The ward-wise allocations total 200 men and 200 women.

3.5 Instrument and Measurement

The primary data were gathered using a structured instrument, which facilitated the collection of respondents' financial awareness, financial product preferences and knowledge about the features and benefits of various financial products. The instrument had a total of 122 variables (of which the reported analysis includes only those related to the objectives of the paper), relating to financial awareness of the respondents, based on their gender.

The questionnaire was divided into 5 sections related to awareness about income, awareness about investment, financial risk, return on investment, and financial education awareness. It also looked at savings bank accounts, investment in Post Office schemes, fixed deposits, insurance, gold, Public Provident Fund, shares, equity, bonds, mutual funds and various gold investments. Other items included awareness of internet banking, ATM facility, mobile banking, Debit card and Credit card and digital payments. The instrument also included the following questions: which sources of investment information were being used, what factors were taken into account prior to investing in an investment organisation, preference for where to invest based on risk, and what reasons someone gave for not using a bank account. Awareness was assessed using a five-point Likert scale, with 1 representing 'Strongly disagree' to 5 'Strongly agree'.

3.6 Reliability of the Instrument

Cronbach's alpha was used to determine the questionnaire's reliability. The instrument had a very high internal consistency with an alpha coefficient of .974. Cronbach's alpha indicates the homogeneity of a set of items on a questionnaire measuring a related construct (Cronbach, 1951). The result of the coefficient shows that the items used in the questions were strongly related and appropriate to measure financial awareness on the chosen dimensions.

3.7 Statistical Analysis

Descriptive and inferential statistical techniques were used to analyse the data. Descriptive analysis generated the awareness trends, investment preferences and responses of the three gender categories, respectively. The results from the questionnaires were captured on an ordinal Likert scale and were found to be non-normal, so non-parametric methods were used.

A Kruskal–Wallis H test was conducted to identify statistically significant differences between men, women and transgender persons (Kruskal & Wallis, 1952). An additional comparison of males versus females was also conducted to ascertain if an overall three-group difference stemmed from a male–female difference or was primarily related to the transgender respondents.

The direction and magnitude of the differences between each pair of gender groups were determined at Cliff's Delta. The practical size of an observed difference is found in Cliff's Delta, which, unlike a significance test, does not require a normal distribution of data and can be used with ordinal data (Cliff, 1993). Absolute effect-size values were interpreted as negligible below .147, small from .147 to .329, medium from .330 to .473, and large at .474 or above. Statistical significance was assessed at $p < .05$, and probability values reported as .000 in the statistical output were expressed as $p < .001$.

3.8 Ethical Considerations

Face-to-face survey modes were adopted to collect the data. Findings are reported based on combined data for men, women and transgender participants and respondent names and other information identifiable to the individual respondent are not reported in the article. Data collection and analysis of information pertaining to transgender identity were completed with sensitivity to this information as personal.

IV. Empirical Results

4.1 Respondent Profile

The empirical analysis was conducted based on the basis of 500 respondents from Kolkata; it can be known that there were 200 males, 200 females, and 100 transgender respondents. The respondents were from the ten most densely populated wards of Kolkata Municipal Corporation, who were both male and female, while

transgender respondents were contacted through a transgender friendly NGO, Forum of Peace and Unity, covering BurbaBazar, Shyambazar, Alipore and Southern Avenue. An overall sample is produced that allows for a comparison of the three groups, which includes an understanding of the need for varying sampling frames for the household and transgender population.

Table 2. Profile and Sampling Characteristics of Respondents

Gender group	n	% of sample	Sampling source	Geographical coverage
Men	200	40.0	Households; proportionate ward allocation	10 KMC wards
Women	200	40.0	Households; proportionate ward allocation	10 KMC wards
Transgender individuals	100	20.0	NGO-assisted face-to- face survey	Burrabazar, Shyambazar, Alipore, Southern Avenue
Total	500	100.0	Primary survey	Kolkata

4.2 General Financial Knowledge and Risk Awareness

The answers to the questions regarding income concepts, investment concepts, financial risk, investment return and perceived importance of financial education have been summarised in Table 3. All five constructs yielded statistically significant differences between the three groups. Large effect sizes were found in income awareness between men and transgender ($\delta = .650$) and women and transgender ($\delta = .803$); the differences were significant, as was the income awareness between all groups ($H = 55.588$, $p < .001$). A similar men-women effect for the corresponding men was small ($\delta = -.085$). The awareness of investment concepts was also quite distinct ($H = 48.668$, $p < .001$), but the differences between transgender and other groups were not considered to be high.

The biggest difference between the omnibus scores was for financial-risk awareness ($H = 89.480$, $p < .001$). The pairwise effects were large for men and transgender respondents ($\delta = .580$) and women and transgender respondents ($\delta = .560$), and close to the same for men and women ($\delta = .028$). Awareness of return on investment followed a similar trend as the medium men-transgender effect and small women-transgender effect ($H = 43.798$, $p < .001$). Transgender respondents, in contrast, placed a higher value on financial education ($H = 67.596$, $p < .001$) and the negative Cliff's Delta on these indicate greater endorsement among transgender respondents. In summary, the main difference was not between male and female, but appeared to be the difference between transgender (returns) and the two larger groups. The relative strength of the omnibus differences is summarised in Figure 1.

Table 3. Gender Differences in General Financial Awareness

Construct	Group pattern	H	p	δ M-T	δ W-T	δ M-W	Interpretation
Income concepts	$M \approx W > T$	55.588	$< .001$	.650	.803	-.085	Large T gap
Investment concepts	$M \approx W > T$	48.668	$< .001$	.383	.400	-.021	Medium T gap
Financial risk	$M \approx W > T$	89.480	$< .001$	.580	.560	.028	Large T gap
Return on investment	$M \approx W > T$	43.798	$< .001$	.457	.326	.121	Medium/small T gap
Importance of financial education	$T > M \approx W$	67.596	$< .001$	-.559	-.576	Not reported	Large reverse effect

Note. M = men; W = women; T = transgender respondents.

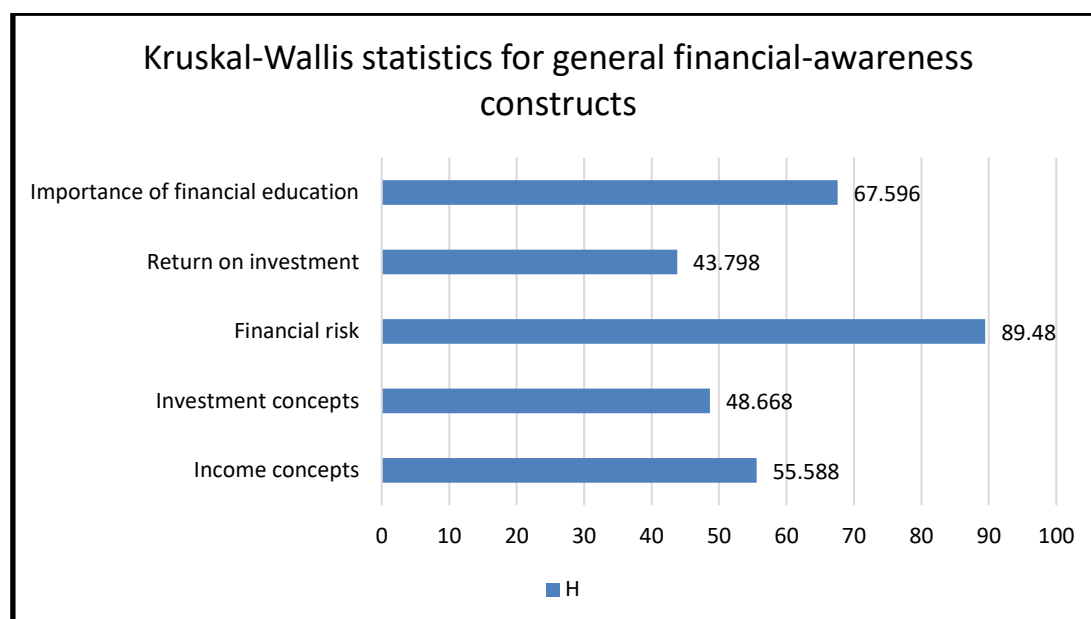


Figure 1. Kruskal-Wallis statistics for general financial-awareness constructs

4.3 Awareness of Traditional Financial Products

Technical concepts and market-linked products had greater and less stable gender disparities than did traditional and culturally familiar financial products. There was no significant difference in awareness of Post Office services between the three groups ($H = 4.730$, $p = .094$) and the results revealed no significant differences in pairwise effects. Likewise, physical gold ($H = 1.923$, $p = .382$), fixed deposits ($H = 2.703$, $p = .259$), and other insurance policies ($H = 3.871$, $p = .144$) showed no meaningful three-group differences. The small size of the effect sizes indicates that these products are associated with a common financial vocabulary which was shared by both genders.

Saving knowledge was an exception. The difference between each of the three groups was significant ($H = 33.351$, $p < .001$) with a small effect for the difference between men and transgender ($\delta = .301$) and a medium effect for the difference between women and transgender ($\delta = .340$). The reported awareness about LIC was statistically non-significant at the three-group level ($H = 9.111$, $p = .061$), though the reported p-value for men and women is .014, which contradicts with the interpretation in the manuscript and should be regarded with caution. This was almost equal in the case of zero-balance accounts ($H = 1.854$, $p = .061$) or at least no significant difference in the extent of gender difference and negligible effects in the case of recurring deposits, senior-citizen's savings schemes and Sukanya Samriddhi Yojana accounts. Combined, these findings suggest that awareness gaps can become reduced due to familiarity, frequent use of a financial instrument in the household and/or public-sector visibility despite continuing financial inequalities in terms of participation in formal finance.

4.4 Awareness of Market-Linked and Advanced Investment Products

Investment products with longer investment periods, market-related products, and products that involve changing technologies in particular showed gaps in awareness. Awareness of PPF was vastly different across groups ($H = 50.556$, $p < .001$), with a medium effect of men versus transgender ($\delta = .447$), women versus transgender ($\delta = .467$) and a negligible effect of men versus women. The same pattern occurred with shares ($H = 23.512$, $p < .001$): the difference between men and transgender was medium, the difference between women and transgender was small, and the difference between men and women was negligible.

The greatest differences were in equity and bond awareness. Equity awareness resulted in $H = 66.415$ ($p < .001$), with men versus transgender respondents obtaining large effects ($\delta = .509$) and women versus transgender respondents obtaining large effects ($\delta = .565$). Again, the pairwise comparisons revealed large differences involving transgender respondents and were significant ($p < .001$) for bond awareness. There were also wide disparities in the awareness of mutual funds ($H = 25.500$, $p < .001$) with a medium difference between the mean scores of men and transgender respondents, and a small difference between the mean scores of women and transgender respondents.

The differences between traditional and advanced products are further highlighted by the gold results. Physical gold awareness was almost identical across groups, but gold ETFs ($H = 6.931$, $p = .007$), gold mutual funds ($H = 22.567$, $p = .031$), digital gold ($H = 38.431$, $p = .003$), and sovereign gold bonds ($H = 39.372$, $p < .001$) showed significant differences. The reported impacts were small to medium, suggesting that transgender survey-

takers were not completely out of the loop with these products, but were less familiar with formal and digital versions.

Table 4. Awareness of Traditional and Market-Linked Investment Products

Product	Type	H	p	Reported pairwise effect pattern	Result
Post Office services	Traditional	4.730	.094	Negligible across groups	No three-group difference
Savings	Traditional	33.351	< .001	Small/medium T gap	Significant
LIC	Traditional	9.111	.061	Negligible effects	No three-group difference
Physical gold	Traditional	1.923	.382	Negligible across groups	No difference
Fixed deposits	Traditional	2.703	.259	Negligible across groups	No difference
Other insurance	Traditional	3.871	.144	Negligible across groups	No difference
PPF	Advanced/government-backed	50.556	< .001	Medium T gap	Significant
Shares	Market-linked	23.512	< .001	Medium/small T gap	Significant
Equity	Market-linked	66.415	< .001	Large T gap	Significant
Bonds	Market-linked	59.574	< .001	Large T gap	Significant
Mutual funds	Market-linked	25.500	< .001	Medium/small T gap	Significant
Gold ETFs	Market-linked	6.931	.007	Small/medium differences	Significant
Gold mutual funds	Market-linked	22.567	.031	Small/medium differences	Significant
Digital gold	Digital/market-linked	38.431	.003	Medium/small T gap	Significant
Sovereign gold bonds	Government/market-linked	39.372	< .001	Medium/small T gap	Significant

4.5 Banking, Post Office, and Digital Financial Awareness

The findings for banking products and products from the Post Office indicated a multi-layered approach towards inclusion. Comparatively good diffusion of basic products. There were no significant differences at the 5% level with the zero-balance accounts ($H = 1.854$, $p = .061$), and pairwise effects were negligible. Other such schemes like senior citizen savings scheme, recurring deposit in post office and Sukanya Samriddhi Yojana were also reported as being non-significant. The results suggest that financial capability and access to foundation account products reach all three groups more evenly than specialised financial products that are unique to the public sector.

Variations appeared in the products that needed more knowledge from a specific institution. However, zero-interest loans were reported as significant ($H = 48.071$, $p = .039$) with medium effects in favour of men and women as compared to transgender respondents. Post Office deposits for time and monthly savings schemes also were found to be different ($H = 6.478$, $p = .006$; and $H = 6.703$, $p < .001$, respectively), although the practical differences were considered small to moderate. The original interpretation states that the savings-account interest should not be considered statistically significant because $p > .05$, but the value of p reported here is $< .05$ and is treated here as statistically significant.

There's more awareness disconnect when it comes to digital banking. Internet banking ($H = 27.228$, $p = .010$), ATM facilities ($H = 30.617$, $p < .001$), mobile banking ($H = 29.476$, $p < .001$), debit and credit cards ($H = 55.512$, $p < .001$), and sending or receiving digital payments ($H = 25.720$, $p < .001$) all differed across the three groups. There were no differences between males and females as regards statistical similarity, and lower values of awareness were the case for transgender respondents with small to medium pairwise effects. Therefore, while there is a fairly high level of foundation of account awareness, there is less uniform knowledge about digital interfaces and advanced use of accounts. These differences are summarised in Table 5.

Table 5. Gender Differences in Banking and Digital Finance Awareness

Service/product	H	p	Reported direction	Effect pattern
Zero-balance account	1.854	.061	Broad parity	Negligible
Zero-interest loan	48.071	.039	M and W > T	Medium T gap
Post Office time deposit	10.240	< .001	Group differences	Small/medium
Post Office monthly savings	6.478	.006	Group differences	Small/medium
Savings-account interest	9.298	.041	M and W > T	Small

Internet banking	27.228	.010	M and W > T	Small/medium
ATM facility	30.617	< .001	M and W > T	Small/medium
Mobile banking	29.476	< .001	M and W > T	Small/medium
Debit/credit cards	55.512	< .001	M and W > T	Small/medium
Digital payments	25.720	< .001	M and W > T	Small/medium

Note. M = men; W = women; T = transgender respondents.

The results of investment-evaluation criteria were mixed. Results did not differ significantly between groups in the past organisational performance ($p = .126$), and the negligible size of all pairwise effects suggested that this widely recognised criterion was considered in the same way. In contrast, loan-providing capacity ($H = 4.139$, $p = .001$), public reputation ($H = 33.388$, $p < .001$), organisational net worth ($H = 35.581$, $p < .001$), and investors' historical records ($H = 35.140$, $p < .001$) showed significant differences. These evaluative indicators generally received medium to large priority from the men and women as compared to transgender respondents.

Sources of information were more distributed at the interpersonal level. No significant difference was found in the reliance on Gurumandli, family and friends ($H = 4.658$, $p = .121$) indicating that all community and household network also played a role. However, the internet and TV oddly had an internally inconsistent answer – one being that the manuscript was significant and $p = .097$. It is therefore considered non-significant at $\alpha = .05$; however, medium Cliff's Delta values indicate that there may be significant differences in exposure. There were large differences between other sources of information ($H = 42.225$; $p < .001$), although pairwise differences were small. Overall, the results suggest that informal advice-giving was relied upon in a similar fashion, and that formal and diversified financial-information channels were used in different, and unequal, ways.

4.7 Risk-Based Investment Preferences

Respondents were asked about a choice of how they would distribute ₹50,000 between a low risk and a high risk, and a medium. The three given situations about "allocation" was highly significant difference between genders. Low-risk allocation resulted in $H = 18.405$ ($p < .001$); the men-transgender effect was medium ($\delta = .335$); women-transgender effect was small ($\delta = .252$); and the men-women effect was negligible. Medium risk allocation exhibited greater overall difference ($H = 40.567$ $p < .001$) with medium effects for both women and men compared to transgender respondents.

There was the greatest difference with regard to high-risk allocation ($H = 82.631$, $p < .001$). While the effect of men and women was small, the effect of men versus transgender respondents was large ($\delta = .633$) as well as the effect of women versus transgender respondents ($\delta = .595$) for Cliff's Delta. On each allocation pattern claimed by the respondents, those who reported transgender showed lower differences, particularly in the case of the high-risk portfolio. On the one hand, this could indicate that individuals with lower levels of confidence have fewer opportunities to get exposure to the financial markets, or less ability to "take the hit." From table 6 we see that the practical difference is growing wider the more risk-intensive the allocation is.

Table 6. Risk-Based Investment Preferences by Gender

Hypothetical allocation	H	p	δ M-T	δ W-T	δ M-W	Interpretation
Low risk (6:3:1)	18.405	< .001	.335	.252	-.084	Medium/small T gap
Medium risk (3:4:4)	40.567	< .001	.417	.478	-.183	Medium T gap
High risk (1:4:5)	82.631	< .001	.633	.595	.133	Large T gap

Note. M = men; W = women; T = transgender respondents.

4.8 Barriers to Financial Inclusion

The most significant evidence of exclusion is that given for a decision not to use a bank account. There were significant differences between groups with regard to lack of identity documents ($H = 21.266$, $p < .001$). This is a barrier that transgender respondents answered more often than the other two groups (men and women); the Cliff's Delta values are negative and large relative to men and medium relative to women. Documentation consequently is not an administrative issue but one that applies for practical purposes as a limit to formal recognition and access to banking.

In terms of banking knowledge, the greatest omnibus difference between the four barriers is quite significant ($H = 57.284$, $p < .001$). This impact was most noticeable in transgender respondents vs. women ($\delta = 1/2 - .548$), and non-significant in men vs. women. The lack of funds was also very different ($H = 22.445$, $p < .001$), with small effects showing that indeed low funds were more common amongst transgender respondents. Finally, and most significantly, the difference between those who were poor in the treatment or not receiving proper treatment from banking people was significantly different ($H = 30.197$, $p < .001$), with a medium effect for transgender responders as compared to men and women.

This study is related to the linking of financial awareness with a set of institutional conditions. However, if respondents are also having to face documentary, economic and service-related challenges, then lower knowledge can not be considered as an individual challenge. Finally, the difference in the men-women effects at all four barriers is not significant, indicating that the difference is mainly that between transgender respondents and the rest.

Table 6. Reported Barriers to Bank-Account Ownership

Barrier	H	p	δ T-M	δ T-W	δ M-W	Effect interpretation
Lack of ID proof	21.266	< .001	-.566	-.387	.000	Large/medium T disadvantage
Lack of banking awareness	57.284	< .001	-.244	-.548	.001	Small/large T disadvantage
Insufficient money	22.445	< .001	-.279	-.334	.055	Small/medium T disadvantage
Poor treatment by bank personnel	30.197	< .001	-.369	-.376	.001	Medium T disadvantage

Note. Negative values indicate that the barrier was reported more strongly by transgender respondents. T = transgender respondents; M = men; W = women

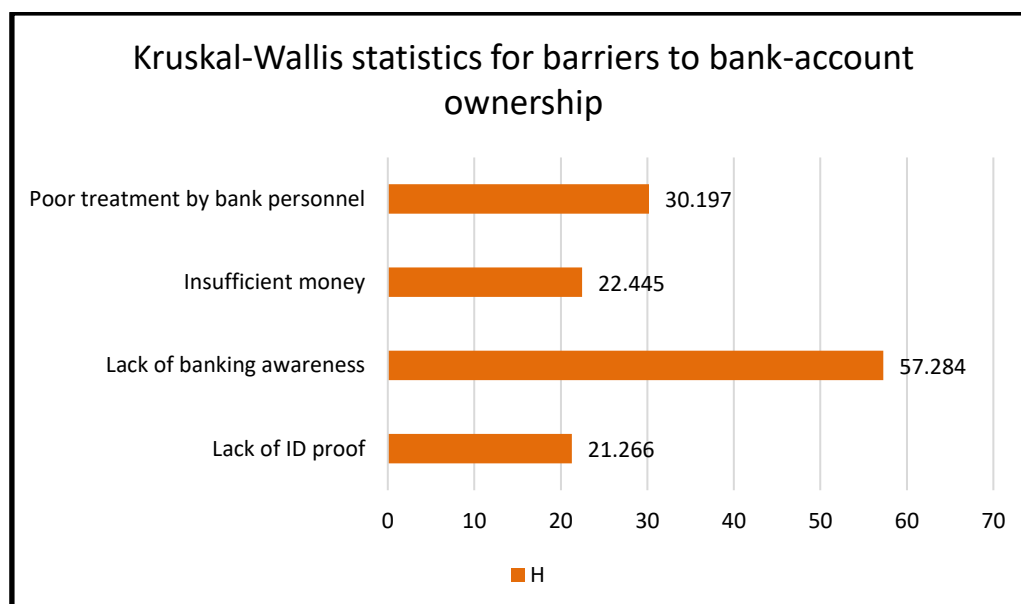


Figure 2. Kruskal-Wallis statistics for barriers to bank-account ownership

V. Discussion

5.1 General Summary of Main Results

Findings show a very uniform yet varied gender discrimination in financial literacy and participation. There were generally no major differences between men and women on any of the constructs, but more distinct differences between transgender and the other two groups. The parity was relative in the case of those products which were well known to the individuals and had a cultural rootage such as physical gold, Post Office services, fixed deposits, insurance and zero balance accounts. At the other end, clear and substantial differences were observed for concepts of income, financial risk, PPF, equity, bonds, mutual fund, digital gold/sovereign gold bond and digital banking services and organisational evaluation criteria. However, transgender individuals were more likely to report a high perceived importance of financial education, indicating a demand for financial education from transgender individuals rather than a lack of interest in finance. It was also found that transgender participants were more likely to report documentation issues, lack of knowledge about banks, lack of funds and poor treatment by institutions as barriers.

5.2 Financial Awareness Beyond the Male-Female Binary

Gender-finance studies conventionally find that there is a gap between the male and female earnings, and this study adds to that body of literature by illustrating that a binary comparison can miss the most salient variation in storying the data. Previous research mainly highlighted less risk-taking ability, less self-assurance, and the inclination to buy conventional products among women (Harini & Savithri, 2021; Sharma & Lyall, 2022). The

present findings offer only partial evidence of a simple dichotomy of male-female since their injurious effects were typically minimal if present at all for their pairwise interactions. Rather, transgender individuals scored significantly lower than both males and females on higher knowledge, risk awareness, digital services and formal investment appraisal.

This mirrors evidence indicating that the financial vulnerability faced by transgender individuals is the result of their reduced access to formal institutions, financial pessimism and fewer financial socialisation opportunities (Aneesha & Baag, 2021; Rehr & Regan, 2022; White et al., 2022). It also corroborates Mundi's (2024) assertion that financial behaviour cannot be understood without considering the interplay among gender identity, income security and institutional accessibility. Results do not suggest that all transgender persons have the same experiences but instead that a shift in the empirical understanding of finance and gender can be made with the inclusion of this group.

5.3 Traditional Products vs Market Linked Products

One of the most obvious findings is contrasting the traditional and market-linked products. Physical gold, Post Office, fixed deposit services, insurance, and simple accounts are well known and commonly practised through daily use, outreach programs in public-sector institutions and cultural practice. The awareness about these products can thus be obtained even if there is no direct contact with special securities market institutions or securities market advisors. This can provide an explanation for the generally unimportant effect sizes they had when calculated two-by-two.

For equity and bonds, using mutual funds, digital gold, Gold Exchange Traded Funds, and gold bonds, people need more specialised knowledge about the market risks, liquidity, pricing and digital access. The findings in these products are not surprising, given the results of studies demonstrating that financial literacy and certain socio-economic traits have a bearing on participation in mutual funds or the stock market (Akshaya & Nanditha, 2022; Kaur & Kaushik, 2016). Present findings indicate product familiarity is cumulative: What is familiar about physical gold does not necessarily apply to formal gold products. Therefore, inclusive financial education should take a foundation-first approach – starting from the familiar concept of assets and working up to more complex ones – instead of considering awareness as one monolithic idea.

5.4 Digital Financial Inclusion

Although there was a fundamental account knowledge that was fairly inclusive, awareness of internet banking, mobile banking, ATMs, cards and digital payments was less among transgender respondents. The analysis does not include any direct measure of the ownership of smartphones, internet quality or internet usage frequency; therefore, these could not be tested as explanations. Despite this, evidence that supports transgender financial exclusion is linked to the pattern of digital unawareness (Aneesha & Baag, 2021). 'Trust' and 'confidence' may also play a role: where a service is available may not necessarily be the point where it is used with confidence and in safety. An integrated approach—including business procedures, fraud prevention, facilitated onboarding and responsive human support—should thus be included in targeted digital-finance programmes.

5.5 Institutional Exclusion and Financial Capability

The barrier results suggest that financial capability cannot be encapsulated in financial literacy. Transgender respondents were more likely to lack identity documents, not have enough money, be unaware of banking and be unaware of the way they were treated by banking staff. The results are consistent with the identification of barriers to financial inclusion of transgender persons, such as documentation, discrimination and lack of supportive financial policies, as done by Barik and Sharma (2021). These also align with the wider literature indicating that financial distress is associated with less optimism and poor financial-management situations among trans and gender diverse people (White et al., 2022).

A potential avenue to reducing the ability to save or buffer investment losses, which was not directly tested in the present dataset, is employment and income insecurity. Likewise, the terms “awareness” and “stated preferences” are measured there, not actual account use or portfolio shares. It is for this reason that awareness parity in gold or fixed deposits shouldn't be construed as parity in participation. Findings indicate relationships and differences among cross-sections of respondents, and are not proof that lower awareness/exclusion is driven by gender identity itself. The evidence does indicate that effective inclusion requires documentary recognition, respectful service, stable economic resources, trusted advice and practical know-how of how to use what you know to make money.

VI. Policy and Managerial Implications

6.1 Implications for Banks and Financial Institutions

The results call for banks and financial institutions to tackle financial exclusion not only as an informational issue, but also as an institutional issue. Requirements for the training of frontline personnel in a

gender-sensitive manner are highlighted by the higher rate of documentation problems and poor treatment score reported by transgender respondents. This training should include, but is not limited to, topics of respectful communication, appropriate use and/or replacement of names and gender identifiers, confidentiality and providing service that does not discriminate. A financial-inclusion desk or trained nodal officers can be created in banks to help transgender customers in opening accounts, providing identity documents, activation for financial services, help in resolving grievances, and choosing products.

Documentation procedures need to be explained thoroughly and applied consistently, including staff offering practical support for applications to update/reconcile identity documentation, if required. Digital systems for onboarding should be responsive to different gender identities, and offer alternative options for people who route banking operations through their mobile devices or online but are not confident in how they work. Product information should be accessible and should differentiate between low-risk and investment products with market-oriented products. In general, combining financial education and access to the appropriate products and services is more useful than offering education alone (Birkenmaier et al., 2022). Therefore, banks must ensure that the awareness programmes are linked directly to account opening, showcasing digital services and Investment Advisory based on the investment risks.

6.2 Implications for Regulators and Government

Targeted campaigns and policies on financial inclusion need to be conducted by the regulators and government agencies with sensitivity to transgender persons as a policy constituency and as an internally diverse constituency. Financial-literacy and digital-finance initiatives shall be linked up to the existing transgender welfare, ID document, livelihood, housing and social-protection programmes. Working closely with trusted NGO and community partners would help to enhance reach because transgender persons often have a low level of trust in formal institutions.

Regulatory authorities should coordinate and monitor such discriminatory practices as in opening an account, provision of services, online verification, access to credit facilities and in handling complaints. Formal inclusion audits and disaggregated service data could determine whether formal inclusion is resulting in active service accounts. While digital financial inclusion has the potential to catalyse empowerment, the benefits are dependent on meaningful access, responsiveness of institutions, and working against intersecting disadvantages (Sinha & Nayak, 2026). Therefore, regulators are encouraged to facilitate assisted digital onboarding, easily accessible grievance processes, multi-language content, and focused education about the investment products and digital security.

6.3 Implications for Financial Educators and NGOs

Modular financial education courses or modules, tailored to the identified gaps in the study, should be created and developed by financial educators and NGOs instead of providing generic courses for financial awareness. Explain to the students about income, budgeting, inflation, risk, return, diversification and emergency savings through the foundational modules. The advanced modules should include practical examples of various long-term savings products like advanced mutual funds, bonds, equity, public provident fund, digital gold, government gold bonds, etc. and make comparisons between these products.

The teaching of digital finance should cover mobile banking, using a card, electronic payment, password security, phishing, impersonation fraud, unauthorised applications as well as complaints procedures. The results of experimental studies provide evidence that financial education has positive and economically significant effects on financial knowledge and downstream befall, but it needs to be designed and relevant (Kaiser et al., 2022). Programmes should, therefore, be based on demonstration, simulation, assisted transactions and follow-up support as the means of transferring knowledge, rather than single lectures. Community leaders and peer educators can assist to bridge the gap between formal financial concepts presented in the formal sector and understood within the community and partnerships with regulated institutions can offer credible information without becoming product-sales pitches.

6.4 Implications for Emerging-Market Finance

If everyone can finance themselves, formal saving may become more common, helping people to be more resilient to income shocks and broaden their participation in securities markets. Financial literacy has an impact on market participation that is, in part, due to those who are more financially literate having greater resilience and confidence; however, income and education contribute to whether knowledge translates into action (Abreu et al., 2025). Reducing the gender-based institutional barriers can thus contribute to mobilising savings, developing financial markets and more equitable financial development in emerging economies.

VII. Limitations and Future Research

The results need to be analysed considering various limitations. Conducted in Kolkata, the findings might not extend to financial awareness and inclusion in smaller cities, rural areas or other institutional and cultural environments. Second, the cross-sectional design captures awareness and preferences at a point in time, and can't draw causal inferences or changes as a result of financial education, digitalisation or policy change.

Third, there were unequal numbers of respondents in the gender groups – 200 men, 200 women and 100 transgender. The transgender sample was selected using one NGO, which was randomly selected – this sample may yield a disproportionate selection of transgender people who are involved with community organisations, as it also provided access to a socially underrepresented group. It may be different for transgender people who are not linked to an NGO. Fourth, this analysis is based on personal recollections of awareness and expressed preferences; the results can be distorted by recall error, potential response tendencies, and social-desirability/impression management. The study did not corroborate actual account usage, stock ownership, transaction histories or savings balances, nor did it measure the makeup of investment portfolios or investment returns.

Larger, more diverse transgender samples, and multi-city and rural–urban comparisons should be done as part of future research. A study of product usage and confidence over time could be done to assess if these variables have altered after policy interventions and/or financial education. Avoid lumping transgender people into one category by making comparisons between transgender women, transgender men, non-binary individuals, and some other groups of gender-diverse people. Mixed-method designs may include surveys with interviews to explicate institutional experience that accounts for statistical differences. Future models should include an extra regression, mediation and moderation analysis of four factors: income, education, employment, discrimination and financial socialisation. The assessment of achieved product-ownership and through experimental or quasi-experimental designs of the effect of targeted literacy programmes on financial participation would also give better insights as to how effective such literacy programmes are.

VIII. Conclusion

This study made a comparison between financial awareness, investment-related knowledge, risk preference, digital financial familiarity and barriers to formal inclusion (BFI) of men, women and transgender in Kolkata. The results show that the standard gender comparison isn't sufficient to conceptualise gender gaps in household finance. On a number of measures, both men and women showed similar awareness of each other, while the only significant differences (practical in nature) were seen for transgender respondents.

A key contribution of the study is that it helps to differentiate between levels of financial awareness – basic and advanced. Relatively fewer gender differences were found for accessible products like physical gold, fixed deposits, post office services, insurance, and zero balance accounts products. This seems to have created a common basic awareness due to their widespread use, commonplace nature and visibility in public spaces. However, this parity was not maintained with equity, bonds, mutual funds, Public Provident Fund, and even in factors like digital gold, sovereign gold bond, digital banking facilities, or detailed organisation assessment. However, for an understanding of these products, there is a need for more exposure to formal financial institutions, specialised information and digital systems, as well as more knowledge of risk–return analysis.

Moreover, the study demonstrates that awareness levels are not a true measure of financial inclusion. Transgender respondents were more likely to report the lack of documentation of identity, lack of awareness about banking, limited financial resources, and poor treatment from the banking personnel. The results in this paper point to exclusion being a product of individual knowledge, economic binds, administrative rules and institutional practices. Since it is a cross-sectional study, findings show relationships (not cause-and-effect) and differences between groups.

The findings highlight a need to shift focus from nominal access to meaningful and equitable access to finance for emerging markets. However, financial institutions and policymakers need to create a balance between targeted literacy, facilitated digital access, pro-poor documentation support and relationship, respectful service, and transition to appropriate saving and investment products. So apparent gender equality in awareness of familiar products could coexist with significant gaps in knowledge and access to formal systems. It is important to bridge this gap for financial inclusion for financial security, market participation and a long term economic empowerment.

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