Financial Literacy as A Catalyst for Digital Banking Adoption: Evidence From Rural And Urban Women

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Abstract: *This study evaluates how smart women are with their money as well as their knowledge, skills and experience with online banking. The paper analyses a study undertaken to understand the financial behaviour of the prospect. The study adopted the quantitative design method. For the current study, the primary data were collected from 300 respondents (150 rural and 150 urban women) using structured questionnaires. According to the findings, urban women had much higher financial literacy and digital financial transactions usage than women from rural areas. These are mainly due to better education, greater access to financial data, and better availability of smartphones and internet in cities. On the other hand, rural women face chronic longstanding issues like inaccessibility to adequate infrastructure, low-level of digital literacy, cultural restrictions and a lack of faith in the system. Further, three hypotheses were tested in the study using the statistical techniques. The tests' results showed that there are some large gaps and distance in the uptake of digital banking in rural as well as urban places. The resulting message is clear - overcoming gender and regional disparities in financial literacy and digital adoption will require purposeful policy, targeted training, better infrastructure, and gender-sensitive financial products.*

Keywords: Financial literacy; Digital banking; Women empowerment

1.INTRODUCTION

Financial knowledge is the understanding of finance that enables a person to make informed and effective decisions. The term digital banking is very common; it helps people learn to manage money wisely. You can also access a lot of banking services in a matter of seconds. In the Indian context, a recent study conducted by SEBI mentioned that around 27% of Indians mentioned that they were financially literate (Bhavitesh Kurra 2024). Women residing in urban areas have been observed to be more aware of banking than women residing in rural areas, according to an analysis on the financial literacy and usage of banking services in urban and rural areas. According to a NPCI (2024) study, a top NPCI stakeholder mentioned that it is surprising that although there is active financial inclusion, only 25% of digital payments users are women and in semi-urban and rural regions the participation is very low from as expected. Women play a crucial role in managing financial resources at home, so it is important for them to be financially literate and aware of online banking. Rural women do not have reliable access to the Internet. Moreover, they do not use smartphones with much reliability. They also lack trust in the Internet. Urban women face gender-related financial barriers, even after receiving increased access.

1.2 OBJECTIVES:

- The purpose of the present study is to measure the level of economic literacy of women in rural and urban regions.
- To assess patterns of digital banking adoption among them.
- To find out barriers and enabling factors in this context.

Hypothesis:

H1: Women in a rural area and women in urban regions have a difference in economic literacy.

H2: The patterns of digital banking adoption significantly differ between rural and urban women.

H3: Perceived barriers (e.g., lack of digital skills, security concerns, poor internet access) significantly hinder digital banking adoption among women.

2. LITERATURE REVIEW

Various studies have already explored how financial literacy and the adoption of digital banking have helped in transforming the lives of women in rural and metropolitan areas alike. Through financial literacy women are able to manage personal and household finances by taking economic decisions and planning savings for the future strategically.According to Adelaja et al. (2024), an understa-nding of some core financial concepts, including budgeting, saving, and interest, makes women more interested in participating in formal financial systems.

On the other hand, digital banking is something that gives women autonomy over their financial resources (Rohatgi and Gera 2025). Women can easily receive their wages, government benefits, or remittances directly into their bank accounts with the help of digital banking. It enhances both privacy and control.

It has been mentioned by Tinghög et al. (2021) that in the overall world, in financial literacy assessments, the participation of women is very low compared to men, and it is consistent. It is seen in a 2020 study by the OECD that, in financial literacy tests, on average, men outperform women by 4 points out of 100 (N26 2024). The same study also mentions that in some of the countries it exceeds 10 points, indicating that the gap in gender is more in such countries in terms of economic knowledge. This proves that financial literacy has not reached to maximum number of women in both urban and rural setup. Some possible reasons behind the constraint on women's financial knowledge are lower education levels, unequal income, and lack of exposure to financial products.

According to Showkat et al (2024), online economic services offer an excellent chance for women to address various financial gaps associated with income, expenditure patterns, and savings and investments. In Sub-Saharan Africa and South Asia, flexible money gives number of opportunities for effective management of financial services. However, the gender gap in the usage of mobile money is still common (Reynolds et al. 2023). Mobile money accounts also reach a broad spectrum in countries like Kenya and Bangladesh, but these countries also have a persisting gender gap, as men are still the most frequent users of digital banking on a regular basis compared to women (Suri et al. 2023). In such countries, not only alone a lack of digital devices, but also cultural norms, and financial dependence are equally restricting women in adopting digital banking.

As mentioned by Kulkarni and Ghosh (2021), in rural areas around the world, experiencing greater challenges in the subject of accessing formal banking services and participating in digital financial transactions is a common problem. The study also discussed that in some particular regions, like Latin America, rural women are not provided with adequate availability of financial institutions as well as digital infrastructure compared to their urban counterparts. In a similar way, in India, urban women are the most frequent users of digital payment systems, compared to rural women, as they are often excluded because of a mix of technological, cultural, and infrastructural barriers. On the other hand, even in advanced economies such as the UK and the US, sometimes the absence of personalized support and past negative experiences with financial services hinder the adoption of digital banking by women.

3. RESEARCH METHODOLOGY

3.1. Research Design

A descriptive research design was used as a means of presenting a detailed description of women's financial behaviour, knowledge, and utilisation of digital banking services (Nepal 2025). This approach also presented an effective framework to compare rural and urban women in terms of measurable attributes such as level of education, income level, smartphone ownership, and usage of digital banking services.

3.2. Data Collection Method

The primary data was extracted from a questionnaire survey that included closed-ended questions as well as multiple-choice questions. The survey was used physically in rural villages (with local NGOs and self-help groups) and electronically in urban settings (by email and social media portals). The data was split into surveys that included 300 women respondents, 150 from rural locations and 150 from urban locations, in order to create a representative sample from each location to allow for comparisons.

3.3. Sampling Technique

Classified random data collection was used in order to secure inclusion in the sample from different age categories, levels of education, and income (Ahmed 2024) Stratifying helped to avoid the sampling biases, and comparisons for sub-groups between rural and urban dwellers could be performed more validly.

3.4. Data Analysis Tools

The raw data collected was all entered into and organised using Microsoft Excel, and the main methods of statistical analysis were Descriptive statistics, Bar and pie charts, Independent Sample T-Test, and Regression Analysis.

The analysis findings were used to make generalisations about levels of economic literacy and the extent, to which online banking has been adopted, as well as the regional differences and any underlying drivers of this variability.

4. FINDINGS AND DISCUSSION

This section discusses the data collected from rural and urban women. To collect data a formal questionnaire was used and 300 responses were analysed in total. The results were tabulated using Microsoft Excel. The next sections summarize the key findings of the responses.

4.1 Demographic Findings

Table 1: Demographic Profile of The Respondents

Demographic Characteristics	Category	Frequency	Percent
Age (in years)	18-25 years	78	26.0%
	26-35 years	111	37.0%
	36-45 years	84	28.0%
	46-60 years	27	9.0%
Location	Rural	150	50.0%
	Urban	150	50.0%
Smartphone Ownership	Yes	174	58.0%
	No	126	42.0%
Understanding of Financial Terms	Yes	126	42.0%
	No	150	50.0%
	Somewhat	24	8.0%
Financial Education Exposure	Yes	186	62.0%
	No	114	38.0%
Mobile-Linked Bank Accounts	Yes	150	50.0%
	No	150	50.0%
Types of Services Used	UPI (Google pay, PhonePe. etc.)	42	14.0%
	Mobile Banking System	60	20.0%
	Internet Banking	168	56.0%
	ATM Services Only	120	40.0%
	None	6	2.0%
Frequency of Use	Daily	60	20.0%
	Monthly	174	58.0%
	Rarely	54	18.0%
	Never	12	4.0%
Primary Use Cases	Transferring Money	114	38.0%
	Paying Bills or Recharges	108	36.0%
	Checking Account Balances	42	14.0%
	Online Shopping	30	10.0%
	Receiving Wages or Government Benefits	6	2.0%
Interest in Learning	Yes	144	48.0%
	No	126	42.0%
	Maybe	30	10.0%
Support Mechanisms Suggested	Training Programs in Local Language	66	22.0%
	Better Internet Access	156	52.0%
	User-Friendly Mobile Apps	138	46.0%
	Awareness Campaigns	72	24.0%
	Financial Helps Desks in Rural Ares	30	10.0%

The respondents of the study on economic literacy and online banking adoption among women in rural and urban area have a demographic profile. There was a well-balanced sample of 300 respondents, half from the rural region and half from the urban region. Most people fall within the age group of 26 to 35 (37%) while the second highest group are those aged 36 and 45 (28%). This shows a young population which could be fairly adaptable to technology. While 58% of respondents own smartphones, just 50% have mobile-linked bank accounts, indicating a disconnect between device ownership and digital banking activity. Financial understanding is moderate, with only 42% reporting to grasp financial terms, despite 62% having some financial education experience. Internet banking (56%) and ATM services (40%) are the most popular digital financial services, however a significant 2% do not utilize any digital banking services. The most common usage frequency is monthly (58%), with the principal applications being money transfers (38%), and bill payments (36%). Although nearly half (48%) expressed an interest in learning more about digital banking, a sizable proportion remain skeptical. The proposed key support mechanisms include better internet connectivity (52%), simple-to-use mobile applications (46%) and local language training (22%) to enhance digital financial integration of women (rural and urban) through customised interventions.

4.2 Hypothesis Testing

H1: There is a significant difference in the level of financial literacy between women in rural and urban areas.

Table 2: Independent Sample T-Test Analysis

Independent Samples Test				
			financial literacy	
			Equal variances assumed	Equal variances not assumed
Levene's Test for Equality of Variances	F		.177	
	Sig.		.674	
t-test for Equality of Means	t		2.127	2.127
	df		298	206.602
	Sig. (2-tailed)		.034	.034
	Mean Difference		1.71333	1.71333
	Std. Error Difference		.80536	.80536
	95% Confidence Interval of the Difference	Lower	3.29825	3.29828
		Upper	.12841	.12838

Results in Table 2 of Independent Sample T-Test exhibit statistical significantly difference between the financial literacy level of rural women and urban women. Therefore, Hypothesis H1 is supported. The .674 value from Levene's Test for Equality of Variances indicates that the equal variances' assumption has been satisfied. T-test for Equality of Means gives t-value is 2.127 and significance (2-tailed) value is 0.034. Also, since this value is lower than the significant alpha 0.05, we can say that the difference is significant. The average score on economic literacy varies by 1.713 which indicates that one group is more economically literate than the other. The confidence zone of mean difference was found between 0.128 to 3.298 which implies a significant difference between groups.

H2:The patterns of digital banking adoption significantly differ between rural and urban women.

Table 3: Independent Sample T-Test Analysis

Independent Samples Test				
			digital banking adoption	
			Equal variances assumed	Equal variances not assumed
Levene's Test for Equality of Variances	F		.417	
	Sig.		.519	
t-test for Equality of Means	t		-2.479	-2.479
	df		298	297.888
	Sig. (2-tailed)		.014	.014
	Mean Difference		-2.45333	-2.45333
	Std. Error Difference		.98955	.98955
	95% Confidence Interval of the Difference	Lower	-4.40073	-4.40074
		Upper	-.50593	-.50593

The Independent case t test which is analyzed in chart 3 tests the aforementioned hypothesis Women of rural and urban areas are using digital banking differently or using the same. Levene's Test shows a significance value of 0.519 for Equality of differences, which means the assumption of equal variances is not violated. The results of the t-test have a t-value of -2.479 and a significance (2-tailed) of 0.014 which means that there is a significant difference in digital banking usage of both groups. With a negative score of -2.45333, the urban women use more digital banking than the rural women. The confidence interval ("4.40073, "0.50593) confirms that the difference in usage of digital banking between rural women and urban women is significant thus Hypothesis 2 is proved.

H3:Perceived barriers (e.g., lack of digital skills, security concerns, poor internet access) significantly hinder digital banking adoption among women.

Table 4: Regression Analysis

Hypothesis	Regression	Beta Coefficient	R2	F	t-value	p-value	Hypotheses Supported
H4	Perceived barriers-> Digital Banking Adoption among Women	.487	.237	92.457	9.615	.000	Supported

The outcome of the evaluation study testing whether perceived barriers (digital illiteracy, safety issues, and internet issues) affect digital banking adoption of women of rural and urban origin is presented in table 4. The investigation provides evidence for hypothesis H3, as perceived barriers were statistically positively related to the adoption of online banking (beta was 0.487). The model can explain about 23.7% variance (R2=0.237) in digital banking adoption. The F-test score is 92.457, which is highly significant with a p-value of 0.000. A t-value of 9.615 suggested strength of the relationship, perceived barriers prevents women from using online banking.

4.2 DISCUSSUION

The results of the study pointed to the progress and continuing obstacles of digital banking uptake, and financial literacy for urban and rural Indian women. Although participation is increasing, some major barriers still inhibit full participation, especially in rural India. The findings resonate with the existing literature and are consistent with and add to the research already conducted.

The questionnaire determined that the largest number of respondents were within the economically active population between the ages of 26-45. This accords with the research of Adelaja et al. (2024), whose research concluded that financial literacy enables women to make sound financial choices, especially when they are actively engaged with household income and savings. Nevertheless,

the rural respondents to the survey still have a genuine obstacle, other than their own financial literacy, about digital infrastructure. This is consistent with Kulkarni and Ghosh's (2021) earlier reservations about structural constraints, which primarily target rural women.

The respondents enjoyed smartphone access at 58%, which is a very good percentage, though it leaves behind 42% of the population without the possibility of mobile-driven financial systems. This only reiterates Reynolds et al. (2023) and Suri et al. (2023), who observed that social attitudes and cultural hurdles along with digital space problems link these gender disparities in digital banking access. The survey also indicated that the women in this research possessed basic financial terminology, at 42%. This is also evidence from Tinghög et al. (2021) and N26 (2024) that women across the world lag behind men on financial literacy because of limited education, lower income and restricted forms of access to financial products.

Despite these problems, some moderate use of online banking facilities like internet banking (56) and ATM (40) cards which imply that women are using available tools for functional money management activities such as: transferring money (38) and paying bills (36). These beliefs appear to be in agreement with Rohatgi and Gera (2025), who suggested that online banking provides women with a measure of autonomy and control over money by providing direct, accessible (but private) contact to their money.

However, the low usage rates of mobile apps and UPI systems - newer digital technologies - suggest a difference, not just in accessibility, but on the grounds of trust and digital literacy. Both issues of trust and usability were voiced by the 22% of interviewees who cited the complexity of the app and 20% who cited fear of fraud as reasons for not using these technologies. This resonates with Anand's (2021) view that although India has been successful in connecting banking systems with digital IDs, there remain infrastructural and socio-cultural blocks that prevent rural women from fully engaging.

5. CONCLUSION

The distinctions relating to financial literacy and use of digital banking among rural and urban women are shown. Researchers found out that urban women are more financially literate. Urban women also use online banking services more than rural women according to the report. The differences in education, access to the internet, ownership of smartphones and access to financial education is what causes these gaps. However, the study has drawbacks. First, while the sample size is balanced between rural and urban respondents, it is limited to 300 participants from selected regions, which may not adequately portray the range of experiences across different states or cultural contexts in India. Second, the inclusion of self-reported data in structured questionnaires may induce response bias, especially in questions about financial literacy and internet use. Third, while the study reveals connections between numerous parameters and digital adoption, it does not fully analyze the causative mechanisms or the effect of household dynamics and societal norms, which can be key influencers in women's financial behavior.

This study has both practical and policy implications. Research shows there's a need for more accessible and tailor-made technology and finance solutions for women, especially in rural areas. Research shows the need for a variety of initiatives from the policy makers to invest in like digital infrastructure, training programs in vernaculars, etc. Experts in education can draw on this work to examine the longer-term impacts of financial education tools or the decision-making in the household around digital finance.

All things considered, filling the gap in financial literacy and adoption of digital banking by rural and urban women will require a holistic approach with respect to education, infrastructure, attitudes and trust. This can help sustainable economic development and empowers individual women in an equitable manner.

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