



IMPACT OF UPI USAGE AND FINANCIAL LITERACY ON FINANCIAL INCLUSION AMONG RURAL AREAS

Business Research Methods (BRM) – Research Paper

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ABSTRACT

This study examines the impact of UPI usage and financial literacy on financial inclusion in rural areas. The introduction of the Unified Payments Interface (UPI) has made digital transactions faster, easier, and more convenient. However, rural communities may face challenges such as limited digital knowledge, poor internet connectivity, lack of awareness, and security concerns. Financial literacy helps individuals understand banking services, manage money effectively, and use digital payment platforms safely. The study aims to analyze the relationship between UPI usage, financial literacy, and access to financial services in rural areas. Primary data will be collected through a structured questionnaire. The findings are expected to identify barriers to financial inclusion and suggest measures such as digital awareness programmes, financial education, and improved digital infrastructure to promote inclusive economic growth.

Keywords: UPI; digital payments; financial literacy; financial inclusion; rural India; regression analysis.

INTRODUCTION

Financial inclusion has emerged as a component of inclusive economic development, particularly in developing countries like India. It refers to the availability, accessibility, and effective use of financial services such as bank accounts

The rapid growth of digital financial services has created opportunities for improving financial inclusion in India. Among digital payment systems, the Unified Payments Interface (UPI) has become an important mechanism for making digital transactions simple and accessible.

The relationship between digital financial services and financial inclusion has been highlighted in previous studies. Dua et al. (2025), in their study on financial inclusion in India, examined access, usage, and quality

Financial literacy is another important factor associated with financial inclusion. Financial literacy enables individuals to understand financial concepts, make informed financial decisions, manage money, and use financial products appropriately.

The importance of literacy and access has also been highlighted in studies conducted outside India. Aziz et al. (2021) examined digital inclusion in Bangladesh using factors such as literacy and access.

Several studies have also identified trust, security, and awareness as important factors affecting digital financial behaviour. Revankar (2023) studied challenges associated with digital banking and highlighted trust-related issues among users.

Previous research has also examined UPI adoption and digital payment behaviour. Studies included in the literature review indicate that convenience, ease of use, trust, awareness, and

The literature review reveals a research gap concerning the combined relationship between UPI usage, financial literacy, and financial inclusion in rural areas. Existing studies have separately examined financial inclusion, UPI adoption, financial literacy, digital banking, fraud awareness, and digital payment behaviour.

Research Gap

From the above literature, it can be observed that previous studies have examined UPI adoption, digital payments, financial literacy, digital banking

Therefore, the present study attempts to address this gap by examining the impact of UPI usage and financial literacy on financial inclusion specifically among rural

PROBLEM STATEMENT

- UPI has improved access to digital
- Limited financial literacy, digital skills, awareness, and security concerns may affect UPI usage.
- There is a need to understand

Therefore, this study examines the impact

CONCEPTUAL FRAMEWORK

The conceptual framework (Figure 1) treats UPI Usage and Financial Literacy as independent variables and Financial Inclusion as the dependent variable.

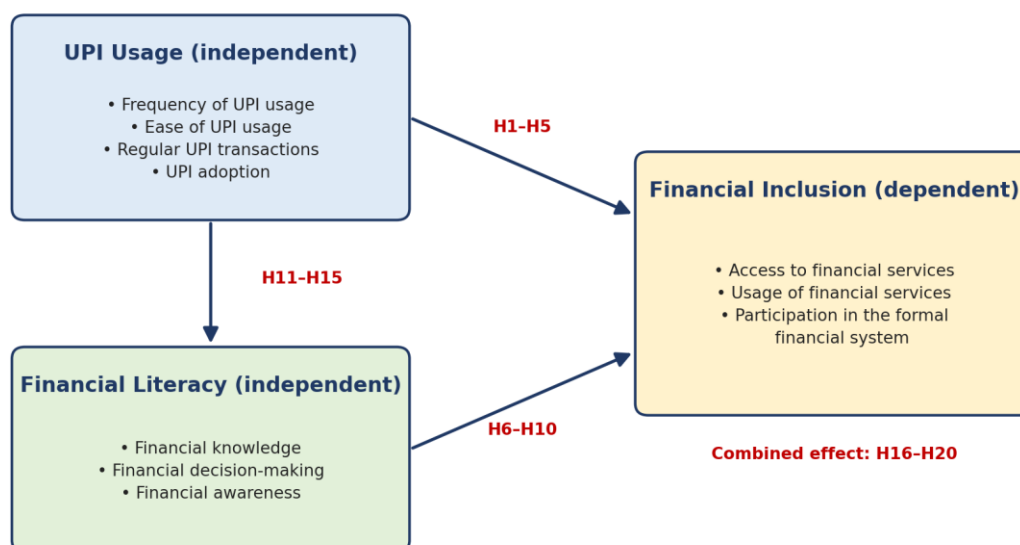


Figure 1: Conceptual framework of the study

OBJECTIVES

1. To study the usage of UPI among rural areas.
2. To examine the level of financial literacy among rural areas.
3. To analyze the impact of UPI usage on financial inclusion among rural areas .
4. To examine the impact of financial literacy on financial inclusion among rural areas.

HYPOTHESIS

1. UPI Usage → Financial Inclusion

H₀₁: UPI usage has no significant impact on financial inclusion in rural areas.

H₁₁: UPI usage has a significant positive impact on financial inclusion in rural areas.

H₀₂: Frequency of UPI usage has

H₁₂: Frequency of UPI usage has

H₀₃: Ease of UPI usage has

H₁₃: Ease of UPI usage has

H₀₄: Regular UPI transactions have no significant relationship with financial inclusion in rural areas.

H₁₄: Regular UPI transactions have a significant positive relationship with financial inclusion in rural areas.

H₀₅: UPI adoption has no significant relationship with financial inclusion in rural areas.

H₁₅: UPI adoption has a significant positive relationship with financial inclusion in rural

2. Financial Literacy → Financial Inclusion

H₀₆: Financial literacy has no significant impact on financial inclusion in rural areas.

H₁₆: Financial literacy has a

H₀₇: Financial knowledge has no

H₁₇: Financial knowledge has a

H₀₈: Financial literacy has no

H₁₈: Financial literacy has a significant

H₀₉: Financial decision-making has no significant relationship with financial inclusion in rural areas.

H₁₉: Financial decision-making has a

H₀₁₀: Financial literacy has no significant relationship with financial inclusion in rural areas.

H₁₁₀: Financial literacy has a

3. UPI Usage → Financial Literacy

H₀₁₁: UPI usage has no significant relationship with financial literacy in rural areas.

H₁₁₁: UPI usage has a

H₀₁₂: Frequency of UPI usage

H₁₁₂: Frequency of UPI usage

H₀₁₃: Ease of UPI usage

H₁₁₃: Ease of UPI usage

H₀₁₄: UPI usage has no significant effect on financial decision-making in rural areas.

H₁₁₄: UPI usage has a

H₀₁₅: UPI adoption has no significant relationship with financial awareness in rural areas.

H₁₁₅: UPI adoption has a

4. UPI Usage + Financial Literacy → Financial Inclusion

H₀₁₆: UPI usage and financial literacy

H₁₁₆: UPI usage and financial literacy

H₀₁₇: UPI usage and financial literacy

H₁₁₇: UPI usage and financial literacy

H₀₁₈: UPI usage and financial literacy

H₁₁₈: UPI usage and financial literacy have

H₀₁₉: UPI usage and financial

H₁₁₉: UPI usage and financial literacy

H₀₂₀: UPI usage and financial

H₁₂₀: UPI usage and financial literacy

REVIEW OF LITERATURE

1. Dua et al. (2025) – Financial Inclusion in India

Dua et al. (2025) examined the progress of financial inclusion in India with a focus on Digital Public Infrastructure

2. Verma et al. (2025) – FinTech Adoption among Gen Z

Verma et al. (2025) studied the factors influencing FinTech adoption among Generation Z.

3. Himani et al. (2025) – FinTech and Investment among Gen Z

Himani et al. (2025) investigated the relationship between FinTech usage and investment behaviour among Generation Z.

4. Aziz et al. (2021) – Digital Inclusion in Bangladesh

Aziz et al. (2021) examined digital inclusion by considering access and financial literacy.

5. Revankar (2023) – Digital Banking Challenges

Revankar (2023) examined challenges associated with digital banking and identified demographic factors and trust as important

6. Azka et al. (2025) – Financial Literacy among Gen Z

Azka et al. (2025) examined the impact of financial literacy on financial behaviour and FinTech usage among Generation

7. UPI Adoption among Gen Z (2024)

The 2024 study on UPI adoption among Generation Z examined factors such as trust and ease of

8. Partikasari (2025) – BNPL among Gen Z

Partikasari (2025) examined the factors influencing Buy Now, Pay Later (BNPL) usage among Generation Z.

9. Mayur Salvi (2023) – FinTech Continuance among Gen Z

Mayur Salvi (2023) studied the continued use of FinTech services among Generation Z.

10. Haripara et al. (2024) – Fraud in Digital Payments

Haripara et al. (2024) examined awareness of fraud and security issues associated with digital payments.

11. Zahir et al. (2024) – Online versus Offline Payments

Zahir et al. (2024) compared online and offline payment behaviour by considering factors such as age and

12. Rohan et al. (2026) – UPI User Experience

Rohan et al. (2026) examined user-experience barriers associated with UPI, including age and perceived risk.

13. Sanjana et al. (2025) – Digital Financial Services Behaviour

Sanjana et al. (2025) analysed digital financial service usage across different generations.

14. Fathma et al. (2026) – Digital Divide among the Elderly

Fathma et al. (2026) examined the digital divide experienced by elderly users and considered differences in

15. Amar Johri (2024) – Micro Enterprises and Financial Inclusion

Amar Johri (2024) studied the role of financial access in supporting micro-enterprises.

16. Mayur Salvi (2023) – FinTech Continuance in Pune

Mayur Salvi (2023) examined continued FinTech usage among users in Pune, with particular emphasis on trust.

17. UPI and Financial Inclusion in Towns (2025)

The 2025 study examined the role of UPI in improving financial access in towns, with awareness as an

18. UPI Challenges (2025)

The 2025 study examined challenges associated with UPI usage, particularly security and network-related issues.

19. Mobile Payment Behaviour among Gen Z (2025)

The 2025 study investigated mobile payment behaviour among Generation Z, focusing particularly on ease of use and

20. Digital Banking and Financial Inclusion (2023)

The 2023 study examined digital banking and identified financial literacy as an important factor affecting financial service usage.

21. FinTech Literacy and Financial Behaviour (2025)

The 2025 study examined the relationship between FinTech literacy and financial behaviour.

22. Gen Z Digital Financial Awareness (2022)

The 2022 study examined digital financial awareness among Generation Z and found that their level of awareness was

23. Gen Z Payment Behaviour (2023)

The 2023 study examined payment behaviour among Generation Z and found relatively high usage of digital payment

24. Digital Payments and Financial Inclusion (2024)

The 2024 study examined the impact of digital payment adoption and reported high levels of adoption among users.

Overall Research Gap

The reviewed literature shows that previous studies have separately examined UPI adoption, FinTech usage, financial literacy, digital payments, and financial inclusion.

METHODOLOGY

1. Research Design

The study used a descriptive and analytical research design. The descriptive component profiles UPI usage, financial literacy

2. Research Approach

A quantitative approach was adopted.

3. Population and Sampling

The population consists of people living in rural areas who use, or are aware of

4. Sample Size

The questionnaire returned 224 response records. One record was completely blank and was removed, leaving 223 valid responses, which is

5. Sources of Data

Primary data: collected through the structured questionnaire from respondents in rural and semi-rural areas.

6. Research Variables and Measurement

The independent variables are UPI Usage and Financial Literacy; the dependent variable is Financial Inclusion.

Table 1: Operationalisation of variables

Variable	Items (workbook numbering)	Content measured	Items
UPI Usage	Q6, Q7, Q8	Ease of making transactions; reduced cash dependence; ease of sending and receiving money	3
Financial Literacy	Q2, Q3, Q4, Q11–Q15	Knowledge and safe use of UPI; awareness; confidence; understanding of saving, interest and budgeting; money management; risk awareness; use of formal services	8
Financial Inclusion	Q1, Q5, Q9, Q10	Access to and use of financial services; access to banking; participation in the formal financial system	4
Policy support (descriptive)	Q16–Q20	Support for literacy programmes, safe-UPI awareness, fraud education, bank training, combined UPI–literacy programmes	5

Note: Q1–Q20 follow the order of the Likert questions in the survey (survey questions

7. Data Collection Instrument

A structured questionnaire was used. Section A collected demographic details (age, gender

8. Data Analysis Techniques

Responses were coded numerically and analysed in Microsoft Excel (workbook BRM_Analysis.xlsx, with live formulas). The following techniques were used: percentage analysis; descriptive statistics (mean and standard deviation); Cronbach's alpha for

9. Hypothesis Testing

Hypotheses H1–H19 were tested using correlation, simple regression and multiple regression. Where the questionnaire had no item measuring a hypothesised concept

10. Scope of the Study

The study focuses on the relationship between UPI usage, financial literacy and financial inclusion among people

DATA ANALYSIS AND INTERPRETATION

4.1 Profile of respondents

Table 2: Demographic profile of respondents (n = 223)

Characteristic	Category	Frequency	Percent
Age	18–20 years	219	98.2%
Age	21–23 years	2	0.9%
Age	31–40 years	2	0.9%

Characteristic	Category	Frequency	Percent
Gender	Female	211	94.6%
Gender	Male	12	5.4%
Education	Undergraduate	218	97.8%
Education	School level	3	1.3%
Education	No formal education	2	0.9%
Occupation	Student	218	97.8%
Occupation	Home maker	3	1.3%
Occupation	Employee	1	0.4%
Occupation	other	1	0.4%
Monthly Income	Below ₹10,000	213	95.9%
Monthly Income	₹10,000–₹20,000	4	1.8%
Monthly Income	₹20,001–₹30,000	2	0.9%
Monthly Income	₹30,001–₹50,000	2	0.9%
Monthly Income	Above ₹50,000	1	0.5%
Location	Semi rural area	204	91.5%
Location	Rural village	19	8.5%
UPI App mainly used	Phone pe	213	95.5%
UPI App mainly used	Google pay	4	1.8%
UPI App mainly used	Paytm	3	1.3%
UPI App mainly used	BHIM	2	0.9%
UPI App mainly used	Does not use UPI	1	0.4%

Income percentages are based on 222 respondents who reported income.

The sample is highly concentrated in one demographic group. Almost all respondents were aged 18–20 years (98.2%), female (94.6%), undergraduate students (97.8%) and in the lowest income band, below ₹10,000 per

4.2 Level of UPI usage and financial literacy (Objectives 1 and 2)

Table 3: Descriptive statistics and reliability of constructs

Construct	Items	No.	Mean	SD	Min	Max	Cronbach's α
UPI Usage	Q6, Q7, Q8	3	4.02	0.30	2.00	5.00	0.880
Financial Literacy	Q2, Q3, Q4, Q11–Q15	8	4.01	0.26	2.62	5.00	0.917
Financial Inclusion	Q1, Q5, Q9, Q10	4	4.01	0.32	2.25	5.00	0.911
Policy Support (descriptive only)	Q16–Q20	5	4.04	0.28	2.80	5.00	0.902

All three constructs have means close to 4.0 on the five-point scale (UPI Usage 4.02, Financial Literacy 4.01, Financial Inclusion 4.01), meaning respondents on average agreed with the statements.

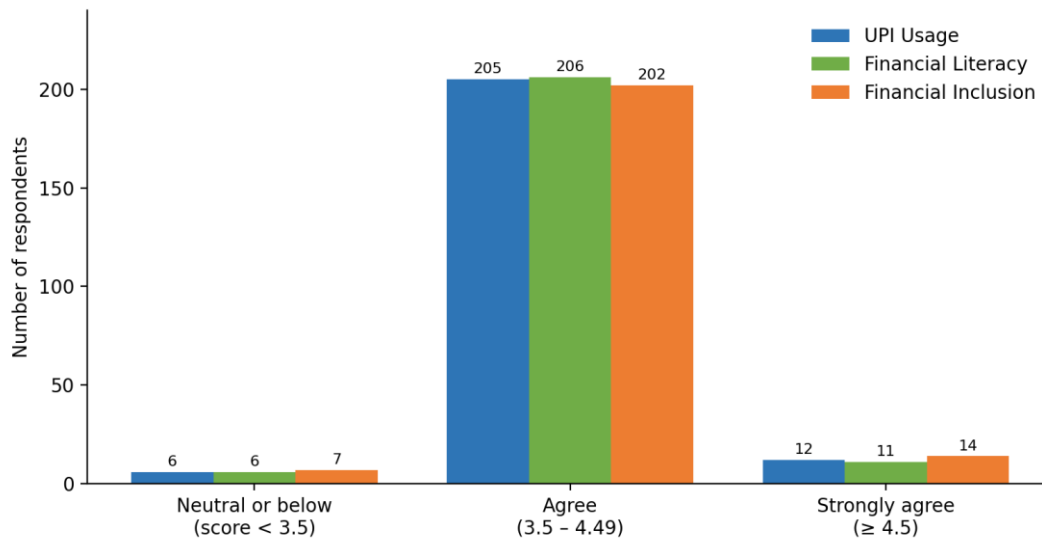


Figure 2: Respondents by level of UPI Usage, Financial Literacy and Financial Inclusion

Figure 2 shows that 205 respondents (91.9%) fall in the “Agree” band for UPI Usage, 206 (92.4%) for Financial Literacy and 202 (90.6%) for Financial Inclusion. Only 6–7 respondents per construct scored in the neutral-or-below band and 11–14 in the strongly-agree band, so variation between respondents is limited.

4.3 Chi-square tests

Chi-square tests of independence examined whether Financial Inclusion level is associated with

Table 4: Chi-square tests of independence with Financial Inclusion level ($\alpha = 0.05$)

Test	χ^2	df	p-value	Cramér's V	Cells with expected < 5	Decision
Gender × FI level	56.21	2	< 0.001	0.50	2 of 6	Reject H0
Location × FI level	115.53	2	< 0.001	0.72	2 of 6	Reject H0
Monthly income × FI level	50.03	4	< 0.001	0.34	6 of 9	Reject H0
UPI app group × FI level	36.41	2	< 0.001	0.40	2 of 6	Reject H0
UPI Usage level × FI level	258.15	4	< 0.001	0.76	4 of 9	Reject H0
Financial Literacy level × FI level	246.30	4	< 0.001	0.74	4 of 9	Reject H0

Source: Excel workbook, sheet “Chi-Square”.

Table 5: UPI Usage level × Financial Inclusion level (observed counts)

UPI Usage level	FI: Neutral or below	FI: Agree	FI: Strongly agree	Total
Neutral or below (<3.5)	5	1	0	6
Agree (3.5-4.49)	2	199	4	205

UPI Usage level	FI: Neutral or below	FI: Agree	FI: Strongly agree	Total
Strongly agree (4.5+)	0	2	10	12

Table 6: Financial Literacy level × Financial Inclusion level (observed counts)

Financial Literacy level	FI: Neutral or below	FI: Agree	FI: Strongly agree	Total
Neutral or below (<3.5)	5	0	1	6
Agree (3.5-4.49)	2	200	4	206
Strongly agree (4.5+)	0	2	9	11

UPI Usage and Financial Literacy levels. Both associations are statistically significant and strong ($\chi^2 = 258.15$ and 246.30 , $df = 4$, $p < 0.001$; Cramér's $V = 0.76$ and 0.74).

Respondent characteristics. Gender, location, income group and UPI app group were each significantly associated with Financial Inclusion level (V between 0.34 and 0.72). These results must be read with caution. In every one of these tests more than 20% of cells had an expected count below 5, which violates the chi-square approximation

4.4 One-way ANOVA

One-way ANOVA compared mean scores across respondent groups. Table 7 summarises the results.

Table 7: One-way ANOVA results (group means in brackets)

Dependent variable by factor	Groups (mean, n)	F (df)	p-value	η^2	Result
Financial Inclusion by Location	Rural village (3.83, n=19); Semi rural area (4.03, n=204)	6.59 (1, 221)	0.011	0.029	Significant
Financial Inclusion by Monthly income group	Below ₹10,000 (4.01, n=213); ₹10,000–₹20,000 (4.44, n=4); Above ₹20,000 (3.95, n=5)	3.93 (2, 219)	0.021	0.035	Significant
Financial Inclusion by UPI app group	PhonePe (4.02, n=213); Other apps / non-user (3.88, n=10)	1.90 (1, 221)	0.169	0.009	Not significant
Financial Inclusion by Gender	Female (4.02, n=211); Male (3.86, n=12)	2.81 (1, 221)	0.095	0.013	Not significant
UPI Usage score by Location	Rural village (4.04, n=19); Semi rural area (4.02, n=204)	0.05 (1, 221)	0.828	0.000	Not significant
Financial Literacy score by Location	Rural village (3.95, n=19); Semi rural area (4.01, n=204)	1.08 (1, 221)	0.300	0.005	Not significant

Source: Excel workbook, sheet "ANOVA".

Financial Inclusion differed significantly by location ($F(1, 221) = 6.59, p = 0.011, \eta^2 = 0.029$), with a lower mean in rural villages (3.83) than in semi-rural areas (4.03), and by income group ($F(2, 219) = 3.93, p = 0.021, \eta^2 =$

The equal-variance assumption of ANOVA is not met: the standard deviation of the smaller groups is between 2.9 and 6.5 times that of the larger groups.

4.5 Correlation and regression analysis (Objectives 3 and 4)

Table 8: Correlation matrix (Pearson r , $n = 223$)

	UPI Usage	Financial Literacy	Financial Inclusion
UPI Usage	1.000	0.848	0.866
Financial Literacy	0.848	1.000	0.854
Financial Inclusion	0.866	0.854	1.000

All correlations are significant at $p < 0.001$.

Table 9: Linear regression models

Model	Term	B	SE	t	p	β	Fit
Model 1: FI on UPI Usage	Intercept	0.266	0.146	1.83	0.069	–	$R^2 = 0.750$; $F = 661.83$
	UPI Usage	0.931	0.036	25.73	< 0.001	0.866	
Model 2: FI on Financial Literacy	Intercept	-0.139	0.170	-0.81	0.417	–	$R^2 = 0.730$; $F = 596.36$
	Financial Literacy	1.035	0.042	24.42	< 0.001	0.854	
Model 3: FI on UPI Usage + Financial Literacy	Intercept	-0.243	0.147	-1.65	0.100	–	$R^2 = 0.801$; $F = 442.92$
	UPI Usage	0.542	0.061	8.89	< 0.001	0.504	
	Financial Literacy	0.518	0.069	7.54	< 0.001	0.427	
Model 4: Financial Literacy on UPI Usage	Intercept	0.983	0.128	7.70	< 0.001	–	$R^2 = 0.718$; $F = 563.94$
	UPI Usage	0.752	0.032	23.75	< 0.001	0.848	

Source: Excel workbook, sheet “Regression” (LINEST).

Simple regressions (Objectives 3 and 4). UPI Usage alone explains 75.0% of the variance in Financial Inclusion ($B = 0.931, t = 25.73, p < 0.001$; $F(1, 221) = 661.8$), so a one-point increase in

Multiple regression. When both predictors are entered together (Model 3), the model is significant ($F(2, 220) = 442.92, p < 0.001$), with $R = 0.895, R^2 = 0.801$

$$\text{Financial Inclusion} = -0.243 +$$

The intercept is not significant ($p = 0.100$). UPI Usage has a somewhat larger standardised effect than Financial Literacy, but the two are similar in size.

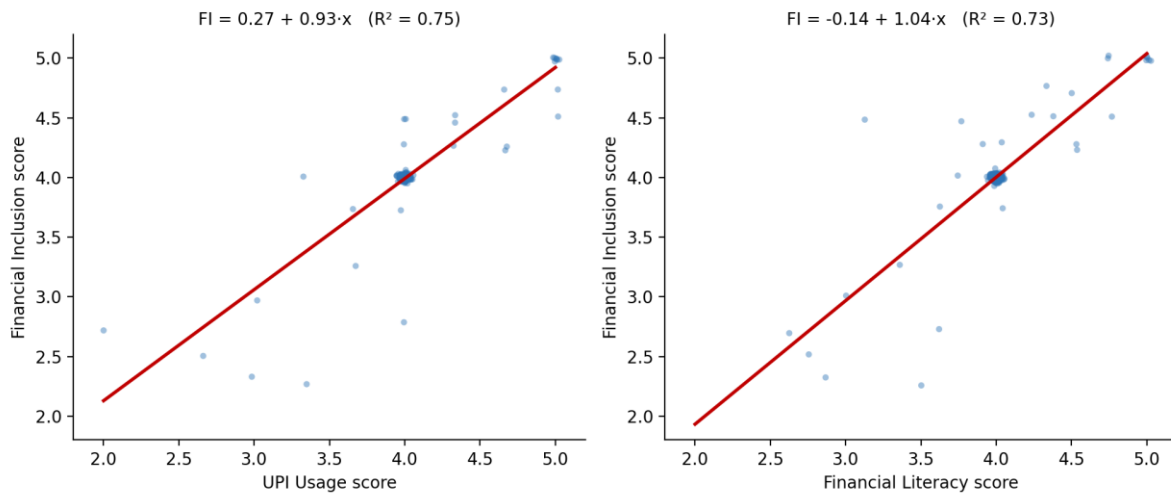


Figure 3: Financial Inclusion against UPI Usage and Financial Literacy (points slightly jittered for visibility)

4.6 Summary of hypothesis tests

Table 10: Results of hypothesis tests (H1–H20)

Hyp.	Relationship tested	Predictor → outcome (proxy item)	r / R	t / F	p	Decision
H1	UPI usage → financial inclusion (impact)	UPI Usage → Financial Inclusion	0.866	25.73 (t)	< 0.001	Reject H0
H2	Frequency of UPI use → access to financial services	Q7: UPI reduced cash dependence (frequency proxy) → Q9: UPI increased access to banking services	0.712	15.09 (t)	< 0.001	Reject H0
H3	Ease of UPI use → usage of financial services	Q6: UPI made transactions easier → Q10: UPI increased participation in formal system	0.681	13.80 (t)	< 0.001	Reject H0
H4	Regular UPI transactions ↔ financial inclusion	Q8: easier to send/receive money (regular use proxy) → Financial Inclusion	0.782	18.63 (t)	< 0.001	Reject H0
H5	UPI adoption ↔ financial inclusion	UPI Usage → Financial Inclusion	0.866	25.73 (t)	< 0.001	Reject H0

Hyp.	Relationship tested	Predictor → outcome (proxy item)	r / R	t / F	p	Decision
H6	Financial literacy → financial inclusion (impact)	Financial Literacy → Financial Inclusion	0.854	24.42 (t)	< 0.001	Reject H0
H7	Financial knowledge → access to financial services	Q11: understand basic financial concepts → Q9: UPI increased access to banking services	0.741	16.41 (t)	< 0.001	Reject H0
H8	Financial literacy → usage of financial services	Financial Literacy → Q10: participation in formal system	0.757	17.22 (t)	< 0.001	Reject H0
H9	Financial decision-making ↔ financial inclusion	Q12: knowledge helps manage money (decision-making proxy) → Financial Inclusion	0.609	11.42 (t)	< 0.001	Reject H0
H10	Financial literacy ↔ financial inclusion	Financial Literacy → Financial Inclusion	0.854	24.42 (t)	< 0.001	Reject H0
H11	UPI usage ↔ financial literacy	UPI Usage → Financial Literacy	0.848	23.75 (t)	< 0.001	Reject H0
H12	Frequency of UPI use → financial awareness	Q7: reduced cash dependence (frequency proxy) → Q3: UPI increased awareness of banking	0.498	8.53 (t)	< 0.001	Reject H0
H13	Ease of UPI use → financial knowledge	Q6: UPI made transactions easier → Q11: understand basic financial concepts	0.646	12.54 (t)	< 0.001	Reject H0
H14	UPI usage → financial decision-making	UPI Usage → Q12: knowledge helps manage money	0.774	18.19 (t)	< 0.001	Reject H0
H15	UPI adoption ↔ financial awareness	UPI Usage → Q3: UPI increased awareness of banking	0.637	12.27 (t)	< 0.001	Reject H0
H16	UPI usage + financial literacy → financial inclusion	UPI + FL (composites) → Financial Inclusion	0.895 (R)	442.92 (F)	< 0.001	Reject H0
H17	UPI usage + financial literacy → access to financial services	UPI + FL (composites) → Q9: UPI increased access to banking	0.857 (R)	303.49 (F)	< 0.001	Reject H0

Hyp.	Relationship tested	Predictor → outcome (proxy item)	r / R	t / F	p	Decision
H18	UPI usage + financial literacy → usage of financial services	UPI + FL (composites) → Q10: participation in formal system	0.805 (R)	202.00 (F)	< 0.001	Reject H0
H19	UPI usage + financial literacy ↔ financial inclusion (relationship)	UPI + FL (composites) → Financial Inclusion	0.895	442.92 (F)	< 0.001	Reject H0
H20	UPI usage + financial literacy → financial well-being	UPI + FL (composites) → Financial well-being	—	—	—	Not tested

Source: Excel workbook, sheet “Hypotheses”. Where no direct item existed, proxies were used (e.g., Q7 “UPI has reduced my dependence on cash” for frequency)

All nineteen testable null hypotheses (H0₁–H0₁₉) are rejected at the 5% level; each relationship is positive and significant at $p < 0.001$.

4.7 Policy support items

Respondents strongly supported the policy statements in Q16–Q20 (construct mean 4.04, $\alpha = 0.90$). Between 97% and 98% agreed or strongly agreed that financial-literacy programmes should be held in rural

4.8 Robustness check: uniform responding

Inspection of the data showed that 199 of the 223 respondents (89.2%) gave exactly the same answer to all twenty Likert statements (193 of them chose “Agree” throughout), and the dataset

Table 11: Multiple regression – full sample versus respondents with varied answers

Statistic	Full sample (n = 223)	Varied answers only (n = 24)
R ²	0.801	0.730
F (p-value)	442.92 (< 0.001)	28.45 (< 0.001)
B, UPI Usage (p)	0.542 (< 0.001)	0.561 (0.011)
B, Financial Literacy (p)	0.518 (< 0.001)	0.529 (0.044)
r (UPI Usage, FI)	0.866	0.819
r (Financial Literacy, FI)	0.854	0.795

Source: Excel workbook, sheets “Regression” and “Sensitivity”.

The direction, size and significance of the two coefficients are similar in the smaller group ($R^2 = 0.730$; both predictors significant at the 5% level), so

FINDINGS OF THE STUDY

1. **Respondent profile.** The sample of 223 is mainly young (98.2% aged 18–20)
2. **Level of UPI usage and financial literacy.** Mean scores are about 4.0 out of
3. **UPI usage and financial inclusion.** UPI Usage is strongly and positively
4. **Financial literacy and financial inclusion.** Financial Literacy is strongly and positively
5. **Combined effect.** UPI Usage and Financial Literacy together explain 80.1% of the variance in
6. **UPI usage and financial literacy.** UPI Usage is positively related to Financial Literacy ($r = 0.85$; B
7. **Group differences.** Financial Inclusion differs by location and income group in ANOVA, but the effect sizes are small
8. **Hypotheses.** All 19 testable hypotheses (H1–H19) were supported; H20 could not be tested.
9. **Policy support.** 97–98% of respondents support more

DISCUSSION

The results support the central proposition of the study: respondents who report greater use of UPI and higher financial literacy also report greater access to, and participation in, the formal financial system. This agrees with the literature reviewed. Dua et al.

The positive relationship between UPI Usage and Financial Literacy (Model 4) suggests that the influence may run in both directions: financial knowledge helps people use UPI safely, and

The very high support for awareness programmes, fraud education and bank-led training (97–98% agreement) is consistent with earlier studies that

Several features of the data limit how far these conclusions can be pushed. The strength of the relationships ($r \approx 0.85$ – 0.87) is unusually high for survey data.

CONCLUSION

The study set out to examine the impact of UPI usage and financial literacy on financial inclusion among rural areas. Using data from 223 respondents, it found that UPI Usage and Financial Literacy are each strongly and positively associated with Financial Inclusion, that together they explain about 80% of the variation in Financial

SUGGESTIONS AND IMPLICATIONS

1. **Combine UPI promotion with financial-literacy training.**
2. **Bank-led training in rural communities.**
3. **Fraud and cybersecurity awareness.** Awareness campaigns on payment
4. **Reach people not yet using UPI.** The few respondents who did not use
5. **Support from institutions.** Schools, colleges, self-help groups

LIMITATIONS OF THE STUDY AND FUTURE RESEARCH

The study may be limited by the sample size, geographical coverage, respondents'

- **Sample composition.** Convenience sampling produced a sample of mostly young female undergraduate
- **Uniform responding.** 89.2% of respondents gave the same answer to all
- **Measurement.** Variables were measured by perception statements rather than behavioural indicators such as account ownership or
- **Design.** The cross-sectional design supports association, not causation.
- **Statistical assumptions.** Chi-square tests on respondent characteristics violated the

Future studies should use stratified or quota sampling across villages, include adults and non-users of UPI

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Dua et al. (2025); Verma et al. (2025); Himani et al. (2025); Aziz et al. (2021); Revankar (2023); Azka et al. (2025); Partikasari (2025); Salvi (2023); Haripara et al. (2024); Zahir et al. (2024); Rohan et al. (2026); Sanjana et al. (2025); Fathma et al. (2026); Johri (2024); and the unnamed 2022–2025 studies

listed as items 7, 17–24 of the Review of Literature. Bibliographic details for these entries were not in the source draft and should be added before submission.

APPENDIX A: QUESTIONNAIRE

Section A – Demographic profile: (1) Age; (2) Gender; (3) Educational qualification; (4) Occupation; (5) Monthly income; (6) Location (rural village / semi-rural area); (7) Which UPI app do you mainly use?

Section B – Likert statements (1 = Strongly disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly agree):

Table A1: Questionnaire items, construct and descriptive statistics (n = 223)

Item	Statement	Construct	Mean	SD	% Agree / SA
Q1	UPI usage helps me access and use financial services more easily	FI	4.00	0.41	96.9%
Q2	My knowledge of financial matters helps me use UPI safely and effectively	FL	3.98	0.37	96.0%
Q3	Using UPI has increased my awareness of banking and financial services	FL	3.98	0.38	95.5%
Q4	Financial literacy increases my confidence in using digital payment services	FL	4.01	0.29	97.3%
Q5	UPI usage and financial literacy together improve access to financial services	FI	4.03	0.29	98.2%
Q6	UPI has made it easier for me to make financial transactions	UPI	4.02	0.34	97.3%
Q7	UPI has reduced my dependence on cash	UPI	4.01	0.31	96.0%
Q8	UPI has made it easier for me to send and receive money	UPI	4.03	0.33	97.8%
Q9	UPI has increased my access to banking and financial services	FI	4.01	0.33	96.9%
Q10	UPI has increased my participation in the formal financial system	FI	4.00	0.37	96.0%
Q11	I understand basic financial concepts such as saving, interest, and budgeting	FL	3.99	0.31	95.5%
Q12	Financial knowledge helps me manage my money effectively	FL	4.04	0.30	98.2%
Q13	I am aware of the risks involved in digital financial transactions	FL	4.03	0.31	97.3%
Q14	Financial literacy makes me more confident in using banking services	FL	4.03	0.32	96.4%
Q15	Financial literacy encourages me to use formal financial services	FL	4.00	0.34	96.4%

Item	Statement	Construct	Mean	SD	% Agree / SA
Q16	Financial literacy programmes should be conducted in rural areas	Policy	4.04	0.35	98.2%
Q17	More awareness programmes should be conducted on safe UPI usage	Policy	4.04	0.27	98.2%
Q18	People in rural areas should be educated about online payment fraud and cybersecurity	Policy	4.04	0.35	97.8%
Q19	Banks should provide more training on UPI and digital financial services in rural areas	Policy	4.04	0.33	97.3%
Q20	Combining UPI awareness and financial literacy can improve financial inclusion in rural areas	Policy	4.03	0.38	97.3%

FI = Financial Inclusion; FL = Financial Literacy; UPI = UPI Usage; Policy = policy support (descriptive). % Agree / SA = share answering “Agree” or “Strongly agree” among respondents who answered the item.

APPENDIX B: SUPPORTING WORKBOOK

All calculations are reproduced in the accompanying Excel workbook BRM_Analysis.xlsx: sheets Data, Descriptives, Chi-Square, ANOVA, Regression, Hypotheses and Sensitivity. Test statistics are Excel formulas (COUNTIFS, SUMPRODUCT, CHIDIST, FDIST, TDIST, CORREL, LINEST) linked to the coded data.