

Digital Transformation and Financial Inclusion: Evidence from Rural Ranchi

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ABSTRACT

This study explores the role of digital transformation in advancing financial inclusion among rural residents of Ranchi, Jharkhand. With the rapid expansion of digital financial services (DFS) such as UPI, mobile banking, and Aadhaar-enabled Payment Systems, rural populations are increasingly gaining access to formal financial systems. The research employs a quantitative approach, based on primary data collected from 123 respondents using a structured questionnaire. Descriptive statistics were used to analyse demographic factors, benefits, and barriers, while simple linear regression tested the causal relationship between usage of digital financial services and financial inclusion. The results show a significant and positive impact of digital financial services on financial inclusion, with regression analysis confirming that greater use of digital tools enhances access, reduces barriers, and improves overall participation in financial systems. Benefits such as convenience, time-saving, and easier access to government schemes were strongly acknowledged by respondents, while barriers such as poor internet connectivity and lack of digital literacy remain key challenges. The findings validate the hypothesis and indicate that digital financial tools can be powerful drivers of inclusion, provided infrastructural and awareness gaps are addressed. The study contributes to both academic literature and policy discourse by offering localized evidence on digital adoption in rural areas, thereby guiding targeted strategies to bridge the digital divide and promote inclusive economic growth.

Keywords: Digital Transformation; Financial Inclusion; Rural Ranchi; UPI; Digital Financial Services

INTRODUCTION

In the recent era, digital transformation has emerged as a pivotal force in reshaping financial landscapes, particularly in developing countries where traditional banking infrastructure is often insufficient. The integration of digital technologies into financial systems has not only streamlined banking processes but also expanded the reach of financial services to previously underserved populations. Globally, digital financial services have been recognized as key enablers of inclusive economic growth, poverty reduction, and socio-economic development (Demirgüç-Kunt et al., 2018). By leveraging mobile banking, online payment systems, and other fintech innovations, governments and financial institutions aim to overcome traditional barriers to financial access, such as geographic distance, high transaction costs, and bureaucratic complexities.

India, with its vast rural population, presents both a significant opportunity and a unique challenge in achieving financial inclusion. The government has launched several initiatives to digitize financial transactions and promote access to banking services, including the Digital India Program, Unified Payments Interface (UPI), Aadhaar-enabled Payment System (AEPS), and Direct Benefit Transfer (DBT) schemes (Haque, 2025; Kumar, 2025). These initiatives are designed to facilitate convenient, secure, and efficient financial transactions for all citizens, including rural residents who may have previously been excluded from formal financial systems. Digital payments, mobile banking apps, and biometric-enabled systems now allow individuals in remote villages to access essential financial services without the need to travel to urban banking centres.

Despite these advancements, rural areas in India continue to face significant barriers to the effective adoption of digital financial services. Limited digital literacy, lack of awareness, inadequate internet connectivity, and poor technological infrastructure remain major challenges (Rai & Burman, 2023). Socio-cultural factors, including

trust issues, fear of errors, and resistance to technology adoption, further hinder the widespread use of digital financial tools (Zhao, 2025). These obstacles create a persistent digital divide between urban and rural areas, undermining efforts to achieve equitable financial inclusion. Furthermore, gender disparities, income inequality, and educational gaps compound these challenges, leaving certain sections of rural society more vulnerable to exclusion from the digital financial ecosystem.

Ranchi, the capital of Jharkhand, provides a unique context for studying these dynamics due to its coexistence of urban modernization and surrounding rural communities. While urban Ranchi has seen increasing adoption of digital financial tools, rural areas remain relatively underserved, highlighting the uneven diffusion of digital technology. This disparity underscores the importance of understanding not only the level of digital financial service usage in rural areas but also the perceived benefits, challenges, and future willingness of rural residents to adopt such services.

This study aims to address four key dimensions of digital financial inclusion in rural Ranchi:

Usage Patterns: Assessing the extent, frequency, and type of digital financial services used by rural residents, including UPI, mobile banking, AEPS, and other fintech applications.

Perceived Benefits: Exploring the advantages recognized by users, such as convenience, time savings, reduced travel, accessibility to government schemes, and improved financial management.

Barriers to Adoption: Identifying challenges such as infrastructural deficits, digital illiteracy, socio-cultural constraints, and apprehension about security and fraud.

Future Willingness: Examining the openness and readiness of rural residents to adopt and expand the use of digital financial services in the future.

By examining these factors, the research contributes to a comprehensive understanding of how digital transformation can influence financial inclusion in rural India. It provides insights for financial institutions and development agencies to design targeted interventions that address local barriers and promote inclusive digital ecosystems. Furthermore, the study enriches the academic literature by offering empirical evidence on rural financial behaviour in the context of emerging digital technologies, bridging a gap in research on the intersection of fintech adoption and rural development (Haque, 2025; Kumar, 2025; Rai & Burman, 2023; Zhao, 2025).

Understanding the dynamics of digital financial inclusion is especially critical in India, where rural populations constitute a substantial portion of the economy, and access to financial services is closely linked to economic empowerment, poverty alleviation, and social development. Effective digital financial integration has the potential to improve household income management, facilitate entrepreneurship, enhance access to credit, and strengthen overall financial resilience among rural communities. By identifying challenges and opportunities, this study provides practical recommendations for bridging the digital divide and advancing inclusive economic growth in rural India.

LITERATURE REVIEW

Digital financial inclusion has significantly altered the landscape of financial services globally. According to Demirgüç-Kunt et al. (2018), digital platforms such as mobile banking and online payments have expanded access to formal financial services for previously underserved populations. These services allow people in remote areas to save, transfer money, and access credit without relying on physical bank branches, thereby promoting economic participation and empowerment. Financial inclusion refers to the availability and accessibility of financial products and services to all sections of society, particularly marginalized groups. In rural areas, traditional banking is often insufficient due to distance, high costs, and bureaucratic barriers. Digital technologies can bridge this gap by providing affordable, convenient access to financial tools. Mobile money platforms have proven transformative in regions like Sub-Saharan Africa. Jack and Suri (2014) demonstrate that mobile wallets enable users to perform transactions securely, facilitating savings, remittances, and payments without physical banks. These experiences indicate the potential for similar success in rural India.

India has implemented several initiatives to enhance financial inclusion, including the Digital India program, UPI, AEPS, and DBT (Kumar, 2025). These programs aim to digitize transactions, reduce costs, and improve access, ensuring that even the most remote populations can benefit from formal financial services. Kumar (2025) highlights that UPI and AEPS have facilitated low-cost, easy-to-use digital transactions, improving the financial access of rural residents. The platforms have streamlined payments, allowed government benefits to be transferred directly to bank accounts, and encouraged small-scale digital transactions in villages. Rai and Burman (2023) identify limited digital literacy as a key barrier to adoption. Rural residents often lack the knowledge to operate digital payment apps, understand online banking processes, or troubleshoot technical issues, preventing widespread usage of these tools. Rural areas face infrastructural challenges such as poor internet connectivity, unreliable electricity, and lack of smartphones (Zhao, 2025). These barriers hinder consistent access to digital financial services, limiting the potential for inclusion and reducing trust in digital platforms.

Socio-cultural factors, including trust issues, apprehension about mistakes, and resistance to technology, impede adoption of digital financial tools in rural populations (Haque, 2025). These challenges often result in low usage rates despite access to services, highlighting the importance of awareness campaigns. Studies show that rural women face additional challenges due to limited mobility, lower education levels, and traditional gender roles (Suri & Jack, 2016). These factors reduce their ability to participate in digital financial services, making gender-sensitive interventions critical. Research suggests that digital and financial literacy significantly affects the adoption of digital services (Arora & Jain, 2020). Individuals with better understanding of financial tools are more confident in using apps like UPI, AEPS, and mobile banking, leading to higher participation rates. DBT has been effective in increasing trust in digital financial systems by ensuring subsidies and welfare benefits are transferred directly into beneficiaries' bank accounts (Sengupta & Pattanayak, 2021). This reduces leakage and fosters acceptance of digital banking among rural residents. Rani (2025) found that digital financial tools reduce travel and waiting time for banking services, making transactions more efficient. For rural households, this convenience is a strong motivator to adopt digital solutions over traditional methods. Digital financial inclusion facilitates entrepreneurship in rural areas. Chakrabarty (2019) notes that access to digital payments and banking enables small business owners to manage finances effectively, receive payments quickly, and expand their operations without relying on cash-based transactions. A significant disparity exists between urban and rural adoption of digital financial tools (Rai & Burman, 2023). Urban residents benefit from better infrastructure, literacy, and exposure to technology, whereas rural residents often lag due to lack of access and awareness.

Ranchi exemplifies this divide. While urban areas of the city show higher adoption rates, surrounding rural regions remain underserved (Haque, 2025). Studying Ranchi provides insights into the challenges and potential solutions for promoting financial inclusion in semi-urban and rural contexts. Zhao (2025) emphasizes that mere access to digital services does not guarantee usage. Many rural residents have bank accounts or mobile wallets but do not utilize them regularly due to lack of confidence or understanding, highlighting the need for usage-focused interventions. Policy interventions, including digital literacy programs and awareness campaigns in local languages, have proven effective in improving adoption (Arora & Jain, 2020). These interventions build trust, reduce apprehension, and encourage active participation in digital financial ecosystems. Evidence shows that combining technology with support mechanisms, such as AEPS kiosks and community-based training, enhances adoption (Kumar, 2025). These measures empower rural residents to use digital platforms confidently and independently. Digital inclusion positively impacts social welfare. Households gain timely access to subsidies and welfare programs, leading to better financial security and poverty reduction (Sengupta & Pattanayak, 2021). Digital tools also allow for better household budgeting and savings management. Overall, the literature demonstrates that digital transformation can positively influence financial inclusion in rural India. However, challenges like infrastructure deficits, socio-cultural barriers, digital illiteracy, and gender disparities need to be addressed. Effective policies and targeted interventions can bridge the urban-rural divide, improve adoption, and ensure that rural populations fully benefit from digital financial services (Demirgüç-Kunt et al., 2018; Haque, 2025; Kumar, 2025; Rai & Burman, 2023; Zhao, 2025).

RESEARCH GAP

Although digital financial services have expanded access to banking and payments in India, there is limited research focusing on specific rural regions of Ranchi. Most studies examine national or state-level trends, leaving

a gap in understanding the unique local factors that influence adoption in rural communities. Behavioural and perceptual aspects, such as trust in digital platforms, fear of errors, and resistance to technology, remain underexplored, despite their importance in determining actual usage of digital services. Similarly, the gender dimension is often overlooked, with limited evidence on how rural women engage with digital financial tools and the specific barriers they face. Most research emphasizes access rather than actual usage, perceived benefits, and efficiency gains. There is little understanding of how rural residents use UPI, mobile banking, or AEPS in daily transactions, and how these tools impact convenience, time-saving, and access to government schemes. Infrastructure-related challenges, including internet connectivity, electricity reliability, and device availability, are recognized but rarely analysed collectively to understand their combined effect on adoption. Additionally, future willingness and readiness of rural residents to adopt digital financial services have received minimal attention, and the effectiveness of government initiatives in promoting sustained use at the local level is not fully evaluated. research gaps include a lack of localized studies, insufficient focus on behavioural factors and gender-specific barriers, limited insights into usage and benefits, underexplored infrastructural challenges, and inadequate understanding of future adoption intentions. Addressing these gaps will help design effective, context-specific strategies to enhance digital financial inclusion in rural areas.

OBJECTIVES OF THE STUDY

- To examine the usage of digital financial services among rural residents in Ranchi.
- To assess the benefits of using digital financial tools in everyday financial transactions.
- To identify the barriers and challenges faced by rural users in adopting digital financial services.

HYPOTHESIS OF THE STUDY

H1: The use of digital financial services has a positive impact on financial inclusion in rural Ranchi.

RESEARCH METHODOLOGY

Research Design

This study employs a quantitative research design to investigate the impact of digital financial services on financial inclusion in rural Ranchi. The design is descriptive and causal in nature: descriptive to understand the usage patterns, benefits, challenges, and future willingness of rural residents to adopt digital financial services, and causal to examine the relationship between the use of digital financial services (independent variable) and financial inclusion (dependent variable) through hypothesis testing. The research focuses on empirical evidence collected from primary data to ensure accuracy and relevance to the local context.

Population and Sample

The population for this study comprises rural residents of Ranchi district, Jharkhand, who have access to or use digital financial services such as UPI, mobile banking, or Aadhaar-enabled payment systems (AEPS). A sample size of 123 respondents was selected using purposive sampling, targeting individuals who are eligible users of digital financial tools. This sample size is sufficient for applying statistical analyses like regression while capturing representative insights from rural communities.

Data Collection Method

Primary data was collected using a structured questionnaire designed in the 5-point Likert scale format. The questionnaire included four sections:

- **Section A:** Use of digital financial services (e.g., mobile banking, UPI, AEPS)
- **Section B:** Benefits of using digital financial tools (e.g., convenience, accessibility)

- **Section C:** Barriers and challenges faced in adopting digital financial services (e.g., connectivity issues, lack of awareness)
- **Section D:** Suggestions and willingness for future usage of digital financial tools

The respondents indicated their level of agreement on a scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). Face-to-face interviews were conducted to ensure clarity and accurate responses from participants with varying literacy levels.

Variables

Independent Variable (IV): Use of Digital Financial Services (UDFS) – measured by frequency, type, and extent of digital financial tool usage.

Dependent Variable (DV): Financial Inclusion (BDSBCSFW) – measured by access to banking services, usage of digital transactions, and participation in government schemes.

DV (Dependent Variable) = **BDSBCSFW**, which is the sum of **Benefits of Digital Services (BDS)** + **Barriers and Challenges (BC)** + **Suggestions and Future Willingness (SFW)**.

Hypothesis Formulation

The study proposes the following hypothesis to test the relationship between digital financial service usage and financial inclusion:

H1: The use of digital financial services has a positive impact on financial inclusion in rural Ranchi.

Data Analysis Technique

The collected data was analyzed using **descriptive statistics** and **inferential statistics**:

Descriptive Statistics: Frequency, percentage, mean, and standard deviation were used to summarize the demographic profile of respondents and understand general usage patterns, perceived benefits, challenges, and willingness.

Inferential Statistics: Simple Linear Regression was applied to test the hypothesis and examine the impact of the independent variable (UDFS) on the dependent variable (BDSBCSFW).

The regression analysis included:

Model Summary: Assessed the correlation ($R = 0.325$) and coefficient of determination ($R^2 = 0.106$) to determine how much variance in financial inclusion is explained by digital financial service usage.

ANOVA: Evaluated the overall statistical significance of the model ($F = 14.323$, $p < 0.05$), indicating the model is reliable.

Coefficients: Determined the strength and direction of the relationship ($B = 0.364$, $\text{Beta} = 0.325$, $p < 0.05$), confirming a positive and significant impact of UDFS on financial inclusion.

Ethical Considerations

The study ensured **informed consent**, voluntary participation, and confidentiality of respondents' information. Participants were assured that data would be used solely for academic research purposes, and anonymity was maintained in reporting results.

Limitations of Methodology

- The study is limited to rural areas of Ranchi and may not be generalized to other districts.
- Purposive sampling could introduce selection bias, as only individuals aware of or using digital financial services were included.
- Self-reported data in questionnaires may involve response bias or inaccuracies in capturing actual usage behaviour.

Data Analysis and Hypothesis Testing

Demographic Factor

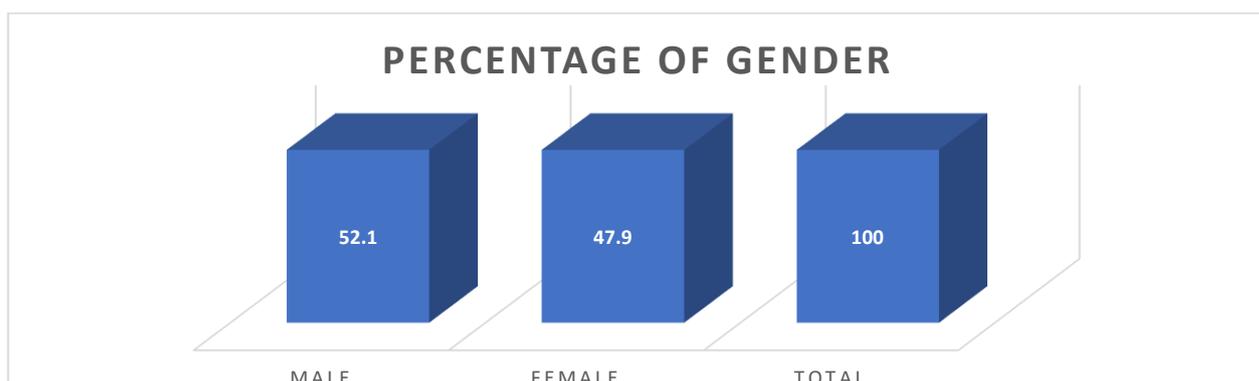
Table 1: Gender

Gender	Frequency	Percentage
Male	64	52.1
Female	59	47.9
Total	123	100

(Source: Primary Data)

The demographic profile of respondents presented in the table highlights the gender distribution of participants in the study on Digital Transformation and Financial Inclusion: Evidence from Rural Ranchi. Out of the total 123 respondents, 64 were male, accounting for 52.1 percent of the sample, while 59 were female, representing 47.9 percent. This nearly balanced distribution between male and female participants indicates that the study captures perspectives from both genders almost equally, ensuring that the findings are not biased toward one specific group. Such a composition is particularly relevant in the context of rural financial inclusion, as both men and women play distinct but complementary roles in household financial decisions and adoption of digital services. The marginally higher proportion of male respondents reflects the social structure of rural Ranchi, where men are often more directly engaged in financial transactions and have greater exposure to digital tools; however, the significant female participation demonstrates growing involvement of women in accessing and utilizing digital financial services. This balanced gender representation strengthens the reliability of the study by providing a comprehensive understanding of how digital transformation is influencing financial inclusion across gender lines in rural settings.

Figure 1: Percentage of Gender



(Source: Computed by the Researcher Using MS Excel)

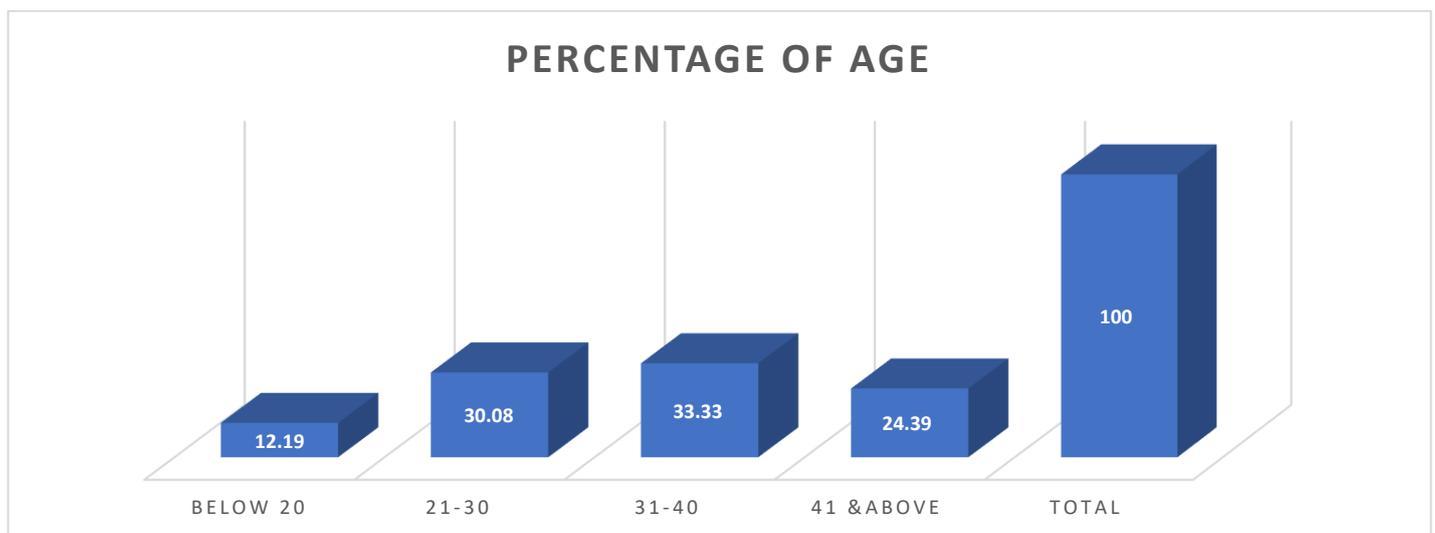
Table 2. Age

Age	Frequency	Percentage
Below 20	15	12.19
21-30	37	30.08
31-40	41	33.33
41 &above	30	24.39
Total	123	100

(Source: Primary Data)

The age-wise distribution of respondents provides valuable insights into the demographic structure of participants in the study on Digital Transformation and Financial Inclusion: Evidence from Rural Ranchi. Out of the 123 respondents, the majority (41 respondents, 33.33 percent) fall within the age group of 31–40 years, followed by 37 respondents (30.08 percent) in the 21–30 years category, and 30 respondents (24.39 percent) aged 41 years and above, while only 15 respondents (12.19 percent) are below 20 years of age. This distribution reveals that the study predominantly represents young and middle-aged individuals, who together constitute more than 63 percent of the sample and are likely to be more receptive to adopting digital financial services due to higher levels of awareness, mobility, and adaptability to technology. The significant share of respondents in the 31–40 age group further highlights the role of financially active individuals in household decision-making and their inclination towards leveraging digital platforms for financial transactions. On the other hand, the smaller proportion of participants below 20 years suggests limited financial responsibility and engagement with formal digital financial systems at this stage of life, while the 24.39 percent representation of older respondents (41 years and above) indicates that even mature age groups are beginning to engage with digital financial services, though possibly at a slower pace. Overall, this age distribution ensures that the study captures perspectives across different life stages, reflecting generational differences in the adoption and utilization of digital services for enhancing financial inclusion in rural Ranchi.

Figure 2: Percentage of Age



(Source: Computed by the Researcher Using MS Excel)

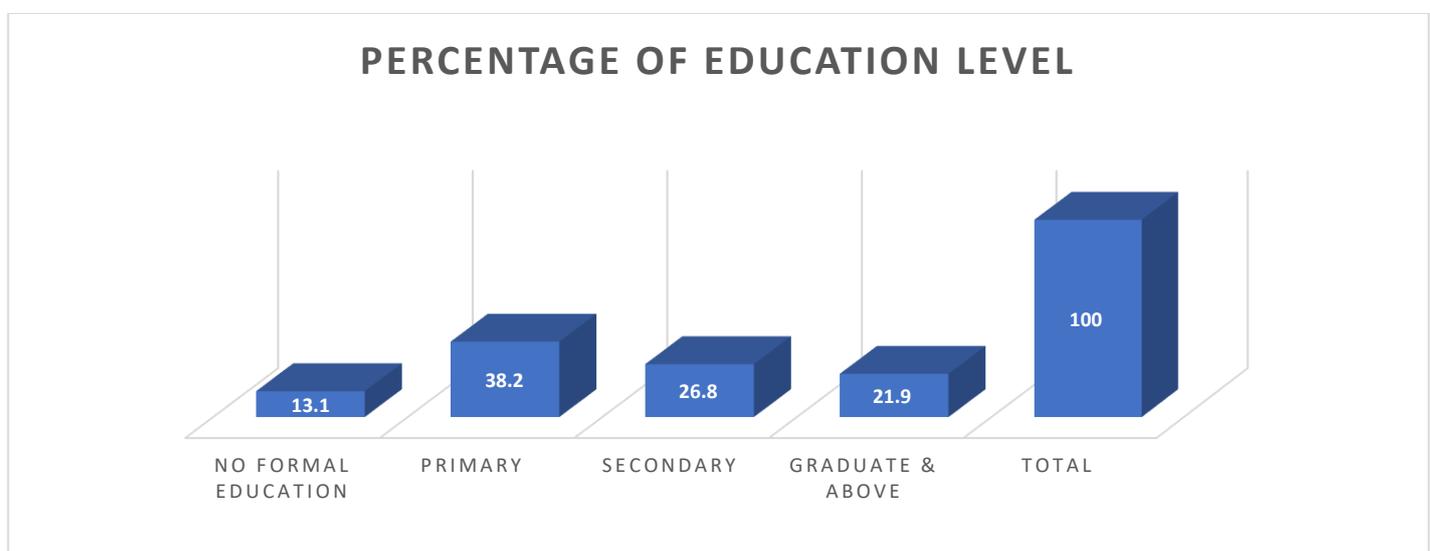
Table 3. Education

Education level	Frequency	Percentage
No Formal Education	16	13.1
Primary	47	38.2
Secondary	33	26.8
Graduate & above	27	21.9
Total	123	100

(Source: Primary Data)

The educational profile of respondents sheds important light on the role of literacy in shaping financial inclusion in rural Ranchi under the influence of digital transformation. Out of the 123 respondents surveyed, the largest segment (47 respondents, 38.2 percent) reported having primary education, followed by 33 respondents (26.8 percent) with secondary-level education and 27 respondents (21.9 percent) who had attained graduate-level qualifications or above, while 16 respondents (13.1 percent) had no formal education at all. This distribution highlights that although a considerable share of the population has attained only basic schooling, a sizeable proportion possesses higher levels of education, which is likely to positively influence awareness, accessibility, and confidence in adopting digital financial services. The presence of 21.9 percent graduates and above signifies an emerging class of educated individuals in rural areas who are more capable of understanding and utilizing modern financial technologies, potentially acting as catalysts for spreading awareness among less-educated community members. Meanwhile, the significant proportion of respondents with only primary and secondary education reflects the challenges of digital literacy and the need for targeted interventions to simplify digital platforms and provide training to bridge the knowledge gap. The 13.1 percent of respondents without formal education represents a vulnerable group that may face difficulties in navigating digital financial systems and therefore requires special policy attention to ensure inclusive access. Overall, the educational distribution demonstrates that while digital financial services are gaining ground among diverse groups, the varying levels of education strongly influence the pace and extent of adoption, making education a critical determinant of financial inclusion in rural Ranchi.

Figure 3: Education level



(Source: Computed by the Researcher Using MS Excel)

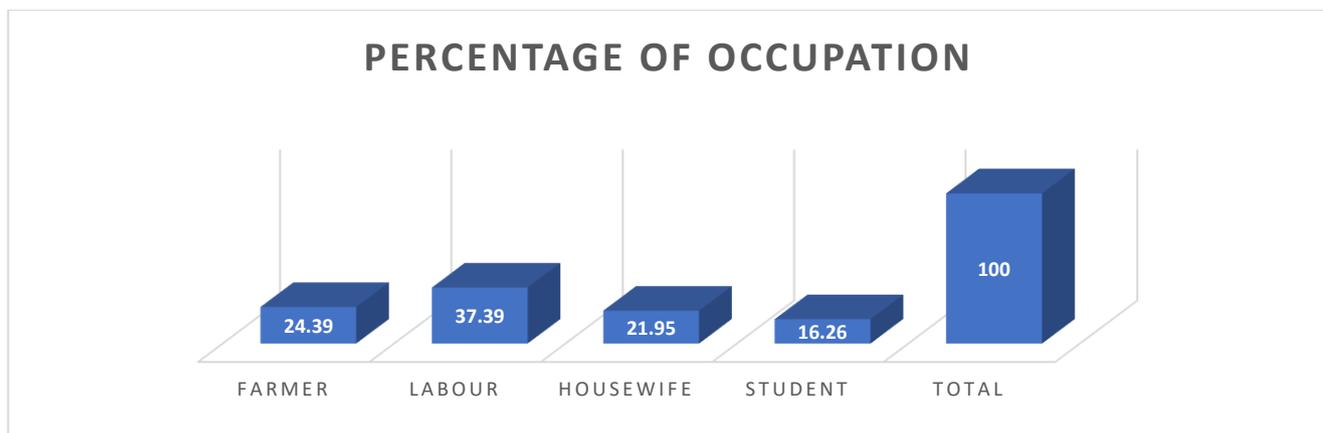
Table 4. Occupation

Occupation	Frequency	Percentage
Farmer	30	24.39
Labour	46	37.39
Housewife	27	21.95
Student	20	16.26
Total	123	100

(Source: Primary Data)

The occupational profile of respondents reveals that the majority are engaged in labor work, accounting for 37.39 percent of the sample, followed by farmers at 24.39 percent, housewives at 21.95 percent, and students at 16.26 percent. This distribution indicates that the study primarily reflects the perspectives of daily wage earners and agriculturists, who form the backbone of rural livelihoods in Ranchi and whose financial activities are directly linked to basic survival needs and seasonal income flows. The notable share of housewives highlights the growing involvement of women in household financial decisions and their potential role in adopting digital financial services for savings and payments. The presence of students, though relatively smaller, points to the emergence of a younger generation that is more likely to be technologically adaptable and could influence future digital adoption trends in rural areas. Overall, the occupational structure underscores that financial inclusion in rural Ranchi is shaped by economically diverse groups, with labourers and farmers being the most dominant segments, while housewives and students add valuable dimensions to understanding how digital transformation is reaching different sections of society.

Figure 4: Percentage of Occupation



(Source: Computed by the Researcher Using MS Excel)

Table 5. Monthly Income

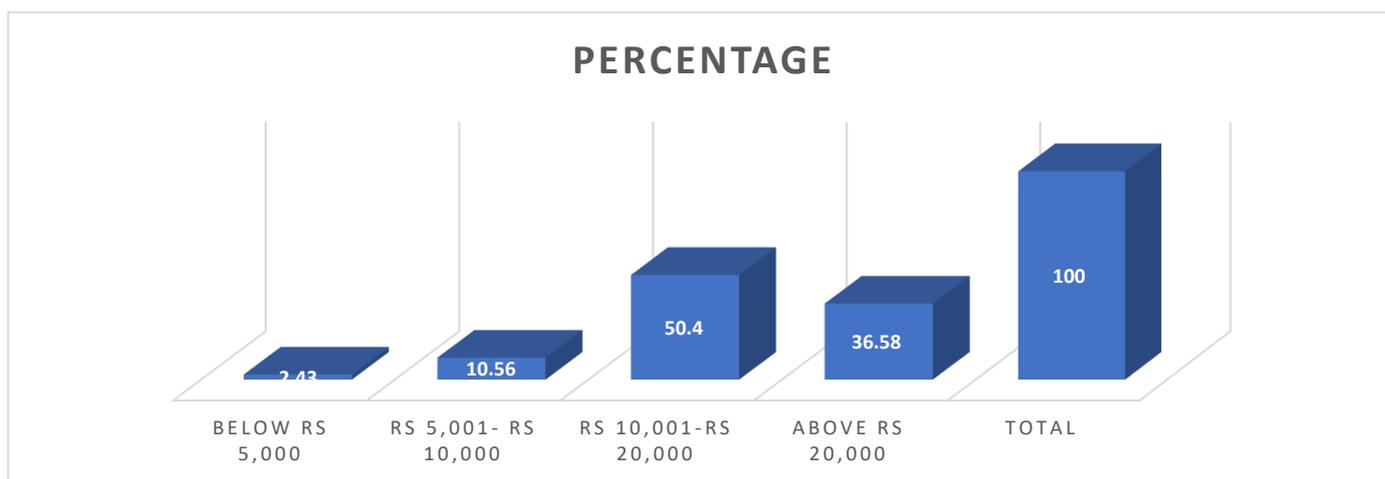
Monthly Income	Frequency	Percentage
Below Rs 5,000	3	2.43
Rs 5,001- Rs 10,000	13	10.56
Rs 10,001-Rs 20,000	62	50.40

Above Rs 20,000	45	36.58
Total	123	100

(Source: Primary Data)

The income distribution of respondents shows that a majority belong to the middle-income category, with 50.40 percent earning between ₹10,001 and ₹20,000 per month, followed by 36.58 percent who earn above ₹20,000, while 10.56 percent fall in the ₹5,001–₹10,000 range and only 2.43 percent earn below ₹5,000. This indicates that most participants have a relatively stable income base, which enhances their capacity to access and utilize digital financial services compared to households with very low income. The dominance of the ₹10,001–₹20,000 group suggests that rural Ranchi has a sizable working-class population capable of managing regular expenses and showing willingness to adopt digital payment and savings options. At the same time, the significant share of higher-income respondents (above ₹20,000) reflects an emerging financially strong segment in rural areas that can potentially drive greater acceptance of digital platforms. On the other hand, the small proportion of respondents in the lowest income bracket highlights financial vulnerability and the likelihood of exclusion unless supported by affordable and user-friendly digital solutions. Overall, the income profile suggests that financial inclusion through digital transformation in rural Ranchi is strongly influenced by income stability, with middle- and higher-income groups being better positioned to embrace digital financial services.

Figure 5: Percentage of Monthly Income



(Source: Computed by the Researcher Using MS Excel)

Hypothesis Testing

H1: The use of digital financial services has a positive impact on financial inclusion in rural Ranchi.

Table 6.

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.325 ^a	.106	.098	.44740
a. Predictors: (Constant), UDFS				

(Source: Computed by the Researcher Using SPSS)

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R (.325): This is the correlation between the predictor variable (UDFS) and the dependent variable (BDSBCSFW). A value of 0.325 indicates a **moderate positive relationship**.

R Square (.106): This means **10.6% of the variation** in financial inclusion (BDSBCSFW) is explained by the use of digital financial services (UDFS). While not very high, it shows UDFS does have explanatory power.

Adjusted R Square (.098): Adjusted for sample size (N = 123), about **9.8%** of the variation is explained.

Std. Error of Estimate (0.44740): On average, the prediction error is ± 0.447 around the regression line.

Interpretation: The model has modest explanatory power, but UDFS clearly influences financial inclusion.

Table 7.

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.867	1	2.867	14.323	.000 ^b
	Residual	24.221	121	.200		
	Total	27.088	122			
a. Dependent Variable: BDSBCSFW						
b. Predictors: (Constant), UDFS						

(Source: Computed by the Researcher Using SPSS)

F = 14.323, Sig. = .000 (<0.05): This shows the overall regression model is **statistically significant**.

Meaning: The independent variable (UDFS) **significantly predicts** the dependent variable (BDSBCSFW).

Interpretation: The relationship between UDFS and financial inclusion is not due to chance.

Table 8.

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.658	.401		6.633	.000
	UDFS	.364	.096	.325	3.785	.000
a. Dependent Variable: BDSBCSFW						

(Source: Computed by the Researcher Using SPSS)

Constant (2.658): If $UDFS = 0$, then financial inclusion (BDSBCSF_W) has a baseline score of 2.658.

B (0.364): For every one-unit increase in UDFS, financial inclusion increases by **0.364 units**, keeping other factors constant.

Standardized Beta (.325): Confirms a positive relationship between UDFS and financial inclusion.

t (3.785), Sig. (.000): Highly significant effect.

Interpretation: UDFS significantly and positively impacts financial inclusion.

Hypothesis Testing

Hypothesis (H1): “The use of digital financial services has a positive impact on financial inclusion in rural Ranchi.”

Result: Since the regression coefficient for UDFS is positive ($B = 0.364$) and statistically significant ($p < 0.05$), **H1 is accepted.**

Final Conclusion: The analysis shows that the use of digital financial services (UDFS) positively and significantly impacts financial inclusion (BDSBCSF_W) in rural Ranchi. Although the model explains only about 10.6% of the variation, the result supports the hypothesis, meaning greater use of digital services improves benefits, reduces barriers, and enhances future willingness for financial inclusion.

Objective Achieved

Objective “To examine the usage of digital financial services among rural residents in Ranchi,” is directly related to and supports the hypothesis that the use of digital financial services has a positive impact on financial inclusion. The regression analysis demonstrated that the independent variable, use of digital financial services (UDFS), had a positive and statistically significant effect on the dependent variable, financial inclusion (BDSBCSF_W), with a coefficient value of 0.364 and a p-value of .000. This finding indicates that as rural residents increase their use of digital tools such as mobile banking, UPI apps, and digital payments, their participation in financial systems improves correspondingly. The result validates the hypothesis (H1) and confirms that Objective 1 has been achieved, showing that usage of digital financial services plays a crucial role in promoting greater access, convenience, and integration into formal financial channels among rural households in Ranchi.

Objective To assess the benefits of using digital financial tools in everyday financial transactions.

The analysis of responses to Question No. 8, “Digital payments have made my daily financial transactions easier,” provides clear evidence of the perceived benefits of digital financial tools in rural Ranchi. Out of the 123 respondents, a significant proportion—62 respondents (50.41 percent)—agreed with the statement, while 61 respondents (49.59 percent) strongly agreed. Notably, none of the participants expressed disagreement or neutrality, which indicates a unanimous positive perception. This overwhelmingly favourable response highlights that digital payments are widely recognized as a convenient and effective means of simplifying daily financial activities such as shopping, transfers, and small payments in rural areas. The absence of negative or neutral responses further reinforces that digital financial services have successfully reduced traditional transaction difficulties, promoting ease, accessibility, and efficiency. Thus, Objective 2, which aimed “to assess the benefits of using digital financial tools in everyday financial transactions,” is clearly achieved, as the results confirm that digital payments significantly enhance the convenience and effectiveness of financial dealings for rural residents.

Objective To identify the barriers and challenges faced by rural users in adopting digital financial services.

The responses to Question No. 11, “I face problems like poor internet connectivity while using digital tools,” highlight one of the major barriers to digital financial inclusion in rural Ranchi. Out of 123 respondents, 48 (39.02 percent) agreed and 30 (24.39 percent) strongly agreed, together indicating that nearly two-thirds (63.41 percent) of participants acknowledged poor internet connectivity as a significant challenge in using digital financial services. Meanwhile, 30 respondents (24.39 percent) remained neutral, which may suggest that connectivity issues are not uniformly experienced across all areas or that some respondents have limited engagement with digital platforms. Only 15 respondents (12.20 percent) disagreed, showing that a minority did not face such issues. Importantly, no respondents strongly disagreed, reinforcing that internet connectivity is at least a potential concern for most users. These findings make it evident that infrastructural limitations, particularly unstable or insufficient internet access, continue to hinder smooth adoption and regular use of digital financial services in rural Ranchi. Thus, Objective 3, which aimed “to identify the barriers and challenges faced by rural users in adopting digital financial services,” is achieved, as the results confirm that poor internet connectivity remains a primary obstacle restricting the effectiveness of digital financial inclusion.

FINDINGS, CONCLUSION AND SUGGESTIONS

Findings

Positive Impact of Digital Financial Services (DFS): Regression analysis demonstrated that the use of digital financial services (UDFS) had a statistically significant positive effect on financial inclusion in rural Ranchi ($B = 0.364$, $p < 0.05$). Although the R^2 value (0.106) indicates modest explanatory power, it confirms that greater usage of digital tools directly contributes to improved access and participation in financial systems.

Perceived Benefits Strongly Endorsed: Almost all respondents agreed or strongly agreed that digital payments made their daily financial transactions easier (100 percent positive responses). Additionally, respondents recognized key benefits such as convenience, time-saving, reduced travel to banks, and direct receipt of government schemes through Direct Benefit Transfers (DBT).

Barriers Remain Significant: Despite these benefits, barriers such as poor internet connectivity, low digital literacy, and lack of proper guidance emerged as major challenges. For instance, 63.41 percent of respondents agreed or strongly agreed that poor connectivity hampered their usage, while many also reported fears of making mistakes during transactions.

Demographic Insights:

Gender: A nearly balanced participation (52.1 percent male, 47.9 percent female) reflects inclusiveness, though men still show slightly higher exposure to digital tools.

Age: The 21–40 age group constituted over 63 percent of respondents, indicating younger and middle-aged residents are the key drivers of adoption.

Education: While 38.2 percent had only primary education, 21.9 percent were graduates, showing education plays a significant role in building confidence for digital adoption.

Occupation and Income: Laborers and farmers were dominant groups, but middle-income households (₹10,001–20,000) formed the majority of users, highlighting income stability as a facilitator of digital inclusion.

CONCLUSION

The study concludes that digital transformation has become an essential enabler of financial inclusion in rural Ranchi by bridging geographical, social, and institutional barriers. Digital financial services such as UPI, AEPS, and mobile banking have simplified daily transactions, increased access to welfare schemes, and reduced dependency on traditional brick-and-mortar banks. However, despite their growing acceptance, infrastructural deficits like poor internet connectivity, inadequate literacy, and psychological barriers continue to restrict their full potential. The regression analysis validated the hypothesis that greater usage of digital services positively

impacts financial inclusion, affirming the importance of digital tools in fostering inclusive growth. Yet, the relatively low R^2 value suggests that digital usage alone cannot ensure comprehensive inclusion; it must be complemented by structural improvements, capacity-building initiatives, and user confidence. Thus, digital transformation is not merely a technological shift but a socio-economic process that requires holistic support to achieve its developmental objectives.

SUGGESTIONS

Improve Digital Infrastructure: Strengthening internet connectivity, especially in remote villages, is crucial to ensure uninterrupted access to digital platforms. Government and telecom providers should prioritize rural broadband and mobile data coverage.

Expand Digital Literacy Programs: Awareness and training campaigns must be organized in local languages, focusing on practical demonstrations of mobile banking, UPI apps, and AEPS usage. Special attention should be given to low-educated groups and women to reduce the digital literacy gap.

Build Trust and Security: Many users fear fraud or making mistakes. Simplifying user interfaces, ensuring strong security measures, and running trust-building campaigns can encourage more confident adoption.

Community-Based Support: Self-help groups, panchayats, and local NGOs can act as facilitators, offering peer support and guidance. Community digital ambassadors could help new users navigate apps and resolve common issues.

Inclusive Policy Interventions: Policymakers must address structural inequalities by designing schemes that encourage adoption among vulnerable groups such as women, low-income households, and less-educated populations. Incentives like reduced transaction costs or rewards for digital payments could further accelerate adoption.

Integration with Livelihood Activities: DFS should be promoted not only for personal transactions but also for agriculture, labour payments, small businesses, and household savings. Linking digital platforms with income-generating activities will ensure sustainability and deeper engagement.

FUTURE SCOPE OF RESEARCH

Although this study provides valuable insights into the impact of digital financial services on financial inclusion in rural Ranchi, several areas remain open for future exploration. First, the current research was limited to one district, and expanding the scope to multiple rural regions across Jharkhand or other states would help in comparing patterns and identifying region-specific challenges. Second, the study employed a quantitative design based on survey data; future studies could adopt a mixed-methods approach by incorporating qualitative interviews to capture deeper behavioural, cultural, and psychological aspects of digital adoption. Third, since digital technologies evolve rapidly, longitudinal studies tracking usage patterns over time could reveal how sustained exposure and policy interventions influence long-term financial inclusion. Fourth, gender dynamics deserve special attention—future research could focus on how women in rural households engage with digital services, the barriers they face, and how targeted initiatives can enhance their participation. Fifth, there is scope to study the role of digital financial services in improving entrepreneurial activities, credit access, and savings behaviour among rural communities, which can further link digital inclusion with economic empowerment. Finally, future studies can explore the interplay between digital literacy, trust in technology, and financial resilience, thereby providing holistic insights into how digital transformation can strengthen inclusive rural development in India.

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