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# UPI Adoption and Fraud Prevention Awareness: A Comparative Study of Digital Payment Literacy Interventions Across Urban and Rural Rajasthan

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**ABSTRACT**

The present comparative study examines adoption rates of the Unified Payments Interface (UPI) and current amounts of fraud-prevention awareness in the urban and rural centers of Rajasthan, and at the same time assesses the effectiveness of digital-payment literacy programs. Using a mixed-method design with 350 participants, the study outlines a slightly high level of urban-rural differences in UPI adoption (82 of 100 versus 54 of 100), in fraud knowledge (71 of 100 versus 38 of 100), and in the efficacy of solutions (7.8 of 10 versus 5.1 of 10). Compared to urban UPI users, where the rate of fraud victimisation is 31% per 100 000, rural UPI users are more victimised (31 000 000:21 000 000). The key results suggest that the socio-economic factors, including education, income, and smartphone literacy, can explain about 69 percent of the adoption, and cultural aspects, including trust, linguistic challenges, and the general level of digital literacy, have a formidable effect on the uptake and the prevention of fraud. QR-code scams, counterfeit apps in payments and stealing UPI PINs are UPI-specific types of fraud, which happen to 43 per cent amongst rural users and 28 per cent among urban users. The study thereby supports the existence of intervention specific intervention measures including training in the vernacular language, Immersive UPI workshops, community-based learning, and integration with the available government programs. Evidence-based guidelines are capable of resolving structures gaps, facilitating collaborations among stakeholders, and advancing situational educational strategies aimed at achieving safety and effective implementation of UPI among various groups of people.

**Keywords**: UPI adoption, digital payment literacy, fraud prevention, urban-rural divide, Rajasthan, financial inclusion, mobile payments

## 1.0 INTRODUCTION

In 2016, the Unified Payments Interface (UPI) operated by the National Payments Corporation of India (NPCI) has significantly changed the digital payment environment in India by providing users of mobile devices with instant, real-time access to inter-bank payments. The growth of UPI transactions has proved incredible as it has soared now reaching up to 11 billion monthly transactions with a consolidated value of more than 18 trillion (NPCI, 2024). This is an admirable but at the same time extremely challenging step in the process of financial inclusion and a challenge in terms of eliminating fraud and protecting the security of users. The heterogeneously urban-rural mesh of the state of Rajasthan provides an instrumental setting to investigate the dynamics of UPI adoption and anti-fraud consciousness, and so especially in accordance with wide gaps in digital infrastructure and literacy between metropolitan centres like Jaipur and adjacent rural districts. Although UPI has made digital payment channels accessible to people in varying socio-economic tiers, it has also made the user vulnerable to advanced schemes of malfeasance. According to the reserve bank of India (2024), the number of fraud cases related to UPI rose by 58 persons between 2022 and 2024, with losses worth over 2800 crores. The most common types of fraud are QR-code scams, fake payment apps, vishing (voice phishing), stealing UPI PIN, and some money sent by mistake scams are common. In 2023 alone, 8,400 + UPI frauds were reported by the Rajasthan Cyber Crime Unit (2024), and rural users are overrepresented in the victims because of the reduced digital literacy level and lack of awareness of preventive measures. The question aims to fill important gaps in our understanding of the way digital payment literacy interventions mediate safe UPI uptake and awareness of fraud-prevention in diverse geographic and socio-economic contexts.

## 2.0 REVIEW OF LITERATURE

### 2.1 UPI Ecosystem and Adoption Patterns.

UPI is the perfect illustration of a significant technological breakthrough allowing the continuous transaction of peer-to-peer payments and merchant payments through a single mobile app. According to Singh and Srivastava (2023), there is a strong relationship between UPI adoption and smartphone customer base penetration, connectivity to the internet, and low levels of digital literacy. Their study of 1,200 users across five Indian states found urban adoption rates at 78% compared to 45% in rural areas. Factors influencing adoption include ease of use (β=0.52), perceived security (β=0.38), social influence (β=0.31), and transaction speed (β=0.29). Kumar et al. (2024) examined UPI adoption through the Technology Acceptance Model framework, identifying perceived usefulness and ease of use as primary drivers, while security concerns and lack of digital literacy emerged as significant barriers, particularly in rural settings.

2.2 UPI Fraud Environment and Exposure.

The spread of UPI has been accompanied by some of the more complex instances of fraud that exploit the vulnerabilities of the user base. Sharma and Malhotra (2024) categorized UPI fraud into six main types: QR-code scams (scammers sending fake payment codes that require money), counterfeit UPI app (malicious software that impersonates the authentic ones to demand UPI PINs), vishing attacks (scammers pretending to be bank officials to demand UPI PINs), collect money requests, requests (illicit access to allow fraudsters to make illegal deals), and SIM-swap fraud (fraudsters stealing the phone numbers to seize OTPs). They examined 2,500 fraud cases and found the majority of the victims had a lack of basic UPI security awareness such as understanding that the legitimate transactions would never require any sharing of UPI PINs and UTPs. Verma et al. (2023) have discovered that rural users were 2.3 times more probable to become a victim of UPI fraud than urban counterparts, which is mainly because they were less digitally literate and were least exposed to any kind of a fraud-awareness campaign.

2.3 Interventions of Digital Payments Literacy.

Digital payment literacy includes the understanding of the system of payment, security, fraud identification, and wise operation. In a study on government-led programmes on digital payment literacy related to Rajasthan, Gupta and Desai (2023) identified significant differences in the effectiveness. Programs that used tactile smartphone education had 74 0 -95 knowledge retained compared to 43 0 -65 with lectures. Their research noted the prominence of the vernacular education, whereby Hindi and local dialect programs had a 58 suite greater completion rate as compared to English-based programmes. Patel and Singh (2024) evaluated efforts of large UPI platforms (Google Pay, PhonePe, Paytm) and their experience with in-app tutorials or gamified learning modules and discovered that had an impact of 67 per cent on the security awareness of users who encountered it. However, general use of these learning functions was minimal at 23% and it was low, at 14%, among the rural users.

2.4 The Digital Divide of Urban to Rural Payments.

Digital payment disparity is manifested in the form of infrastructure, literacy, and cultural inclination towards technology. According to Joshi and Nair (2023), 89-percent of urban Indians have access to high-speed internet, but only 37-percent of Indians living in rural areas have access to similar internet connection which directly affects UPI uptake and usage behaviors. Their qualitative study found out that rural men have a tendency of sharing the mobile devices with the members of their households, which creates security risks since many people use the same UPI accounts. Rural adoption is also hampered by language barrier since majority of UPI interfaces can only support English and Hindi and the regional languages like Marwari, Mewari and Shekhawati commonly spoken in Rajasthan are excluded. The adoption decisions depend on the cultural factors, such as belief in traditional transactions that involve cash, distrust in digital systems, and financial practices that were based on the community. Mehta et al. (2024) found that 68% of non-adopters in rural areas gave a reason of fear of losing money, as compared to 23% on non-adopters in urban areas.

2.5 Research Gaps

Regardless of the growing literature on digital payments, there are still a few specific gaps. The adoption (or fraud prevention) of UPI studies are often dissected, although there is little empirical research on the intersection of the two. The gap in evidence is the lack of studies with a more specific focus on the impact of digital payment literacy interventions on the UPI adoption rate and the awareness of fraud prevention in the context of Rajasthan. The current body of literature

often homogenises rural people, failing to acknowledge the diversity of education, income, occupation and cultural backgrounds. Intervention efficacy studies also hardly utilize comparative urban-rural contexts, hence restricting what is feasible in the context of particular necessities. Further, the views of stakeholders, such as that of UPI users and non-users, merchants, implementers and fraud victims are under analysed. It is also not well-analyzed in the literature concerning the particular types of UPI fraud and the difference of their effects in diverse urban and rural localities. The paper considers these gaps by undertaking a methodical comparative examination of the UPI adoption trends, awareness of fraud prevention, and the intervention effectiveness in urban and rural Rajasthan.

### 2.6 Research Objectives

To address the mentioned gaps, this research aims to: (1) contrast the adoption rates and patterns of UPI among the urban and rural people in Rajasthan; (2) compare the levels of awareness of fraud-prevention and security knowledge of UPI users in both settings; (3) determine the impact of digital payment literacy interventions on safe UPI adoption and knowledge about fraud prevention; (4) review the impact of socio-economic drivers (education, income, occupation, digital literacy) and demographic drivers (age, gender) and cultural drivers on the outcomes of UPI adoption and protect against fraud; (5) establish the types of UPI fraud that impact city and rural users and create distinction on their impact; (6) investigate the views of stakeholders about the obstacles to safe UPI implementation and intervention efficacy; and (7) do the evidence-based recommendations of designing context-related, digital payment literacy intervention to support safe UPI adoption among different populations in Rajasthan.

## 3.0 RESEARCH METHODOLOGY

### 3.1 Research Design

The upcoming research assumes the mixed-method comparative research design, to fully analyze the adoption rates of UPI, awareness related to fraud-prevention, and efficacy of interventions in urban and rural settings in the state of Rajasthan. The mixed-method method combines both the quantitative results found through the structured surveys and the qualitative data collected through interviews, focus groups and case studies. The validity and depth of these findings are enhanced through triangulation of these sources of data. The comparative dimension allows making a systematic review of the likeness and differences in the cases of urban and rural situations in connection with the main aims of the research regarding contextual differences. The design used was cross-sectional with data being collected during a six-month period, between August 2024 and January 2025 and the retrospective data collection that was done on the UPI adoption experiences, instances of fraud and participation of the participants in interventions aimed at increasing digital payments literacy of participants.

### 3.2 Population and Sampling

The target population was the UPI users and non-users of the various stakeholder groups in Rajasthan. To offer a complete representation, the participants were divided into: those using UPI (often, regularly), those not using UPI (awareness and unawareness of UPI), merchants who accepted UPI payments, banking correspondents and CSC operators, digital literacy teachers, and victims of UPI fraud. Geographic location was used to define stratum (urban vs rural) and UPI usage status. This research focused on Jaip district which included Jaip. one city (urban), and five villages, Bagru; Chaksu; Phagi; Sanganer Rural and Shahpura (rural). Calculations of the sample size were carried out with Cochran formula (95% confidence level with 5% margin of error), which provide a minimum possible sample size of 322 participants. The last sample was the one which included 350 participants (200 urban 160 UPI users, 40 non-users and 150 rural 90 UPI users, 60 non-users).

### 3.3 Data Collection Methods

The modalities used in data collection were: (1) Questionnaire based Survey: All the participants (n=350) completed a structured questionnaire with six sections: demographic, smartphone and internet usage patterns, UPI adoption and use behaviours (frequency of transactions, apps used, preferred payments situations), fraud awareness and security knowledge (validated 40 item scale), fraud experience and reporting, and being exposed to intervention of digital payment literacy. (2) In-depth Interviews: 30 semi-structured interviews will be conducted with key stakeholders such as eight UPI fraud victims, six digital literacy trainers, five banking correspondents, six merchants and five cyber-crime officials. (3) Focus Group Discussions: 12 FGDs (one community urban and one rural each) of 8-10 participants each, asking about community

perceptions of UPI, barriers to adoption, fraud experience, and intervention efficacy. (4) Case Studies: There will be 20 detailed case studies of particular fraud cases, effective intervention implementations, and experiences of merchants adopting the program.

3.4 Data Analysis

The SPSS Statistics 27.0 was used to analyse the quantitative data. Descriptive statistics have served to give a summary of the UPI adoption rates, interventional awareness and participation. The independent-samples t-tests were used to compare the continuous variables, i.e., to compare the mean scores on fraud awareness and intervention effectiveness rating between the urban and rural groups. Categorical variables, such as UPI adoption status, fraud victimisation and geographic location were assessed using chi-square tests. Pearson correlation test was used to evaluate the correlation between continuous variables, e.g. smartphone literacy, fraud awareness, and intervention exposure. The combined effect of education and income and digital literacy and intervention participation on the UPI adoption and fraud-prevention results was evaluated by multiple regression analysis. Binary logistic regression was used to test variables related to predicting UPI adoption and fraud victimisation. The qualitative data were analyzed through thematic analysis based on NVivo 12 which included open coding, axial coding, selective coding and development of themes. The combination of quantitative and qualitative results was used to gain a comprehensive insight into the process of UPI adoption and the awareness of the fraud-prevention measures.

Table 1: Sample Characteristics and UPI Adoption Status

| Characteristic | Urban (n=200) | Rural (n=150) |
|---|---|---|
| Mean Age (years) | 32.4 (SD=11.8) | 35.7 (SD=13.6) |
| Gender (Male %) | 61% | 58% |
| Graduate+ Education | 48% | 22% |
| Smartphone Ownership | 94% | 71% |
| Internet Access | 87% | 52% |
| UPI Adoption Rate | 82% | 54% |
| Mean Monthly Income (₹) | 42,800 | 18,600 |

4. RESULTS

4.1 UPI Adoption and Usage Patterns

UPI adoption rates showed significant urban-rural disparity, with 82% of urban respondents and 54% of rural respondents actively using UPI ($\chi^2$=32.47, $p<0.001$). Among UPI users, transaction frequency differed substantially. Urban users conducted mean 47.3 transactions monthly (SD=23.6) compared to rural users' 18.4 transactions (SD=12.8), a statistically significant difference ($t(248)=11.94$, $p<0.001$). Preferred UPI applications varied, with Google Pay dominating both settings (urban: 68%, rural: 71%), followed by PhonePe (urban: 52%, rural: 48%) and Paytm (urban: 34%, rural: 18%). Analysis of non-adopters revealed primary barriers including lack of smartphone (rural: 38%, urban: 12%), insufficient digital literacy (rural: 47%, urban: 18%), security concerns (rural: 52%, urban: 29%), and preference for cash (rural: 61%, urban: 23%).

Table 2: UPI Usage Patterns Among Adopters

| Usage Parameter | Urban (n=164) | Rural (n=81) |
|---|---|---|
| Daily Users | 43% | 18% |
| Weekly Users | 38% | 41% |
| Monthly Users | 19% | 41% |
| Mean Transaction Value (₹) | 1,247 | 583 |
| Merchant Payments | 89% | 67% |
| Peer-to-Peer Transfers | 76% | 84% |
| Bill Payments | 62% | 31% |
| Mobile Recharge | 71% | 73% |

4.2 Fraud Prevention Awareness and Security Knowledge

Awareness of fraud prevention was tested in a strict, proved-scale comprising of 40 items covering the UPI security measure protocols, fraud awareness, safe transaction measures and vehicle of inhibiting fraud-reporting procedures. The mean awareness of the users of the Urban UPI (71.2% SD 16.4) was significantly higher than the rural users (38.6% SD 18.9), and there is a significant difference between the two groups ($t(243)$ 14.28, $p < 0.001$). Analysis of components determined significant knowledge gaps: the awareness that UPI PINs will never be shared was 94Ə 61 in urban and rural participants respectively; the awareness that no legitimate transactions will involve sharing a screen was 87Ə 42 in urban and rural participants respectively; awareness of the 1 lakh daily transaction limit of UPI on fraud reporting was 73Ə 28 in urban and rural participants respectively; understanding that QR code can be malicious was 68 31 in urban and rural participants respectively; and that knowledge of the NPCI

Table 3: Fraud Prevention Awareness Component Scores

| Awareness Component | Urban % | Rural % | Gap |
|---|---|---|---|
| UPI PIN Security | 94% | 61% | 33% |
| Screen-Sharing Risks | 87% | 42% | 45% |
| QR Code Verification | 68% | 31% | 37% |
| Fake App Recognition | 76% | 34% | 42% |
| Vishing Awareness | 82% | 29% | 53% |
| Overall Awareness Score | 71.2% | 38.6% | 32.6% |

4.3 UPI Fraud Experiences

Among UPI users, 38% reported experiencing fraud attempts in the past 12 months, with no significant difference between urban (37%) and rural (41%) users ($\chi^2$=0.42, p=0.517). However, fraud success rates differed substantially. Among those targeted, 14% of urban users versus 31% of rural users actually lost money ($\chi^2$=6.84, p=0.009). Mean financial losses also varied significantly: urban victims lost mean ₹4,230 (SD=3,140) compared to rural victims' ₹6,870 (SD=4,520), though this difference was not statistically significant (t(87)=1.82, p=0.072). Specific fraud types showed differential prevalence. QR code scams affected 18% of rural users versus 11% of urban users. Fake payment app installations occurred in 12% of rural cases versus 7% of urban. Vishing attacks impacted 16% of rural users versus 9% of urban. Only 23% of fraud victims reported incidents to authorities, with barriers including lack of awareness of reporting mechanisms (47%), belief that authorities cannot help (38%), shame or embarrassment (28%), and fear of family blame (rural women: 42%).

Of the UPI-users population, 38% of them had received fraudulent attempts in the previous twelve months, and this percentage did not differ statistically when the population was subdivided into urban (37% of all) and rural (41% of all) groups($\chi^2$=0.42, p=0.517). However, the success rates of the fraud attempts differed considerably; in particular, 14% of the urban users and 31% of the rural ones, in fact, lost money ($\chi^2$=6.84, p=0.009). The fiscal losses differed in average as well with the urban individuals showing mean fiscal losses of - 4,230 (SD=3,140) and rural individuals recording mean fiscal losses of -6870 (SD=4,520); the difference, however, was not found to be statistically significant (t(87)=1.82, p=0.072). There were also notable disparities in prevalence of certain fraud forms as follows; QR code scams affected 18% of rural users versus 11% of urban users. Fake payment app installations occurred in 12% of rural cases versus 7% of urban. Vishing attacks impacted 16% of rural users versus 9% of urban. Only 23% of fraud victims reported incidents to authorities, with barriers including lack of awareness of reporting mechanisms (47%), belief that authorities cannot help (38%), shame or embarrassment (28%), and fear of family blame (rural women: 42%).

Table 4: UPI Fraud Types and Victimization Rates

| Fraud Type | Urban % | Rural % |
|---|---|---|
| QR Code Scams | 11% | 18% |
| Fake Payment Apps | 7% | 12% |
| Vishing (Voice Phishing) | 9% | 16% |
| Screen-Sharing Scams | 8% | 13% |
| UPI Collect Requests | 6% | 9% |
| 'Money Sent by Mistake' | 5% | 7% |
| Overall Fraud Attempt Rate | 37% | 41% |
| Fraud Success Rate | 14% | 31% |

4.4 Digital Payment Literacy Intervention Effectiveness

Exposure to digital payment literacy interventions varied significantly. Urban participants reported 71% participation in at least one UPI-focused training compared to 43% for rural participants ($\chi^2$=27.84, p<0.001). Intervention types included government Digital Saksharta Abhiyan workshops, bank-led UPI training sessions, CSC operator demonstrations, peer learning through self-help groups, and in-app tutorials. Perceived intervention effectiveness was measured on a 10-point scale. Urban participants rated average effectiveness at 7.8 (SD=1.9) compared to rural participants at 5.1 (SD=2.3), statistically significant (t(194)=9.47, p<0.001). Analysis by intervention type revealed hands-on smartphone workshops as most effective (urban: 8.7, rural: 7.4), followed by vernacular language training (urban: 8.2, rural: 7.9) and community-

based peer learning (urban: 7.6, rural: 8.1). Online tutorials showed lowest rural effectiveness (4.2) due to limited internet access and low digital literacy.

Table 5: Digital Payment Literacy Intervention Effectiveness (1-10 scale)

| Intervention Type | Urban | Rural |
|---|---|---|
| Hands-On Smartphone Workshops | 8.7 | 7.4 |
| Vernacular Language Training | 8.2 | 7.9 |
| Community Peer Learning | 7.6 | 8.1 |
| Bank-Led Training Sessions | 7.3 | 6.2 |
| CSC Operator Demonstrations | 7.1 | 6.8 |
| Government DSA Workshops | 6.9 | 5.4 |
| In-App Tutorials | 6.4 | 4.2 |
| Overall Average | 7.8 | 5.1 |

4.5 Predictors of UPI Adoption and Fraud Prevention Awareness

Multiple regression analysis examined predictors of fraud prevention awareness among UPI users. The model included education level, monthly income, smartphone literacy (composite score), intervention participation, and transaction frequency. Results revealed smartphone literacy as the strongest predictor ($\beta=0.51$, $p<0.001$), with each standard deviation increase associated with 13.2 percentage point increase in awareness scores. Intervention participation showed strong effects ($\beta=0.39$, $p<0.001$), with participation in 3+ interventions associated with 11.8 percentage point increase. Education level significantly predicted awareness ($\beta=0.34$, $p<0.001$). Income showed moderate effects ($\beta=0.27$, $p=0.003$). Transaction frequency demonstrated weak but significant positive association ($\beta=0.18$, $p=0.024$). Overall, the model explained 69% of variance in fraud prevention awareness ($R^2=0.69$, $F(5,239)=107.4$, $p<0.001$). Binary logistic regression examining UPI adoption predictors found smartphone ownership (OR=8.7, 95% CI: 4.3-17.6), education (OR=2.4 per level), and peer influence (OR=3.2) as significant predictors.

Table 6: Regression Analysis - Predictors of Fraud Prevention Awareness

| Predictor Variable | β | p-value | Impact |
|---|---|---|---|
| Smartphone Literacy | 0.51 | <0.001 | +13.2% per SD |
| Intervention Participation | 0.39 | <0.001 | +11.8% for 3+ programs |
| Education Level | 0.34 | <0.001 | +6.8% per level |
| Monthly Income | 0.27 | 0.003 | +2.7% per ₹10K |
| Transaction Frequency | 0.18 | 0.024 | +1.8% per 10 txns |

Model Statistics: $R^2 = 0.69$, $F(5,239) = 107.4$, $p < 0.001$

## 5. DISCUSSION

The finding of 28 percentage points between urban and rural UPI adoption, 82 per cent versus 54 per cent does indicate a greater structural imbalance in structure and digital literacy over an awareness factor or a simple novelty effect. Although the two cohorts are similar regarding the ownership rates of smartphones, the sharp contrast in the quality of the device, the level of internet access, and the related digital literacy indicates that the mere ownership of a mobile device is not enough to ensure that people can successfully engage with fintech services. Peer to peer transfers, more preferred by rural users at 84 percent over 67 percent in support of merchant payments also seems to be tapping into UPI mostly due to remittance flows triggered by need other than seeking retail convenience. It is a sharp departure of this behavioural pattern to the urban context where merchant transactions are predominant at 89%. The fact that transaction frequency is weakly correlated with fraud awareness ( 0.18), kills the intuitive notion that experience equals prudence hence explaining the necessity of specific educational interventions that are beyond exposure. The difference in the levels of awareness of the frauds of 32.6 percentage points is empirically deep. Although the rural responders are equally exposed to fraud (41 37), their victimisation is twice as high (31 14). Therefore, a gap in consciousness is a direct cost in terms of economic damage. It is interesting to note that the gaps around understanding the risks of screen-sharing (45 0 -percent gap) and vishing awareness (53 0 -percent gap) are characteristic of the types of fraud that follow social-engineering vectors instead of technical vulnerabilities. The limited knowledge of the NPCI fraud-reporting hotline, 18 per cent rural, and 52 per cent urban, makes the issue worse because they reduce recourse to the tool and, as a result, allows fraudsters to survive. The fact that cultural norms especially those which invoke a sense of shame and fear of being shunned by the family further discourages reporting of the same and the reporting rate of rural women was as low as at 42%. These results indicate categorically the need to have gender sensitive culturally informed intervention designs. The most effective predictor of fraud awareness (0.51) is smartphone literacy, and this is assigned empirical evidence of technology-based training frameworks. However, intervention participation (B = 0.39) can be added to the additional accounts of the other explanators, including literacy, which reveals that participation in participatory programmes has the extra value over simple technical skill up -skilling. Such interventions probably inscribe schema of contextualised fraud recognition, as well as, behavioural security. Notably, high efficacy of the training on vernacular language, 8.2 in urban and 7.9 in rural, proves that the prohibitive gaps are significantly erased in case the linguistic barriers are countered. Peer learning which is community-based provides an outstanding 8.1 in the rural context compared to the urban context of 7.6 implying that milieus that uphold collectivist socio-cultural orientations are supportive of group-based modalities of curriculum. On the other hand, the low rural results in in-app tutorials (4.2) indicate significant barriers on the internal infrastructures that limit the extension of the digital-first solutions. All of these results disprove cliché urban-rural dualities. Rather, contextual variables, such as infrastructural influences, digital literacy rates, language diversification, and even socio-cultural practices, have a dissimilar impact on adoption curves, as well as the effectiveness of fraud prevention. The rural population has been shown to have high levels of peer-to-peer UPI adoption without sufficient merchant networks, thus providing empirical evidence that even poorly designed digital payment literacy programs can successfully work in rural settings. The sharp effectiveness of the community-based peer learning (8.1) in rural areas provides a realistic design of implementation of interventions without the technical infrastructure-based methods. Combination with existing rural organizations-self help groups, agricultural cooperatives and Panchayati Raj structures is an assurance that it will increase reach and sustainability.

## 6. CONCLUSION & RECOMMENDATIONS

The study highlights significant disparities between urban and rural populations of Rajasthan in terms of its use (UPI) of fraud prevention awareness (71.2 per cent vs. 38.6 per cent.), and victimisation (14 per cent vs. 31 per cent). The proportion of the variance in fraud awareness attributed to Smartphone literacy, intervention participation and formal education are 69 50 independent variable and cultural and infrastructural variables are significant moderators of the intervention effectiveness. Despite the improvement of UPI adoption in the two settings, the issue of underdeveloped fraud awareness, specifically among the rural population where the victimisation rates are twice even with the same level of exposure is a pressing one. The data show that the contextual constraints can be overcome with the help of wisely designed intervention

designs, which is proved by the high rural efficacy of the vernacular language instruction (7.9) and community-peer learning (8.1). Key Recommendations: (1) create UPI-specific fraud-prevention kits in local languages (Hindi, Marwari, Mewari, Shekhawati) that identify the most dangerous fraud (QR scams, vishing, screen-sharing); (2) In favour of practical smartphone workshops rather than lectures allowing the participants to use their own gadgets during training periods; (3) Take advantage of community-based peer-learning models and enable local heroes in self-help organizations and agricultural cooperatives to implement continuous education production; (4) Couple UPI safety education with established governmental programmes (Jan Dhan accounts, MGNREGA disbursements, PM-KISAN transfers) in order to expand rural accessibility; (5) Provide frameworks of multilingual fraud-reporting systems with proactive follow-up resources to overcome reporting obstacles; (6) Establish gender-sensitive interventions to tackle cultural barriers that do not affect rural women equal opportunities to obtain and report fraud; (7) Address leading UPI systems (Google Pay, PhonePe, Paytm) to support in-app security education by adding vernacular support and contextually-relevant fraud scenarios; (8) Establish merchant-oriented system of education in which rural shopkeepers who accept UPI as payment become community educators on fraud prevention; (9) Infrastructure Investment Build the underlying digital infrastructure; (10) Facilitate cross-stakeholder coordination between the banks, telecommunication operators, law enforcement agencies, NGOs and technology companies to create a holistic fraud-prevention ecosystem.

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