National Research Journal of Banking and Finance Management
Volume No: 12, Issue No: 2, Year: 2025 (July-December)
PP: 359-364
ISSN: 2349-6762
Peer Reviewed & Refereed Journal (IF: 7.56)
Journal Website www.nrjbfm.in

IMPACT OF RISING CYBERCRIME ON THE ACCEPTANCE OF CASHLESS PAYMENT PLATFORMS IN UTTARAKHAND

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ABSTRACT

The transition towards a 'Digital India' has significantly propelled the adoption of cashless payment platforms across the country, including the state of Uttarakhand. However, this shift has been paralleled by an alarming surge in cybercrime, which rose by 195% in Uttarakhand in 2021 (NCRB data). This paper investigates the critical moderating effect of rising cybercrime on the acceptance and sustained usage of cashless payment platforms among the population of Uttarakhand. Drawing on existing literature and regional data, the study explores how heightened security concerns, driven by reported incidents of digital fraud, identity theft, and online scams, erode user trust and act as a significant barrier to the widespread adoption of digital transactions, especially in semi-urban and rural areas of the state, where digital literacy is often lower. The findings emphasize that cybersecurity perception and prior cybercrime experience are major determinants of consumer behaviour, often overriding the perceived benefits of convenience and efficiency.

The rapid transition to a cashless economy in Uttarakhand, while aligned with India's "Digital India" vision, faces a significant bottleneck: Cyber-victimization. This review synthesizes empirical evidence from 2024–2025, revealing that while perceived benefits (convenience and government incentives) drive initial adoption, "Digital Trauma" from cybercrime acts as a primary inhibitor to sustained usage. In Uttarakhand, where daily losses reach ₹46 lakh, the psychological and economic impact is uniquely shaped by rural vulnerability and tourism-specific frauds.

Keywords: Cashless Payments, Cybercrime, Impact on Uttarakhand.

1. INTRODUCTION

1.1 Introduction

The adoption of digital payment systems (DPS) such as UPI, mobile wallets and card payments has been an important part of the Indian government's financial inclusion and economic modernisation efforts [1]. Uttarakhand, a state with a mix of urban centers and remote rural areas, is also witnessing this digital revolution. The benefits of cashless transactions, including transparency, speed, and convenience, are significant for both consumers and local businesses [2].

However, the rapid digitization of financial transactions has increased the scope of attack for cybercriminals [3]. Cyber frauds are on the rise, often targeting individuals with low digital literacy through sophisticated social engineering schemes such as 'digital arrests' and OTP fraud [4]. This growing cybersecurity threat is hypothesized to directly undermine one of the most important factors for the adoption of financial technology, i.e., trust [5]. This paper

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specifically attempts to analyse the relationship between the increasing incidence of cybercrime in Uttarakhand and the resulting hesitation, reluctance or outright rejection of cashless payment platforms by the public there.

1.2 Global Scenario: A Digital Arms Race

Globally, the growing trend toward cashless societies is being accompanied by an equally aggressive rise in cyberattacks. It is estimated that global cybercrime losses will reach $10.5 trillion annually by the end of 2025, making cybercrime the third-largest threat to the world's economy after the United States and China.

- **Phishing Dominance:** Nearly 40% of online fraud cases globally are caused by phishing, in which users are tricked into sharing their identity cards.
- **The "Trust Gap":** According to a survey conducted by Mastercard in 2025, 70% of people believe that keeping their information safe on digital platforms is more difficult than keeping their physical homes safe.
- **Youth Vulnerability:** Surprisingly, while Generation Z and Millennials are the fastest adopters of cashless platforms, they are also more likely to fall prey to fraud attempts due to their overconfidence in digital literacy.

1.3 Uttarakhand Perspective: Local Challenges

Uttarakhand faces a number of unique challenges in adopting cashless platforms (UPI, mobile wallets, and net banking). The state has seen a significant increase in cybercrimes, often targeting growing digital transactions.

Key Local Trends (2024-2025)

- **Mobile Hacking & APK Frauds:** Recent actions by Uttarakhand Police (such as in Nainital/Tallital) have revealed that interstate gangs hack phones and siphon money from accounts using malicious APK files sent through social media.
- **The "Mule Account" Network:** Criminals often use "mule accounts" to transfer stolen money, making it difficult for local authorities to trace the money once it leaves the victim's account.
- **Psychological Barrier:** In the state's hilly and rural areas, even a single major case of fraud can lead to an immediate return to cash use for the entire community. The fear of "invisible theft" is a major reason why 86% of rural households, despite being connected to the internet, are still hesitant to go completely cashless [6].
- The increase in cybersecurity incidents in India from 10.29 lakh in 2022 to 22.68 lakh in 2024 reflects the growing scale and complexity of digital threats. Financial losses are also increasing, with cyber fraud cases worth ₹36.45 lakh reported on the National Cyber Crime Reporting Portal (NCRP) as of February 28, 2025. While these figures point to growing challenges, they also highlight the significant progress made in the country's detection and reporting systems [6].

1.4 Impact on Acceptance

Rising cybercrime creates a "try-it-and-miss" cycle. Users often try a digital platform (like UPI) because of its convenience, but return to cash transactions after a negative experience or a scam within their social circle.

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1. **Erosion of Trust:** Trust is key in digital payments. Once trust is broken, it takes years to rebuild, especially among Uttarakhand's elderly population, who may find this technology "alien."
2. **Increased Transaction Costs:** To combat fraud, platforms are adopting additional security measures (multifactor authentication, biometrics). While these additional steps are more secure, they can be frustrating for users in areas with fluctuating internet connectivity, leading them to revert to the simpler method of cash.
3. **Regional Disparity:** In urban centers like Dehradun or Haldwani, digital technology usage remains high despite the risks. However, in remote districts, cyber threats have exacerbated the digital divide, leaving the economy highly dependent on cash.

1.5 Mitigation and Future Outlook

To sustain a cashless lifestyle in Uttarakhand, the strategy needs to shift from just “promoting apps” to “promoting security”.

- **Local Language Campaigns:** Awareness programmes will be organised in Garhwali and Kumaoni languages to explain common scams like “receiving money through QR scan”.
- **Offline Security:** Since many scams are caused by human error (social engineering), community-level training is more effective than digital advertisements.
- **Strengthened Redressal:** Prompt recovery of funds through initiatives such as Financial Fraud Risk Indicators (FRI) is crucial to maintaining user trust.

2. LITERATURE REVIEW

2.1 The Digital Payment Ecosystem and Benefits

Global and national literature consistently highlights the dual benefits of digital payments:

1. **Macro-level:** Reduced black money, greater tax compliance, and financial inclusion for the unbanked.
2. **Micro-level:** Convenience, faster transactions, and efficient tracking of expenditure.

The Unified Payments Interface (UPI) has significantly transformed everyday transactions in India. Studies show that its benefits and ease of use are strong early adopters [7].

2.2 The Cybersecurity Challenge in Digital Transactions

One negative aspect of this digital revolution is the increasing prevalence of cybercrimes. Cyberattacks such as phishing, identity theft, and malware have become commonplace globally [8]. For emerging economies like India, and especially regions like Uttarakhand, this challenge is further compounded by two factors:

- **Low Digital Literacy:** A significant portion of the population, especially the rural and elderly, lacks the knowledge needed to identify fraudulent activities.
- **Lack of Robust Infrastructure:** Irregular internet connectivity and a fragmented unorganized economy also hinder safe and seamless digital adoption.

Security concerns and the risk of financial loss due to fraud are consistently identified as major barriers to the full adoption of cashless systems (Merla & Merlin, 2025). The central tenet of cybersecurity, the CIA triad (confidentiality, integrity, and availability), is crucial, and a breach in any one of these can severely damage public trust.

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2.3 Cybercrime in Uttarakhand

Regional statistics are particularly concerning. Uttarakhand has the highest number of cyber fraud cases in the country. A nearly 200% increase in cybercrime in a single year (NCRB, 2021) indicates a serious and growing threat. Furthermore, the Garhwal division of the state has seen a sharp increase in specific scams, such as "digital arrests," resulting in losses of crores and direct financial distress for citizens (Times of India, 2024).

Such a rise in local and serious cybercrimes creates an atmosphere of fear, which directly impacts public cybersecurity perception (PCS) and digital payment trust (DPT).

3. RESEARCH OBJECTIVES AND METHODOLOGY

3.1 Research Objectives

1. To find out the level of awareness about cybercrime related to cashless payment in Uttarakhand.
2. To analyse the relationship between perceived risk of cybercrime and intention to use cashless payment platforms.
3. To study how prior personal or acquaintance experiences with cybercrime influence digital payment adoption behaviour.
4. Identifying region-specific (e.g., urban vs. rural) barriers to cashless payment adoption due to security concerns.

3.2 Research Methodology

A **Mixed-Method Approach** is proposed for a comprehensive study.

Method	Data Type	Sample Group	Analysis Technique
Qualitative Interviews (Primary Data)	Semi-structured Interviews	Both users and non-users of digital payments in urban (Dehradun, Haridwar) and rural districts of Uttarakhand.	Thematic analysis to understand the emotional and behavioral consequences of cyber fraud incidents.
Secondary Data Analysis	NCRB reports, RBI data on digital frauds, and academic literature.	N/A	Trend analysis on the growth of cybercrime and the volume of digital transactions.

This research will use an extended version of the Technology Acceptance Model (TAM) or UTAUT that includes constructs such as digital payment trust and cybersecurity (DPTS) and cybercrime experience (CE), as employed in similar studies (Aljaradat and Shukla, 2025).

4. FINDINGS AND DISCUSSION

Based on the existing literature and regional context, the following findings are highly anticipated:

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4.1 Erosion of Trust and Reluctance to Adopt

Due to the significant increase in cybercrimes, especially high-value fraud cases, there is expected to be a significant negative relationship between cyber risk perception and willingness to adopt/continue using cashless platforms. Perceptions that systems are inherently insecure, or that grievance redressal mechanisms are ineffective, outweigh the benefits of convenience.

4.2 Moderating Effect of Prior Experience

This study hopes to confirm that prior cybercrime experience (either personal or eyewitness) significantly weakens the relationship between perceived benefits and actual use of digital payments. Digital trauma effectively impedes adoption behavior, especially in low-literacy environments where victims may feel more helpless.

4.3 Digital Literacy and Urban-Rural Divide

Security concerns are likely to be more severe in rural areas due to lower levels of digital literacy and limited access to formal banking support. This suggests that the impact of cybercrime is not uniform, but rather exacerbates existing digital inequality, slowing financial inclusion in remote areas of Uttarakhand.

Barriers to a Cashless Uttarakhand

The review identifies four primary barriers emerging from the rise in cybercrime:

1. **Complexity of Grievance Redressal:** Although the 1930 helpline is effective, the overall recovery rate (around 10.4% nationally) is too low to inspire complete confidence among the rural population.
2. **Infrastructure Vulnerability:** Unstable internet connectivity in mountainous areas can cause delays in processing transactions. Users often mistake these technical glitches for "phishing attempts," forcing them to resort to cash.
3. **Digital Literacy Paradox:** Although smartphone penetration is over 86%, it lags behind in terms of “digital hygiene” (link security, understanding OTP privacy), making the population an “easy target”.

5. CONCLUSION AND RECOMMENDATIONS

The growing prevalence of cybercrimes in Uttarakhand poses a serious threat to digital transformation. The high rate of digital fraud in the state is directly undermining the crucial factor of public trust, resulting in hesitation and rejection of cashless payment platforms despite their clear economic and convenience benefits. The government and financial institutions must understand that security is not just a technical feature but a fundamental requirement for widespread public acceptance.

Recommendations for Policy and Practice:

1. **Aggressive Digital Literacy Campaigns:** Implement targeted, multilingual awareness programs in high-risk rural areas, focusing on identifying social engineering scams (e.g., OTPs, 'digital arrests') and safe online practices (e.g., using strong passwords, MFA).
2. **Strengthened Grievance Redressal:** To ensure speedy investigations and increase the rate of filing of chargesheets, establish widely publicised and effective cyber crime helplines (such as 1930) and local cyber cells with adequate manpower and technical expertise.

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3. **Mandatory Multi-Factor Authentication (MFA):** Promote and enforce the use of strong security measures such as multi-factor authentication (MFA) for all digital payment apps and bank accounts, as it is a simple yet highly effective deterrent.
4. **Community-Based Trust Building:** Conduct trust-building programs using local community leaders and institutions, demonstrating successful and safe transactions to overcome psychological barriers and the 'fear' generated by media reports of fraud.

The future of a truly cashless Uttarakhand depends on it being able to create an ecosystem that is not only convenient, but also fundamentally safe and trustworthy for every citizen.

This review paper presents a multidimensional analysis of the impact of increasing cyber attacks on digital payment adoption in Uttarakhand in the global context of 2024-2025.

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