

The Rise of QR Code Payment Systems Among Gen Z: A Case Study of Prayagraj's FMCG Industry

Rajat Kumar Singh¹ and Prof. (Dr.) Mirza Shahab Shah²

Research Scholar, Dr. Ram Manohar Lohia Avadh University, Ayodhya¹

Professor, Department of Commerce, K.S. Saket PG. College, Ayodhya²

<https://orcid.org/0000-0003-1773-6164>¹

Abstract: *This research explores the key factors driving the adoption of QR code payments among Generation Z consumers in Prayagraj, particularly in the context of FMCG (Fast-Moving Consumer Goods) purchases. Using correlation and regression analysis, the study identifies overall satisfaction and security concerns as the most significant determinants of QR code payment usage, whereas factors like convenience and perceived benefits showed relatively lesser influence. The analysis also highlights demographic variations, with males and individuals aged 22-24 demonstrating higher usage rates and satisfaction levels.*

The findings emphasize the importance of improving user satisfaction and addressing security issues to promote QR code payment adoption. Additionally, the study recommends targeted marketing strategies and educational campaigns to effectively engage this demographic. By shedding light on Gen Z's digital payment preferences, this research provides actionable insights for businesses and policymakers aiming to accelerate the widespread adoption of QR code payment systems.

Keywords: QR Code Payments, FMCG, Digital Payments, Mobile Payments, Cashless Transactions, Security Concerns, Contactless Payments, India Payment Trends, Consumer Preferences

I. INTRODUCTION

In an era where smartphones are extensions of our hands and convenience is king, QR (Quick Response) code payments have emerged as a revolutionary force in the world of digital transactions. These pixelated squares, once confined to industrial use, have now become a symbol of modern commerce, especially among tech-savvy Gen Z consumers. By simply scanning a code, users can complete transactions in seconds, making QR codes a cornerstone of the cashless revolution.

The rapid rise of QR code payments is no accident. The ubiquity of smartphones with advanced cameras and internet connectivity has made this payment method accessible to millions. The COVID-19 pandemic further accelerated its adoption, as contactless payments became a necessity rather than a luxury. For Gen Z—a generation raised in the digital age—QR codes represent more than just a payment method; they embody a shift toward seamless, efficient, and rewarding financial interactions.

In the Fast-Moving Consumer Goods (FMCG) sector, QR code payments have proven to be a game-changer. They streamline transactions, eliminate the need for physical contact, and often come bundled with enticing perks like discounts, cashback, and loyalty rewards. These features resonate deeply with Gen Z, a demographic that values speed, convenience, and personalized experiences. As a result, QR code payments are not just a technological advancement but a reflection of evolving consumer behavior and the broader digital transformation sweeping across industries.

This study delves into the growing popularity of QR code payments among Gen Z consumers in Prayagraj, a city that mirrors the urban youth culture of India. By focusing on the FMCG sector, the research aims to uncover the factors driving this payment method's adoption, the challenges hindering its widespread use, and the role of marketing strategies in shaping consumer preferences. As Gen Z's economic influence continues to grow, understanding their



payment preferences is critical for businesses and policymakers aiming to foster a cashless economy and enhance the digital shopping experience.

II. LITERATURE REVIEW

Background on QR Code Payments:

QR code payment systems have emerged as a versatile and low-cost alternative to traditional payment methods. (Schumacher, 2024) discusses the architectural benefits of QR codes in retail Central Bank Digital Currencies (CBDCs), highlighting their ease of use, cost-effectiveness, and broad applicability in various retail environments (Schumacher, 2024). The study underlines that QR codes, due to their simplicity, have become an integral part of the digital payment landscape, especially in emerging markets where infrastructure costs and technological penetration can be limiting factors.

(Nisa & Adinugraha, 2024) further elaborate on the implementation of the Quick Response Code Indonesia Standard (QRIS) for micro, small, and medium enterprises (MSMEs). Their study reveals that while QRIS has been instrumental in promoting cashless payments, challenges such as inadequate infrastructure and low community engagement have hindered its full adoption (Nisa & Adinugraha, 2024). This aligns with the findings by (Odeta et al., 2023), who emphasize that while QR codes address certain challenges faced by other payment systems, user preferences and technological familiarity continue to play significant roles in their adoption (Odeta et al., 2023).

Gen Z's Payment Preferences:

The payment preferences of Gen Z, a generation known for its digital nativity, lean heavily towards mobile and digital payment methods. Studies suggest that Gen Z consumers prefer payment methods that are not only convenient but also offer a seamless integration with their digital lifestyle (Odeta et al., 2023). This generation's preference for mobile-based payment solutions, such as QR code systems, is driven by their demand for speed, efficiency, and convenience in transactions.

Furthermore, the role of Gen Z in driving the adoption of digital payments is significant, as they are often early adopters of new technologies and payment methods. Their inclination towards digital payments is not just a trend but a reflection of their broader consumer behavior that prioritizes immediacy and convenience (Odeta et al., 2023). This trend is supported by the study conducted by (Putri Metri, 2024), which shows that Gen Z's preferences are reshaping the payment landscape, particularly in how businesses are adapting their payment systems to meet the needs of this tech-savvy demographic (Putri Metri, 2024).

FMCG Sector and Digital Payments:

The adoption of digital payments in the Fast-Moving Consumer Goods (FMCG) sector is crucial given the sector's fast-paced nature. QR code payments, with their quick processing time and ease of use, align perfectly with the needs of FMCG consumers who prioritize convenience and speed in their shopping experiences. (Putri Metri, 2024) highlights how the integration of QR code payments in the FMCG sector not only improves transaction speed but also enhances customer satisfaction by providing a hassle-free checkout experience (Putri Metri, 2024).

Moreover, the study by (Luque et al., 2023) explores the broader implications of digital payment systems in e-commerce, where QR codes are increasingly used to streamline payment processes. This study suggests that the adoption of QR code payments in the FMCG sector is part of a larger trend towards digitization in commerce, driven by consumer demand for faster and more reliable payment methods (Luque et al., 2023).

III. METHODOLOGY

Research Design: This study employs a quantitative research design to explore the adoption and usage of QR code payments among Gen Z consumers in Prayagraj, particularly in the context of FMCG products. The research design is structured around the collection and analysis of numerical data, allowing for the identification of patterns, trends, and relationships. Descriptive statistics, cross-tabulation, and regression analysis were used to interpret the data, providing



insights into the frequency of QR code payment usage, the factors influencing adoption, and the barriers to widespread use among the target demographic.

Data Collection: Data for this study were collected using a structured questionnaire designed to capture various aspects of QR code payment usage among Gen Z consumers. The questionnaire was distributed both online and offline to ensure a broad reach within the Prayagraj area. It included questions related to the frequency of QR code payment usage, factors influencing adoption, consumer preferences, and barriers to adoption.

The demographic section of the questionnaire collected data on respondents' age, gender, and other relevant characteristics, which allowed for detailed analysis of the findings. According to the demographic data collected, the sample consisted of a balanced representation of male (44.4%) and female (55.6%) respondents, with the majority of participants falling within the 19-21 age group (44.4%).

Sampling: A non-probability convenience sampling technique was used for this study, selecting participants based on their availability and willingness to respond. The sample was drawn from various locations in Prayagraj, including educational institutions, shopping centres, and public spaces, to ensure a diverse representation of Gen Z consumers. The sample size consisted of 90 respondents, providing a sufficient data set for meaningful statistical analysis. The demographic breakdown revealed a diverse mix of age groups, with the majority of respondents aged between 19 and 21 years, ensuring that the findings are representative of the broader Gen Z population in Prayagraj.

Study Area: Prayagraj, a prominent urban centre in India, was chosen as the study area due to its dynamic demographic composition and its status as a representative city for observing the behavior of Gen Z consumers. The city is a hub of educational and economic activity, making it an ideal location for studying the adoption of digital payment methods among young consumers. The focus on Prayagraj provides insights into the trends and challenges faced by businesses and policymakers in similar urban areas across India, particularly in promoting cashless transactions in the FMCG sector.

- **Research Objectives:** This study aims to explore and understand the following key objectives:
- **Frequency and Usage:** To examine how often Gen Z consumers in Prayagraj use QR code payments when purchasing FMCG products.
- **Factors Influencing Adoption:** To identify the primary factors influencing Gen Z's adoption of QR code payments, such as convenience, security, and perceived benefits.
- **Preferences and Attitudes:** To explore the payment method preferences of Gen Z, including QR code payments, cash, credit/debit cards, and digital wallets, and to understand their attitudes towards these options.
- **Barriers to Adoption:** To identify potential barriers that hinder the widespread adoption of QR code payments among Gen Z, including technological limitations and regulatory constraints.
- **Impact of Marketing Strategies:** To investigate how marketing strategies, promotional campaigns, and incentives influence Gen Z's decision to use QR code payments for FMCG purchases.

IV. DATA ANALYSIS AND FINDINGS

- **Demographic Characteristics:** The demographic data collected included gender and age, which provided a foundational understanding of the sample population.
- **Gender Distribution:** The sample consisted of 44.4% males and 55.6% females, ensuring a balanced representation of gender in the study.
- **Age Distribution:** The age of respondents was categorized into four groups: 16-18 (12.2%), 19-21 (44.4%), 22-24 (21.1%), and 25-27 (22.2%), with the majority of respondents being in the 19-21 age group.

Frequency of QR Code Payment Usage:

The frequency of QR code payment usage was measured by the number of transactions respondents reported making using QR codes for FMCG purchases.



- **Gender-Based Analysis:** Males reported a slightly higher frequency of QR code transactions with a mean of 2.20 compared to 1.84 for females. However, the standard deviation was higher for males (1.265) than for females (0.934), indicating more variability in the male group.
- **Age-Based Analysis:** The 22-24 age group showed the highest frequency of QR code usage (mean = 2.42), while the youngest group (16-18) reported the lowest (mean = 1.91). This suggests that older segments within Gen Z are more active in using QR code payments for FMCG purchases.

Factors Influencing Adoption:

Several factors were identified as potential influencers of QR code payment usage among Gen Z consumers, including convenience, security concerns, perceived benefits, and marketing campaigns.

- **Convenience Perception:** The study examined how convenient Gen Z consumers in Prayagraj find QR code payments compared to other payment methods.
- **Convenience Levels:** A significant portion of respondents (50.0%) rated QR code payments as very convenient, with another 26.7% finding them somewhat convenient. Only 5.6% found them not convenient at all, and 17.8% were neutral about the convenience.

The generally positive perception of convenience (76.7% rating it as very or somewhat convenient) indicates that ease of use is a major factor driving the adoption of QR code payments among this demographic.

Security Concerns: Security is a critical factor in the adoption of any payment method. The study explored various security concerns associated with QR code payments.

Primary Security Concerns:

- **Data Privacy:** The most prevalent concern, with 40.0% of respondents expressing worries about how their personal and financial data is handled.
- **Risk of Fraud:** 28.9% of respondents are concerned about the risk of fraudulent activities.
- **Unauthorized Access:** 17.8% of respondents are worried about unauthorized access to their bank accounts.
- **No Concerns:** Only 13.3% of respondents reported having no security concerns.

The high level of security concerns (86.7% expressing some form of worry) suggests that addressing these issues, particularly around data privacy and fraud prevention, is crucial for increasing confidence and adoption rates.

Perceived Benefits: The study also explored the benefits that Gen Z consumers perceive in using QR code payments for FMCG purchases.

Key Perceived Benefits:

- **Faster Transactions:** The most commonly cited benefit, with 42.2% of respondents valuing the speed of QR code payments.
- **Reduced Need for Carrying Cash:** 40.0% of respondents appreciate the convenience of not needing to carry physical cash.
- **Cashback Offers:** Only 11.1% of respondents consider cashback offers as a significant benefit.
- **No Perceived Benefits:** 6.7% of respondents did not perceive any benefits or were unsure about the advantages of using QR code payments.

The emphasis on faster transactions and reduced need for carrying cash highlights the importance of convenience and efficiency in driving the adoption of QR code payments. Cashback offers, while valued by some, are not the primary motivator for most users.

Challenges and Drawbacks: Identifying the challenges or drawbacks faced by users when utilizing QR code payments is essential for understanding barriers to adoption.



Primary Challenges:

- **Technical Issues:** A significant majority (73.3%) reported encountering technical problems, such as payment failures, which represent a major obstacle to widespread adoption.
- **Limited Acceptance at Retailers:** 13.3% of respondents noted that not all retailers accept QR code payments, limiting their utility.
- **Lack of Awareness:** 6.7% of respondents cited a lack of awareness about how to use QR code payments as a challenge.
- **No Challenges:** 6.7% of respondents reported no issues, indicating a completely satisfactory experience for a small segment of users.

The high prevalence of technical issues suggests that improving the reliability of QR code payment systems is critical. Expanding retailer acceptance and increasing user education could also help mitigate other barriers to adoption.

Overall Satisfaction: The study also assessed the overall satisfaction levels of Gen Z consumers with QR code payments.

Satisfaction Levels:

- **Satisfied/Strongly Satisfied:** 53.3% of respondents expressed positive satisfaction with QR code payments.
- **Neutral:** 31.1% of respondents were neutral, indicating potential for increased satisfaction with improvements.
- **Dissatisfied/Strongly Dissatisfied:** 15.5% of respondents were dissatisfied, pointing to areas where improvements are needed.

The overall satisfaction suggests that while a majority of users are happy with QR code payments, there is still a significant proportion of neutral or dissatisfied users. Efforts to address technical issues, security concerns, and convenience could help convert these users into satisfied customers.

Preferences and Attitudes: Payment Method Preferences

To explore the preferences and attitudes of Gen Z consumers toward various payment methods, the respondents were asked about their preferred payment method for purchasing Fast-Moving Consumer Goods (FMCG). The options included QR code payments, cash, credit/debit cards, and digital wallets.

- **Preference Distribution:** The analysis revealed that a significant majority of respondents (58.9%) prefer QR code payments for FMCG purchases, making it the most favored payment method among Gen Z consumers in Prayagraj. Cash was the second most preferred option, chosen by 28.9% of respondents. Credit/debit cards and digital wallets were less popular, with only 6.7% and 5.6% of respondents, respectively, indicating a preference for these methods.
- **Satisfaction with Payment Options:** The respondents were also asked to rate their satisfaction with the availability of payment options for FMCG purchases in Prayagraj.

The satisfaction analysis showed that 31.1% of respondents were satisfied, and 17.8% were very satisfied with the current payment options available for FMCG purchases. However, a notable portion of the sample expressed neutrality (40.0%), indicating neither satisfaction nor dissatisfaction. Dissatisfaction levels were relatively low, with only 6.7% dissatisfied and 4.4% very dissatisfied.

Likelihood of Recommending QR Code Payments: The study also measured how likely the respondents were to recommend QR code payments to their friends or family for FMCG purchases.

The findings suggest a generally positive attitude towards QR code payments, with 33.3% of respondents being very likely and 24.4% likely to recommend QR code payments. A smaller segment was neutral (31.1%), while only 6.7% and 4.4% of respondents were very unlikely or unlikely to recommend this payment method, respectively.

Factors Influencing Payment Method Choice: The factors influencing the choice of payment methods were also explored, focusing on convenience, security, discounts/rewards, and other potential considerations.



Convenience emerged as the most critical factor, influencing 44.4% of respondents in their choice of payment method. Security was the second most important factor, affecting 31.1% of the respondents. Discounts or rewards were influential for 17.8% of the sample, while a small fraction (6.7%) indicated that none of these factors significantly influenced their choice.

Switching Behavior in Payment Methods: The study also examined whether respondents had ever switched or considered switching their preferred payment method for FMCG purchases and the reasons behind such decisions. A significant portion of respondents (46.7%) reported switching or considering switching their payment method due to convenience or security concerns. Another 24.4% indicated that they switched due to better incentives offered by alternative payment methods. Meanwhile, 17.8% of respondents had not considered switching, and 11.1% stated that the question was not applicable to them.

Barriers to Adoption

Encountered Difficulties with QR Code Payments: One of the key aspects of this study was to identify the challenges faced by Gen Z consumers when using QR code payments for FMCG purchases in Prayagraj.

A significant majority of respondents (68.9%) reported encountering difficulties when using QR code payments. This indicates that despite the popularity of QR code payments, there are still substantial challenges that could hinder their widespread adoption.

Access to Necessary Technology: The availability of technology, such as smartphones and internet connectivity, is crucial for the adoption of QR code payments.

The data shows that 91.1% of respondents have access to the necessary technology to make QR code payments. This high level of access suggests that technological limitations are not a significant barrier for the majority of Gen Z consumers in Prayagraj. However, the remaining 8.9% who lack access represent a segment that could benefit from initiatives aimed at improving technology accessibility.

Availability of QR Code Payment Options at FMCG Retailers: The presence of QR code payment facilities at retail locations is another critical factor influencing adoption.

According to the data, 82.2% of respondents reported that QR code payment options are readily available at the FMCG retailers they frequent. This suggests that while availability is generally high, there are still gaps that could be addressed, particularly in the 17.8% of cases where such options are not available.

Awareness of Regulatory Constraints: Regulations and policies can either facilitate or hinder the adoption of new payment technologies.

The responses indicate a nearly even split in awareness of regulations affecting QR code payments, with 51.1% of respondents being aware of such regulations and 48.9% not being aware. This suggests that there may be a lack of clear communication or understanding regarding regulatory frameworks, which could contribute to uncertainty or hesitancy in adoption.

Desired Improvements for Accessibility and Convenience: Respondents were asked what improvements they would like to see to make QR code payments more accessible and convenient.

A significant portion of respondents expressed a desire for improvements, with 28.9% agreeing and 31.1% strongly agreeing that changes are needed to make QR code payments more accessible. Only 11.1% strongly disagreed, and 2.2% disagreed, while 26.7% remained neutral. This indicates that while some users are satisfied, a large number see room for improvement, suggesting that current systems may not fully meet their expectations.

Influence of Marketing Strategies

Influence of Marketing Campaigns: A key focus of this objective was to assess whether marketing campaigns and promotions have successfully influenced Gen Z consumers to adopt QR code payments for FMCG purchases.

The data reveals that 62.2% of respondents have been influenced by marketing campaigns or promotions to use QR code payments, suggesting that marketing efforts are effective for the majority of this demographic. However, 37.8% indicated that they were not influenced, highlighting a potential area for improvement in marketing strategies to reach this segment.



Perception of Communication Effectiveness: The effectiveness of communication by QR code payment providers in conveying the benefits of their services was also examined.

An overwhelming 80.0% of respondents believe that QR code payment providers effectively communicate the benefits of using their services for FMCG purchases. This high percentage suggests that communication strategies are generally successful, although the 20.0% who do not share this view indicate there is room to enhance messaging clarity or reach.

Participation in Loyalty Programs and Special Offers: The study also explored the participation of Gen Z consumers in loyalty programs or special offers designed specifically for QR code payments.

Only 37.8% of respondents have participated in loyalty programs or special offers, while 62.2% have not. This suggests that while loyalty programs can be an effective tool for engagement, they are not yet fully utilized or appealing to a large portion of the population.

Preferred Incentives and Rewards: Understanding the types of incentives or rewards that motivate consumers to use QR code payments more frequently is crucial for tailoring effective promotional strategies.

Cashback offers emerged as the most compelling incentive, with 68.9% of respondents identifying it as a motivating factor. Discounts were the second most popular incentive at 13.3%, followed by loyalty points (11.1%) and exclusive access to deals/offers (6.7%). This indicates that financial incentives, particularly cashback, are highly valued by Gen Z consumers.

Sources of Information on Payment Options and Promotions: The channels through which Gen Z consumers learn about new payment options or promotions were also examined.

Social media is the dominant source of information, cited by 55.6% of respondents, followed by retailer advertisements and word of mouth, each at 22.2%. This trend underscores the importance of social media as a key platform for reaching this demographic with promotional content and information about payment options.

Comprehensive Analysis of Factors Influencing QR Code Payment Adoption

In this section, we present a comprehensive analysis of the key factors influencing the adoption and usage of QR code payments among Gen Z consumers in Prayagraj's FMCG sector. This analysis integrates findings from correlation, regression, and cross-demographic studies, offering a detailed exploration of how various factors such as overall satisfaction, security concerns, and demographic variables affect QR code payment frequency.

Correlation Analysis: The correlation analysis aimed to identify relationships between critical variables influencing QR code payment adoption.

Transaction Frequency and Security Concerns: A significant negative correlation was found between transaction frequency and security concerns ($r = -0.241$, $p = 0.022$) (Table 1). This indicates that as security concerns rise, the frequency of QR code payments tends to decrease. Users with heightened concerns about data privacy, unauthorized access, and fraud are less inclined to use QR code payments regularly.

Transaction Frequency and Overall Satisfaction: A strong positive correlation exists between transaction frequency and overall satisfaction ($r = 0.315$, $p = 0.002$) (Table 1). This suggests that users who are more satisfied with QR code payments tend to use them more frequently.

Perceived Benefits and Security Concerns: A positive correlation between perceived benefits and security concerns ($r = 0.298$, $p = 0.004$) implies that those who perceive more benefits from QR code payments are also more aware of potential security risks (Table 1).

Marketing Influence and Gender: A significant negative correlation was found between the influence of marketing campaigns and gender ($r = -0.318$, $p = 0.002$), indicating that marketing strategies may impact males and females differently in their adoption of QR code payments (Table 1).

Overall Satisfaction and Perceived Benefits: A positive correlation between perceived benefits and overall satisfaction ($r = 0.236$, $p = 0.025$) shows that users who perceive more benefits from QR code payments are generally more satisfied with the service (Table 1).



		Gender	Age Group	Transaction Frequency	Convenience	Security Concerns	Perceived Benefits	Influence by Marketing Campaigns	Access to necessary technology for QR payments	Overall Satisfaction
Gender	Pearson Correlation	1	.054	-.163	-.035	.045	.139	-.318**	-.035	-.159
	Sig. (2-tailed)		.614	.124	.744	.671	.192	.002	.744	.135
Age Group	Pearson Correlation	.054	1	.136	.051	.110	.206	.021	.110	.239*
	Sig. (2-tailed)	.614		.201	.631	.300	.051	.848	.301	.024
Transaction Frequency	Pearson Correlation	-.163	.136	1	.088	-.241*	-.059	.126	-.143	.315**
	Sig. (2-tailed)	.124	.201		.411	.022	.583	.238	.180	.002
Convenience	Pearson Correlation	-.035	.051	.088	1	-.044	.129	.079	.156	-.132
	Sig. (2-tailed)	.744	.631	.411		.678	.227	.461	.143	.214
Security Concerns	Pearson Correlation	.045	.110	-.241*	-.044	1	.298**	.057	.170	.114
	Sig. (2-tailed)	.671	.300	.022	.678		.004	.595	.110	.286
Perceived Benefits	Pearson Correlation	.139	.206	-.059	.129	.298**	1	.182	-.033	.236*
	Sig. (2-tailed)	.192	.051	.583	.227	.004		.087	.754	.025
Influence by Marketing Campaigns	Pearson Correlation	-.318**	.021	.126	.079	.057	.182	1	.079	.200
	Sig. (2-tailed)	.002	.848	.238	.461	.595	.087		.461	.059
Access to necessary technology for QR payments	Pearson Correlation	-.035	.110	-.143	.156	.170	-.033	.079	1	-.174
	Sig. (2-tailed)	.744	.301	.180	.143	.110	.754	.461		.101
Overall Satisfaction	Pearson Correlation	-.159	.239*	.315**	-.132	.114	.236*	.200	-.174	1
	Sig. (2-tailed)	.135	.024	.002	.214	.286	.025	.059	.101	
	N	90	90	90	90	90	90	90	90	90

Table 1: Correlation Analysis

- **Regression Analysis:** A multiple regression analysis was conducted to identify the most significant predictors of QR code payment frequency.
- **Model Significance:** The regression model was statistically significant ($F = 3.311$, $p = 0.004$), meaning the selected variables collectively explain a substantial portion of the variance in transaction frequency (Table 2).

Key Predictors:

- **Overall Satisfaction:** This was the most significant positive predictor of transaction frequency ($B = 0.310$, $p = 0.004$) (Table 3). The higher the overall satisfaction with QR code payments, the more frequently users tend to use this payment method.
- **Security Concerns:** Security concerns were a significant negative predictor ($B = -0.237$, $p = 0.027$), indicating that as concerns about security increase, the frequency of QR code payment usage decreases (Table 3).
- **Non-Significant Predictors:** Gender, age group, convenience, perceived benefits, and access to technology did not significantly predict transaction frequency in this model, suggesting these factors might influence other aspects of QR code payment adoption but do not directly drive usage frequency.

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	23.798	7	3.400	3.311	.004 ^b
	Residual	84.202	82	1.027		
	Total	108.000	89			

a. Dependent Variable: Transaction Frequency

b. Predictors: (Constant), Overall Satisfaction, Security Concerns, Convenience, Gender, Age Group, Access to necessary technology for QR payments, Perceived Benefits

Table 2: ANOVA Analysis



Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.659	.763		2.173	.033
	Gender	-.201	.224	-.091	-.901	.370
	Age Group	.126	.117	.111	1.077	.285
	Convenience	.163	.121	.137	1.349	.181
	Security Concerns	-.237	.105	-.237	-2.257	.027
	Perceived Benefits	-.102	.115	-.096	-.881	.381
	Access to necessary technology for QR payments	-.329	.399	-.086	-.825	.412
	Overall Satisfaction	.310	.103	.327	3.007	.004

a. Dependent Variable: Transaction Frequency

Table 3: Coefficient

Cross-Demographic Analysis: The cross-demographic analysis examined how gender and age influence QR code payment behavior, overall satisfaction, and security concerns.

Gender Differences:

Transaction Frequency: Males generally use QR code payments more frequently than females, with a mean of 2.20 for males compared to 1.84 for females (Table 4).

Overall Satisfaction: Males report slightly higher satisfaction (mean = 3.85) than females (mean = 3.48) (Table 4).

Security Concerns: Security concerns are similar across genders, though females exhibit slightly higher concerns.

Age Group Differences:

Transaction Frequency: The highest transaction frequency was observed in the 22-24 age group (mean = 2.42), while the 16-18 age group showed the lowest frequency (mean = 1.91) (Table 4).

Overall Satisfaction: Satisfaction generally increases with age, peaking in the 22-24 group (mean = 4.05) before slightly declining in the 25-27 group (mean = 3.95) (Table 4).

Security Concerns: The youngest age group (16-18) shows the highest variability in security concerns, whereas the oldest group (25-27) reports the lowest (Table 4).

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
Transaction Frequency	Male	40	2.20	1.265	.200	1.80	2.60	1	4
	Female	50	1.84	.934	.132	1.57	2.11	1	4
	Total	90	2.00	1.102	.116	1.77	2.23	1	4
Overall Satisfaction	Male	40	3.85	.921	.146	3.56	4.14	2	5
	Female	50	3.48	1.313	.186	3.11	3.85	1	5
	Total	90	3.64	1.164	.123	3.40	3.89	1	5
Security Concerns	Male	40	2.10	1.105	.175	1.75	2.45	1	4
	Female	50	2.20	1.107	.156	1.89	2.51	1	4
	Total	90	2.16	1.101	.116	1.93	2.39	1	4

Table 4: Descriptive Analysis



V. DISCUSSION

The findings from this study provide critical insights into the factors influencing QR code payment adoption among Gen Z consumers in Prayagraj, particularly in the context of FMCG purchases. The results demonstrate that overall satisfaction and security concerns are pivotal in determining the frequency of QR code payment usage, aligning with previous studies that emphasize the importance of user satisfaction and trust in digital payment systems.

- **Alignment with Previous Literature:** The significant positive relationship between overall satisfaction and usage frequency corroborates findings from studies by Davis et al. (2020) and Lee & Rha (2018), which highlight that user satisfaction is a key driver of technology adoption, particularly in digital payments. Furthermore, the negative impact of security concerns on usage frequency is consistent with the work of Sharma & Chaturvedi (2019), who found that perceived risks significantly deterred consumers from adopting mobile payment solutions.
- **Differences from Previous Studies:** However, the lack of significant impact from convenience and perceived benefits on usage frequency diverges from the findings of prior research, such as Gupta & Gupta (2017), which suggested that ease of use and tangible benefits like discounts and cashback are strong motivators for digital payment adoption. This discrepancy could be due to the unique demographic characteristics of Gen Z, who may prioritize trust and satisfaction over convenience and monetary incentives.
- **Implications for Stakeholders:** The study's findings have several important implications for businesses, policymakers, and researchers seeking to increase QR code payment adoption among Gen Z consumers.

For Businesses:

- **Enhancing User Satisfaction:** Businesses should focus on improving the overall user experience with QR code payments. This includes ensuring a seamless and reliable transaction process, providing robust customer support, and continuously updating the payment system to meet user expectations.
- **Addressing Security Concerns:** Since security concerns are a major deterrent, businesses must prioritize data privacy and fraud prevention measures. Implementing advanced security protocols, transparent communication about data usage, and educating consumers on safe practices can help build trust and encourage more frequent use of QR code payments.
- **Tailoring Marketing Strategies:** The gender differences in response to marketing campaigns suggest that businesses should adopt targeted marketing strategies. For example, campaigns aimed at male consumers might emphasize the technical reliability and security of QR code payments, while those targeting female consumers could focus on the convenience and safety benefits.

For Policymakers:

- **Regulatory Support:** Policymakers should consider developing regulations that enhance the security of QR code payments, such as mandatory encryption standards and guidelines for handling data breaches. Such regulations could alleviate consumer fears and foster wider adoption.
- **Educational Campaigns:** Government-led initiatives to educate the public about the safety and benefits of QR code payments could further enhance adoption rates. These campaigns could target young consumers, emphasizing the security measures in place and how to use QR code payments safely.

For Researchers:

- **Expanding the Research Scope:** The findings indicate the need for further research into the role of demographic variables, such as gender and age, in digital payment adoption. Future studies could explore these factors in different geographic regions or among different age groups to see if the trends observed in this study hold true elsewhere.



- **Investigating Non-Significant Variables:** Researchers should also investigate why variables like convenience and perceived benefits did not significantly impact usage frequency in this study. This could involve qualitative research methods to explore consumer motivations and perceptions in more depth.
- **Limitations and Future Research:** While this study provides valuable insights, it is important to acknowledge its limitations.
- **Sample Size and Geographic Focus:** The study's sample size was relatively small and focused on Gen Z consumers in Prayagraj, which may limit the generalizability of the findings. Future research could involve larger, more diverse samples from different regions to validate and expand upon these results.
- **Cross-Sectional Design:** The study utilized a cross-sectional design, capturing data at a single point in time. This approach does not account for changes in consumer behavior over time. Longitudinal studies could provide a more dynamic view of how QR code payment adoption evolves and what factors drive these changes.
- **Limited Exploration of Non-Significant Variables:** The study did not find significant impacts of convenience and perceived benefits on QR code payment frequency, which contrasts with other research. Future studies could delve deeper into these variables, perhaps using qualitative methods like focus groups or interviews to better understand why these factors might be less influential for Gen Z consumers.

VI. CONCLUSION

This study highlights the critical role of overall satisfaction and security concerns in driving QR code payment adoption among Gen Z consumers in Prayagraj's FMCG sector. While previous research often emphasizes convenience and perceived benefits, our findings indicate that these factors are less significant compared to the importance of trust and user experience. Demographic differences were also observed, with males and the 22-24 age group showing higher usage and satisfaction levels. These insights underscore the need for businesses to enhance user satisfaction through reliable service and robust security measures while developing targeted marketing strategies that resonate with different demographic segments.

To foster greater adoption, businesses and policymakers should focus on improving the overall user experience, addressing security concerns, and educating consumers about the benefits and safe usage of QR code payments. By prioritizing these areas, stakeholders can effectively engage Gen Z, a key demographic in the digital economy, and contribute to the growth of a secure and user-friendly digital payment ecosystem. This study provides valuable insights that can inform future strategies and research, ultimately supporting the broader adoption of digital payment technologies.

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