



An Analytical Study on the Adoption and Usage Patterns of Online Payment Applications Among Customers

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Abstract – This study examines the adoption and usage patterns of online payment applications, emphasizing the influence of demographic factors, perceived convenience, ease of use, trust, and security. Data were collected from 200 active users through a structured questionnaire and analyzed to identify key determinants of adoption and continued usage. Results indicate that age, income, education, and location significantly shape usage frequency, while convenience, trust, and security perceptions strongly drive sustained engagement. Customer satisfaction was found to positively impact retention and loyalty, reducing switching tendencies. The findings provide actionable insights for service providers to optimize user experience, build trust, and strengthen long-term customer relationships.

Keywords - Digital Payment, digital channels, consumer behavior, product satisfaction.

I. INTRODUCTION

The rapid growth of digital technologies and the increasing penetration of smartphones have transformed the way individuals conduct financial transactions. Among the most significant developments in this domain is the emergence of online payment applications, which allow users to make secure, fast, and convenient transactions anytime and anywhere. The shift from traditional payment methods such as cash and cheques to digital modes has been further accelerated by factors such as technological advancements, government initiatives for cashless economies, and changing consumer lifestyles.

In recent years, online payment platforms like Google Pay, PayPal, Paytm, PhonePe, Apple Pay, and similar applications have gained widespread popularity, driven by their user-friendly interfaces, enhanced security features, and integration with various retail and service ecosystems. The COVID-19 pandemic also acted as a catalyst, boosting the adoption of contactless payment methods to reduce physical interaction and improve hygiene standards.



However, despite the growing adoption, usage patterns vary significantly among different segments of the population due to factors such as age, income level, digital

literacy, trust in technology, and perceived security risks. Understanding these adoption and usage patterns is crucial for businesses, policymakers, and technology providers to design better services, address user concerns, and enhance customer satisfaction.

This analytical study aims to examine the factors influencing the adoption of online payment applications, explore how frequently and for what purposes customers use them, and identify barriers to wider adoption. By doing so, the study seeks to provide valuable insights that can help stakeholders optimize digital payment ecosystems and foster greater financial inclusion in the digital era.

Objectives of The Study

- To study the impact of demographic characteristics (age, gender, income, education, location) on adoption and usage behavior.
- To examine the role of convenience, ease of use, trust, and security in influencing adoption and continued usage.
- To evaluate customer satisfaction with online payment applications and its effect on retention and loyalty.

III. METHODOLOGY APPLIED

Primary Data:

The study was conducted through observation and data collection using questionnaires. A questionnaire consists of a series of questions, either printed or typed, arranged in a defined order on a form or set of forms.

The study utilized various types of questions, including:

- Open-ended questions
- Closed-ended questions
- Multiple-choice questions



- Likert scale-based questions

These question types helped gather both qualitative and quantitative data, allowing for a comprehensive analysis of the research subject.

Secondary Data: Secondary data is collected from existing sources such as articles, books, journals, and magazines. This data is used to support and develop the theoretical framework of the study.

Sample size: For the purpose of this study, a sample size of 200 respondents was selected using a purposive sampling method. The respondents were individuals who are currently using online payment applications to make purchases for various goods and services. This sample was chosen to ensure that all participants have relevant experience with digital transactions, enabling the study to capture meaningful insights into their adoption behavior, frequency of usage, and satisfaction levels..

Statistical tools:

The data collected was analyze with appropriate to the tools used for this research are.

- Percentage analysis
- Chi-square test

Limitation of The Study

- The study is limited to a sample size of 200 respondents, which may not fully represent the entire population of online payment users.
- Respondents were chosen from a specific geographical area, so results may not reflect customer behavior in other regions.

Benefits of Digital Payment

- Convenience – Payments can be made anytime and anywhere without visiting a physical store or bank.
- Speed – Transactions are completed instantly or within seconds.
- Security – Encrypted systems, OTPs, and biometric authentication reduce risks compared to carrying cash.
- Record Keeping – Digital payments automatically generate receipts and transaction history for tracking expenses.
- Cashless Transactions – Reduces the need to handle physical cash, improving hygiene and minimizing theft risk.



Global Access – Enables international transactions without the need for currency exchange in person.

Promotions & Rewards – Many platforms offer cashback, discounts, and loyalty points.

Financial Inclusion – Helps bring banking and payment services to people without easy access to physical banks.

Eco-Friendly – Reduces paper usage from cash handling and receipts.

Integration with Other Services – Links easily with e-commerce, bill payments, ticket booking, and subscription services.

Traditional Payment System Vs Digital Payment System

Awareness of payment methods among people varies significantly between traditional and digital systems. Traditional payment methods such as cash, cheques, and bank drafts have long been familiar to the public, particularly among older generations who view them as tangible, trustworthy, and simple to use without requiring technical skills. In contrast, awareness of digital payment method such as UPI-based applications, mobile wallets, debit and credit cards, and internet banking has grown rapidly in recent years due to the widespread use of smartphones, increased internet access, and government initiatives promoting a cashless economy. Younger generations tend to be more aware of the features, benefits, and security aspects of digital payments, while older individuals may know only the basic functions. However, despite rising digital awareness, gaps remain in understanding advanced features and security measures, and in rural areas, traditional payments still dominate due to limited access to digital infrastructure.



IV. REVIEW OF LITERATURE

A Review of Literature is a section in a research paper, thesis, or dissertation that summarizes, evaluates, and discusses existing research studies related to your chosen topic. Its main purpose is to show what is already known, what methods have been used, and what gaps or limitations exist in previous studies, so that your research can build on or address those gaps.

Maindola, Pallavi, Neetu Singhal, and Akash D.Dubey.(2018) The digital payment landscape is sprouting in the country at a dizzying step. After the demonetization, complete turnaround in the payment landscape has been observed. The technology revolution and government initiative of cashless economy, followed



by demonetization saga has enabled the evolution of multiple non-banking players in the payment space.

Mishra, Sonal, and Kirti R. Swain. (2018) Mobile payment system has gained popularity in the recent past, due to increased Smartphone penetration, cheap high speed internet facilities; crave for quicker payment settlement and convenience for use. But the percentage increase is yet not satisfactory, even after major efforts made by our government to facilitate digital literacy and provide various payment method alternatives Gupta and Arora (2017) explored the factors influencing mobile wallet adoption in India, finding that convenience, promotional offers, and peer influence were major drivers, while lack of trust and perceived security risks were key barriers. Similarly, Sharma and Kaur (2019) examined UPI-based payment adoption, concluding that transaction speed and user-friendly interfaces positively affect customer satisfaction.

A study by Singh and Rana (2020) analyzed the role of demographic factors in digital payment usage. They observed that younger, urban, and higher-income groups exhibited greater adoption levels compared to older and rural populations, largely due to better access to smartphones and the internet.

Kumar et al. (2021) investigated the impact of COVID-19 on digital payment adoption, revealing that concerns about physical contact accelerated the shift towards contactless transactions. This aligns with findings by Alwi et al. (2020), who highlighted that pandemic-driven behavioral changes have made digital payment platforms a necessity rather than a convenience.

Kavitha, M., and K. Sampath Kumar. (2018). The demonetization resulted in tremendous growth in digital payments. With the government initiative such as Digital India and increased use of mobile and internet are means to exponential growth in use of digital payment. This transformation towards digital payments benefits in more transparency in transactions which empowers the country's economy. In recent days many changes took place in the payment system like digital wallets, UPI and BHIM apps for smooth shift to digital payments.

Pal, Abhipsa, Tejaswini Herath, and H. Raghav Rao. (2019) The heavy cash dependence of India and low digital adoption changed when the government announced its demonetization scheme on November 2016, invalidating bank notes and creating a crisis. In this cash shortage, the nation, that was historically low on mobile payment adoption, was pushed to use digital payment. Das, Abhrajyoti, et al. (2018) Digital wallets, gained a lot of popularity in recent times in India and around the globe. A digital wallet refers to a platform based on electronic device or online service that allows an individual to make electronic transactions. It is a transformed way to pay for things. It is basically paperless payment method which

reduces all the hassle of carrying cash with you everywhere. Many digital wallet services have their own mobile apps. Post demonetization in India, the popularity of digital wallet gains exponentially. There are many digital wallets which are currently active in India like paytm, freecharge, jio Money, Airtel Money etc.

CHERUKUR, MR. (2020) The present study focuses on the customer satisfaction towards mobile wallets. This study examines the factors that influence customer's satisfaction while using mobile wallets. Nowadays everyone uses their Smartphone's to make their day today transactions using mobile wallets. Mobile wallets create a huge impact among the people. The present study is carried by a survey conducted among the mobile wallet users to identify the satisfactory levels of them. Miruna, S. Lyrics. (2019) In recent times technology plays a very vital role with this, the way we transact in daily life has changed drastically with the advent of smart phone the life has become easier where all payments & transaction are taking place online. This paved the way for the emergence of platform termed as a digital wallet. Anshari, Muhammad, et al. (2021). Adoption of e-wallet can potentially enhance the efficiency of financial institutions and the provision of new services for the convenience of the customers. The youngsters really adapted to this payment apps. It really satisfies the customers in easy transaction and payment.

Tiwari, Pooja, Vikas Greg, and Abhishek Singhal. (2019). In today's fast-moving lifestyle people need to adopt more convenient and secure gadgets to make their life more comfortable. To achieve this goal, there is an innovative product called Digital Wallet. The digital wallet refers to an electronic device or service provided to persons enabling them to conduct electronic transactions. The best example of digital wallet is the online shopping. It is also known as e-wallet. Nowadays people prefer online shopping as it is providing them the benefits like it is less time consuming for examples paytm, payUmoney, etc.

Sathish, M. Thangajesu, R. Sermakani, and G. Sudha. 12 May (2020) In the era of technology, the people are not away in using the newer technologies. One of the most useful and innovative technologies is the introduction of E-wallets payment system. This e-wallet eased payments for online shopping and payment of utility bills.

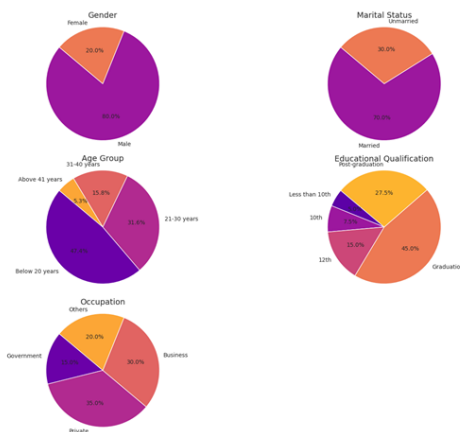
DR.S.Manikandan May (2017) in present world smart phones play an important role in the daily life of people. The technological advancement has made smart phone as devices where the mobile users can make money transaction or payment by using application installed in phone. The present study aims to explain the application and usage of wallet money endorsed by different companies and various factors that affect the consumer's decision to adopt mobile wallet and various risks and challenges faced by the users of mobile wallet



Analysis and Interpretation
Table No (1)
Demographic

S.NO	DEMOGRAPHIC FACTOR	CATEGORY	NO OF RESPONDENTS	PERCENTAGE (%)
1	Gender	Male	160	80
		Female	40	20
		TOTAL	200	100
2	Marital status	Married	140	70
		Unmarried	60	30
		TOTAL	200	100
3	Age group	Below 20 years	90	45
		21-30 years	60	30
		31-40 years	30	15
		Above 41 years	10	5
		TOTAL	200	100
4	Educational qualification	Less than 10th	10	5
		10th	15	7.5
		12th	30	15
		Graduation	90	45
		Post-graduation	55	27.5
		TOTAL	200	100
5	Occupation	Government	30	15
		Private	70	35
		Business	60	30
		Others	40	20
		TOTAL	50	100

Demographic Distribution of Respondents



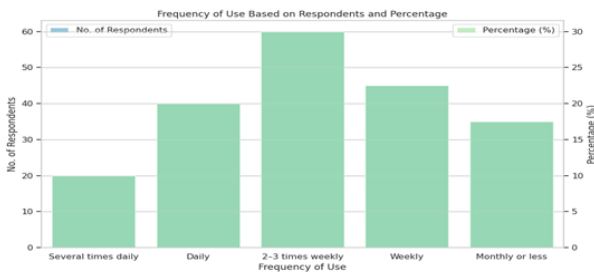
Interpretation

From the above table, it can be inferred that majority of respondents (80%) are male, while females constitute 20% of the sample. Marital status reveals that 70% are married, indicating a predominantly mature and potentially family-oriented population. The age distribution highlights a youthful demographic, with 45% below 20 years and 30% between 21 and 30 years. Educational attainment is notably high, as 72.5% of respondents have completed either graduation or post-graduation, reflecting a well-educated group. Regarding occupation, the data appears to represent a subset of 50 individuals, among whom the private sector leads with 35%, followed by business (30%), government employment (15%), and others (20%).



Table No (2)
Usage and Adoption Behaviour
(Table No : 2.1 Frequency Of Using Digital Payment)

S.NO	FREQUENCY OF USE	NO OF RESPONDENTS	PERCENTAGE (%)
1	Several times daily	20	10
2	Daily	40	20
3	2–3 times weekly	60	30
4	Weekly	45	22.5
5	Monthly or less	35	17.5
	TOTAL	200	100



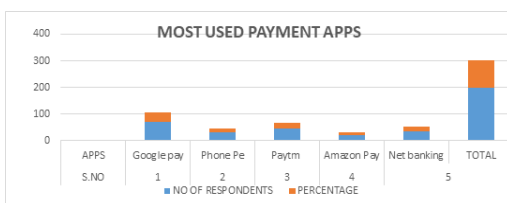
Interpretation

The above table shows that most respondents use digital payment apps frequently, with 30% using them 2–3 times

weekly and 22.5% using them weekly. 20% reported daily usage, while 10% use them several times daily, indicating strong regular engagement. Only 17.5% use them monthly or less.

TABLE NO: 2.2 WHICH APPS DO YOU USE MOST ?

S.NO	HOW OFTEN IT IS USED	NO OF RESPONDENTS	PERCENTAGE (%)
1	Google pay	70	35
2	Phone Pe	30	15
3	Paytm	45	22.5
4	Amazon Pay	20	10
5	Net banking	35	17.5
	TOTAL	200	100



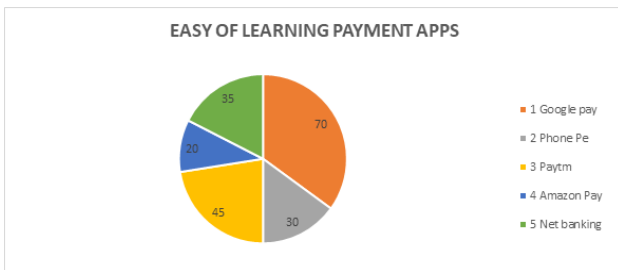
Interpretation

The table shows that Google Pay is the most frequently used digital payment platform among respondents, accounting for 35% of total usage. This is followed by Paytm with 22.5%, and Net Banking at 17.5%, indicating a moderate preference for traditional banking interfaces. PhonePe is used by 15% of respondents, while Amazon Pay has the lowest usage at 10%.



Table No (3)
 Convenciences and Ease of Use
 (Table No: 3.1 It Is Easy for Me To Learn How To Use Payment apps)

S.NO	EASY OF LEARNING PAYMENT APPS	NO OF RESPONDENTS	PERCENTAGE (%)
1	Strongly Agree	56	28
2	Agree	96	48
3	Neutral	32	16
4	Disagree	10	5
5	Strongly Disagree	6	3
	TOTAL	200	100



Chi-Square Test
 Table No (4)

Gender and frequency of using digital payment
 To find out the significant relationship between gender and frequency of using digital payment Null Hypothesis (H₀): There is no significant relationship between gender and frequency of using digital payment
 Alternative Hypothesis (H₁): There is significant relationship between gender and frequency of using digital payment.

Interpretation

The table shows that a majority of respondents (76%) either agreed or strongly agreed that payment apps are easy to learn. Only a small portion (8%) found them difficult to use, while 16% remained neutral.

Frequency of use	Several times daily	daily	2-3 times weekly	Weekly	Monthly or less	Total
Gender						
Male	14	32	55	34	25	160
Female	6	8	5	11	10	40
Total	20	40	60	45	35	200

Chi-square analysis

Observes frequency	Expected frequency	(O _i -E _i) ² / E _i
14	16	0.25
32	32	0
55	48	1.020
34	36	0.111
25	28	0.321



6	4	1
8	8	0
5	12	4.08
11	9	0.44
10	7	1.28
	Total	8.472

Calculated value = 8.472

Degree of freedom= (r-1) (c-1)

= (2-1) (5-1) = 4

The table value of χ^2 for 4 degree of freedom at 5% level of significance is 9.488.

Result: Hypothesis accepted.

Decision: The personal factor (gender) relationship with frequency of using digital payment The calculated value is less than the table value. So, H₀ is accepted. Hence we concluded that there is no significant relationship between gender and frequency of using digital payment

Chi-Square Test

Table No (5)

Easy of learning payment apps and how often it is used To determine the significant relationship between ease of learning payment apps and how often they are used Null Hypothesis (H₀): Easy of learning a payment app has no significant relationship with how often it is used. Alternative Hypothesis (H₁): Easy of learning a payment app has a significant relationship with how often it is used.

Easy of learning payment apps	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Total
How often it is used						
Google pay	20	35	12	3	0	70
Phone Pe	15	10	3	1	1	30
Paytm	11	20	10	2	2	45
Net banking	8	19	5	2	1	35
Amazon Pay	2	12	2	2	2	20
TOTAL	56	96	32	10	6	200

Calculated value = 18.6681

Degree of freedom= (r-1) (c-1)

= (5-1) (5-1) = 16

The table value of χ^2 for 16 degree of freedom at 5% level of significance is 26.296

Result: Hypothesis accepted.

Decision: To determine the significant relationship between ease of learning payment apps and how often they are used. The calculated value is less than the table value.

So, H₀ is accepted. Hence we concluded that there is no significant relationship between how easy a payment app is to learn and how often it is used.

Findings

Percentage Analysis

A majority (80%) of the respondents were male.

A majority (70%) of the respondents were married.

A majority (45%) of the respondents were below 20 years of age.



A majority (45%) of the respondents were pursuing graduation.

A majority (35%) of the respondents were employed in the private sector.

A majority (30%) of the respondents used digital payment apps 2–3 times per week.

A majority (35%) of the respondents used Google Pay.

A majority (48%) of the respondents agreed that payment apps are easy to learn.

Chi-Square Test

Based on the Chi-square test conducted to examine the relationship between gender and frequency of using digital payment methods, the calculated Chi-square value is 8.472, which is less than the critical value of 9.488 at 4 degrees of freedom and a 5% level of significance. As a result, we fail to reject the null hypothesis (H_0). This indicates that there is no statistically significant relationship between gender and the frequency of digital payment usage.

Based on the results of the Chi-square test, the calculated value is 18.6681, which is less than the critical value of 26.296 at 16 degrees of freedom and a 5% level of significance. This indicates that the observed differences between ease of learning and frequency of usage across various payment apps are not statistically significant. Therefore, we fail to reject the null hypothesis (H_0) and conclude that there is no significant relationship between how easy a payment app is to learn and how often it is used.

Suggestion:

- Online payment apps are very handy and useful for customers, but they also create some security concerns during usage.
- These apps should maintain customer privacy to ensure safe and secure transactions.
- Developers should improve the apps and fix issues related to transaction delays, which are currently affecting users.
- Online payment apps should be regularly upgraded and enhanced with innovative features to improve the overall payment experience.

V. CONCLUSION

The present study aimed to analyze the adoption and usage patterns of online payment applications among customers, with a particular focus on factors such as gender, ease of learning, and frequency of use. Based on the Chi-square tests conducted, the findings revealed no statistically significant relationship between gender and the frequency of digital payment usage, suggesting that both male and female users engage with digital payment platforms at similar rates. Similarly, the analysis showed no significant relationship between the ease of learning a payment app and how often it is used, indicating that while user-

friendliness is important, it may not be the sole driver of frequent usage. Despite these statistical outcomes, descriptive data highlighted that Google Pay was the most preferred app, used by 35% of respondents, and that 76% of users found payment apps easy to learn. Additionally, 30% of respondents reported using digital payment apps 2–3 times weekly, reflecting a growing reliance on digital transactions. The demographic profile showed that the majority of users were male, married, under 20 years of age, and pursuing graduation, with many employed in the private sector. These insights suggest that while ease of use and demographic factors may not show strong statistical correlations with usage frequency, they still play a role in shaping user preferences and adoption trends. Overall, the study underscores the widespread acceptance of digital payment apps and highlights the importance of continued innovation, trust-building, and accessibility to further enhance user engagement.

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