



<https://doi.org/10.64672/IJIFR/26.08.13.12.026>
 PUBLISHED ON: 27th August, 2026

PAGE NO. : 1928-1935
 PAPER ID: IJIFR/202608157/1312026

CONSUMER ADOPTION AND PERCEPTIONS OF MOBILE PAYMENT APPLICATIONS DURING COVID-19: AN EMPIRICAL STUDY OF USAGE PATTERNS AND PRACTICAL CHALLENGES IN INDIA

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ABSTRACT

Aim & Objectives: The study is designed to provide an empirical assessment of consumer engagement with mobile payment applications during the COVID-19 pandemic by examining the extent and nature of their usage, evaluating consumers' perceptions and attitudes toward these applications and identifying the operational challenges encountered during digital transactions. It further seeks to establish whether consumer attitudes exhibit statistically significant variations across gender and across different categories of mobile payment applications, thereby providing a comprehensive understanding of the behavioural and experiential dimensions of mobile payment adoption during the pandemic.

Research Methodology: The study adopted a descriptive research design based on primary and secondary data. Primary data were collected from 130 respondents through a structured questionnaire administered using Google Forms, employing convenience sampling. The questionnaire incorporated structured response categories and Likert-scale measures to capture respondents' usage patterns, attitudes, perceived benefits and difficulties associated with digital payment applications. The inferential analysis found no statistically significant difference in consumer attitudes by gender ($p = 0.607$) and no statistically significant difference across categories of mobile payment applications ($p = 0.977$). Thus, the study failed to reject both null hypotheses. To strengthen the inferential dimension of the study, the Kruskal–Wallis non-parametric test was employed to examine whether the distribution of attitudes towards mobile payment applications differed significantly across gender and categories of mobile payment applications.

Analytical Outcomes: Mobile payment applications emerged as the most preferred payment mode, accounting for 75.4% of respondents, compared with 10% for net banking, 8.5% for debit/credit cards and 6.1% for cash. Before the pandemic, mobile recharge recorded the highest usage intensity (Likert mean 3.75). During the pandemic, mobile recharge remained the most frequently used application feature, although its mean usage score was 2.60. Consumer attitudes were particularly favourable toward the role of mobile payment applications in avoiding physical contact during purchases (mean 4.17), the increase in usage associated with COVID-19 (mean 4.03) and user-friendliness (mean 3.76). The principal practical difficulty was transaction limits (mean 3.61), followed by connectivity problems (mean 3.37). Security risk, software malfunctioning, grievance redressal, trust and procedural complexity generated comparatively neutral assessments, while lack of technical knowledge represented a relatively low difficulty.

KEYWORDS: COVID-19 pandemic; Mobile payment applications; Consumer behaviour; Digital payments

How to Cite this Article:

Abraham, SJ : "Consumer adoption and perceptions of mobile payment applications during COVID-19: An empirical study of usage patterns and practical challenges in India" *International Journal of Informative & Futuristic Research (IJIFR)*, Volume 13(12), August 2026, pp 1928–1935.

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1. INTRODUCTION

The COVID-19 pandemic had a profound impact on the global and Indian economy, disrupting sectors such as travel and tourism, logistics, education, industry and pharmaceuticals. However, the pandemic also accelerated the growth of e-commerce as lockdowns and social-distancing measures encouraged consumers to purchase goods and services online. Globally, the share of e-commerce in retail trade increased from 14% in 2019 to approximately 17% in 2020 (UNCTAD, 2021). The pandemic also accelerated the adoption of digital payments as consumers sought safer and more convenient alternatives to cash and physical payment methods. Mobile payment applications enabled users to make payments, pay bills, recharge and shop conveniently through their mobile phones. This study focuses on the usage level and attitudes of consumers towards mobile payment applications during the COVID-19 pandemic, examining their perceived advantages, practical difficulties and factors influencing their adoption. It specifically considers popular payment applications in India, including Google Pay, PhonePe, Paytm, Amazon Pay and BHIM.

2. OBJECTIVES OF THE STUDY

- To analyse the usage level of mobile payment apps among consumers during Covid-19 pandemic.
- To analyse the attitude of consumers towards mobile payment apps during Covid pandemic.
- To find out the practical difficulties faced while using mobile payment apps.

3. HYPOTHESES

- There is no significant difference in the attitude towards mobile payment apps among male and females.
- There is no significant difference between the attitude towards mobile payment apps and the categories of mobile payment apps.

4. RESEARCH METHODOLOGY

The study adopts a research methodology that describes the research design and procedures followed for conducting the study. The study is based on both primary and secondary data. Primary data were collected from 130 respondents using a structured questionnaire distributed through Google Forms, while secondary data were obtained from various websites and other relevant sources. The study employed convenience sampling as the sampling technique. The collected primary data were coded, classified, tabulated and analysed using the Statistical Package for the Social Sciences (SPSS). Descriptive statistical tools such as percentages, averages and Likert scales were used to analyse the data, while the Kruskal–Wallis test was employed as an inferential statistical tool. The findings were presented using tables, diagrams and charts, including pie charts and bar charts, to facilitate clear interpretation and presentation of the results.

5. DATA ANALYSIS & INTERPRETATION

Table 1: Payment Mode Preferred During COVID- 19

Payment Mode	Frequency	Percentage
Mobile payment apps	98	75.4
Net banking transfer	13	10
Debit/credit cards	11	8.5
Cash	8	6.1
Others	0	0
Total	130	100

Source: Primary Data

The chart shows that the majority, i.e., 75.4% of respondents prefer mobile payment apps. Only a small group of people prefers to use real money. 10 % of respondents prefer net banking transfer and the rest of the respondents use credit or debit cards.

Table 2: Duration of Usage of Mobile Payment Apps

Duration	Frequency	Percentage
Less than 1 year	25	19.2
1 to 2 years	48	36.9
2 to 3 years	37	28.5
More than 3 years	20	15.4
Total	130	100

Source : Primary Data

From the sample of 130 respondents, about 19.2% had been using mobile payment apps for less than one year. 36.8% of respondents are using mobile payment apps for a period between 1 to 2 years. Also 28.5% and 15.4% of the respondents are using mobile payment apps for 2 to 3 years and more than 3 years.

Table 3: Level of Usage of Mobile Payment Apps before COVID 19

	Never	Seldom	Sometimes	Often	Always	Composite index	Likert Value
Payment of bills	27	7	53	25	7	335	2.58
Money transfer	17	12	42	21	38	441	3.39
Mobile recharge	11	10	32	25	52	487	3.75
Pay at physical stores	41	16	43	21	9	331	2.55
Booking tickets	54	17	22	15	22	324	2.49
Play games	92	13	13	9	3	208	1.6

Source : Primary Data

In the table, we consider a Likert value in the range 5-4.49 as always, 4.5-3.49 as often, 3.5-2.49 as sometimes, 2.5 to 1.49 as seldom and 1.5-1 as never. It is analysed that before the COVID pandemic, respondents often used mobile payment apps for mobile recharge. The respondents sometimes used mobile payment apps for money transfer, pay at physical stores, payment of bills and booking tickets. The seldom-used feature of mobile payment apps is playing games.

Table 4: Level of Usage of Mobile Payment Apps during COVID 19

	Never	Seldom	Sometimes	Often	Always	Composite index	Likert Value
Payment of bills	12	6	24	13	30	298	2.29
Money transfer	9	8	21	15	35	323	2.48
Mobile recharge	4	5	22	12	42	338	2.6
Pay at physical stores	21	8	23	15	18	283	2.18
Booking tickets	27	13	18	8	21	244	1.88
Play games	60	8	6	4	7	149	1.15

Source : Primary Data

The table shows a likert value in the range 5 to 4.49 as always, 4.5 to 3.49 as often, 3.5 to 2.49 as sometimes, 2.5 to 1.49 as seldom and 1.5 to 1 as never. During the Covid 19, respondents sometimes

used mobile payment apps for mobile recharge. The respondents seldom used mobile payment apps for booking tickets, money transfer, payment of bills and pay at physical stores. Also the respondents never used mobile payment apps for playing games.

Table 5: Attitude towards the Usage of Mobile Payment Apps

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Composite index	Likert Value
1.Mobile payment apps are the best alternative to avoid physical contact while purchasing	7	2	14	46	61	542	4.17
2. Use of mobile payment apps increased considerably due to the outbreak of Covid 19 pandemic	5	8	20	42	55	524	4.03
3. Mobile payment apps ensure maximum security among different payment modes	2	14	53	47	14	447	3.44
4. Mobile payment apps make fund transfers easy and convenient	6	7	19	56	6	331	2.55
5. Mobile payment apps made a negative impact on my savings	23	57	34	14	2	475	3.65
6. Mobile payment apps are user friendly	7	14	15	56	37	489	3.76
7. Mobile payment apps are acceptable everywhere	7	26	45	35	17	404	3.11
8. Reward schemes of mobile payment apps are attractive	15	22	44	32	17	404	3.11
9. I have a sense of pride in using since it shows my digital competency	8	26	47	37	12	409	3.15
10. Transactions through mobile payment apps are	7	19	39	44	21	443	3.41

an integral part of my life							
11. Mobile payment apps helps in recollecting my financial transactions and thereby helps in my spend-control	7	17	40	45	21	446	3.43

Source : Primary Data

In the given table, the Likert value in the range of 5-4.49 is considered as strongly agree, 4.5-3.49 as agree, 3.5-2.49 as neutral, 2.5-1.49 as disagree and 1.5-1 as strongly disagree by the respondents to the given statements measuring their attitude except for statement five. It can be seen that the respondents agree with statements 1, 2 and 6. The respondents have a neutral opinion to all the other statements. The statement number 5 is a negative statement. Hence, the interpretation of the Likert scale is reversed to show a range of 5-4.49 as strongly disagree, 4.5-3.49 as disagree, 3.5-2.49 as neutral, 2.5-1.49 as agree and 1.5-1 as strongly agree. We can see that the respondents disagree with the given statement, that mobile payment apps made a negative impact on savings.

Table 6: Difficulties while Using Mobile Payment Apps

	Very high	High	Neutral	Low	Very low	Composite index	Likert Value
Security risk	13	19	62	28	8	391	3.01
Lack of trust	8	21	60	27	14	372	2.86
Lack of technical knowledge	2	19	40	48	21	323	2.48
Connectivity problems	17	39	51	21	2	438	3.37
Software malfunctioning	8	25	60	28	9	385	2.96
Complicating procedure	7	12	53	41	17	341	2.62
Transaction limit	7	29	81	32	11	469	3.61
Poor grievance redressal	5	16	65	33	11	361	2.78

Source : Primary Data

In the above table, the Likert value in the range of 5-4.49 is interpreted as very high, 4.5-3.49 as high, 3.5-2.49 as neutral, 2.5-1.49 as low and 1.5-1 as very low. The practical difficulty faced by the respondents is high regarding the transaction limit. The respondents give a neutral opinion with poor grievance redressal, complicating procedure, software malfunctioning, security risk, lack of trust and connectivity problems. Difficulty due to the lack of technical knowledge is low for the respondents.

6. TESTING OF HYPOTHESES

HYPOTHESIS 1

H0: There is no significant difference in the attitude towards mobile payment apps among males and females.

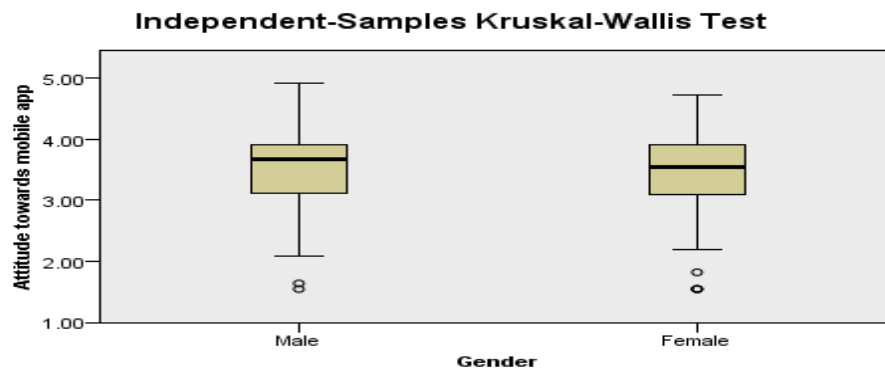
H1: The attitude towards mobile payment apps among males and females differ significantly.

Test: Independent-samples Kruskal Wallis test (SPSS)

Table 7: Attitude Towards Mobile Payment Apps among Male and Female

Test statistic	Significance value
.265	.607

Inference: Kruskal Wallis test is used to test the hypothesis to validate the difference in the attitude towards mobile payment apps among males and females. Since the significance value (.607) is more than 0.05, we failed to reject the null hypothesis. Therefore, the distribution of attitudes towards mobile payment apps is the same across categories of gender.



Total N	129
Test Statistic	.265
Degrees of Freedom	1
Asymptotic Sig. (2-sided test)	.607

1. The test statistic is adjusted for ties.
2. Multiple comparisons are not performed because the overall test does not show significant differences across samples.

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Attitude towards mobile app is the same across categories of Gender.	Independent-Samples Kruskal-Wallis Test	.607	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

HYPOTHESIS 2

H0: There is no significant difference between the attitude towards mobile payment apps and the categories of mobile payment apps.

H1: There is a significant difference between the attitude towards mobile payment apps and the categories of mobile payment apps.

Test: Independent-samples Kruskal Wallis Test

Table 8: Attitude Towards Mobile Payment Apps Among the Categories of Mobile Payment Apps

Test statistic	Significance value
.468	.977

Inference: Since the significance value (.977) is more than 0.05, we failed to reject the null hypothesis. Therefore, the distribution of attitude towards mobile payment apps is the same across categories of mobile payment apps.

7. FINDINGS

- The most preferred payment mode among consumers is mobile payment apps.
- Majority of the respondents have been using mobile payment apps for a period between 1 to 3 years.
- Before the outbreak of covid, the respondents often used mobile payment apps for recharging mobile phones. The least used feature of mobile payment apps is playing games.
- During the covid pandemic the respondents sometimes used mobile payment apps for mobile recharging and seldom for other purposes. The respondents never use mobile payment for playing games.
- Transaction limit is the major practical difficulty faced while using mobile payment apps. In addition, most of the respondents have technical knowledge about using mobile payment apps.

The findings from hypotheses testing are as follows:

- The distribution of attitude towards mobile payment apps is the same across categories of gender.
- The distribution of attitude towards mobile payment apps is the same across categories of selected mobile payment apps.

8. SUGGESTIONS

- Future research can take place on different aspects of this topic like growing popularity of mobile payment apps, future of mobile payment apps after covid 19 etc.
- The study can be extended with a large sample, to both the rural and urban parts of India, to make people aware about the importance of mobile payment apps in the coming years.

9. CONCLUSION

This study focused on the level of usage and attitude of consumers towards mobile payment apps during the covid pandemic. From the study, it can be understood that mobile payment apps have a role in the lives of people. It is the best alternative, especially during the Covid time, to avoid physical contact. It not only helps to avoid personal contact, but also helps to save time. The performance factors of mobile payment apps like, safety and security, grievance redressal. Multiple payment options etc. made the life of people easier. Even though mobile payment apps have drawbacks like transaction limit, connectivity problems etc. mobile payment apps are user friendly and satisfactory. Mobile payment apps are popular for their convenience and availability. Bill payments, mobile recharge, money transfer etc. can be done within seconds with the help of mobile payment apps. The COVID 19 is increasing day by day and it takes a long time for recovery. The usage level of mobile payment apps will continue growing and very soon, India will turn out to be a cashless country.

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