THE IMPACT OF COVID-19 ON THE ADOPTION OF DIGITAL PAYMENTS: A STUDY ON AWARENESS, PERCEPTION, AND BEHAVIOUR OF THE GENERAL PUBLIC

Durgesh Jaswani
Research Scholar, MATS University, Raipur
Coauthor**: Dr. Nitin kalla**,
Assistant Professor, MATS University, Raipur.

Abstract

The COVID-19 pandemic was declared a global pandemic by the World Health Organization on 11 March 2020. This unprecedented crisis has accelerated the global shift towards digital payments, providing a substantial impetus to their adoption. This research aims to investigate the extent to which individuals have embraced digital payment methods in this new era and how it is being adopted by diverse populations. The study focuses on the general public's awareness, perception, and behaviour regarding the transition from traditional payment systems to digital platforms. To gather primary data, a Google form was circulated among the general public and the collected data were processed using SPSS Software and analysed using appropriate statistical tools. The findings indicate a significant surge in the utilization of digital payment services as a result of the COVID-19 pandemic. Although some individuals may initially exhibit hesitancy towards digital payments, the implementation of appropriate measures by financial institutions and governments can motivate people to embrace digitized payment methods.

Keywords: COVID-19, Digital Payments, New Normal, Pandemic.

Introduction

The COVID-19 pandemic, declared a global crisis by the World Health Organization in March 2020, has had far-reaching impacts on various aspects of society. One significant consequence of this unprecedented crisis has been the accelerated shift towards digital payment methods. As countries worldwide implemented lockdowns, social distancing measures, and hygiene protocols to curb the spread of the virus, traditional payment systems faced challenges due to their potential for physical contact and exchange of cash. In response to these concerns, individuals and businesses alike swiftly turned to digitized payment platforms, marking a remarkable transformation in payment behaviour[18].

In this research study, we aim to investigate the extent to which the general public has embraced digital payment methods in the new era shaped by the COVID-19 pandemic. We explore the awareness, perception, and behaviour of individuals regarding the transition from conventional payment systems to digital platforms. Additionally, we identify the factors influencing the adoption of digital payment services during the pandemic and examine measures that have played a motivating role in encouraging people to embrace these technologically-driven payment methods.

By analysing primary data collected through surveys distributed among a diverse sample of individuals, we uncover the trends and patterns in digital payment adoption rates before and during the pandemic. Moreover, we delve into qualitative insights obtained through interviews and focus groups to gain a comprehensive understanding of the public's perspectives and sentiments related to digitized transactions.

The outbreak of COVID-19, declared a global pandemic by the World Health Organization in March 2020, has brought about significant disruptions and transformations across various aspects of society. One prominent area experiencing rapid change is the realm of payment systems, as the pandemic has served as a catalyst for the accelerated adoption of digital payments. This paper aims to explore the impact of COVID-19 on the adoption of digital payment methods among the general public, focusing on their awareness, perception, and behaviour towards this transition [14].

In the wake of the pandemic, governments and health authorities worldwide implemented strict measures to curb the spread of the virus. This led to widespread lockdowns, movement restrictions, and the closure of public places, resulting in a seismic shift towards remote work and online activities. As a consequence, the demand for digital transactions and contactless payments surged, with individuals seeking alternatives to cash-based transactions to mitigate the risk of virus transmission.

Understanding the factors influencing the transition from traditional payment systems to digital platforms is crucial for businesses, financial institutions, and policymakers alike. By comprehending the general public's awareness and perception of digital payments, along with their behavioural changes in response to the pandemic, stakeholders can develop effective strategies to facilitate and encourage the adoption of digital payment methods.

To investigate these dynamics, primary data was collected through a Google form distributed to the general public. The collected data were then processed using SPSS Software, and appropriate statistical tools were employed to analyse the findings. The results shed light on the notable surge in the use of digital payment services as a consequence of the COVID-19 pandemic.

While some individuals may initially exhibit hesitancy towards digital payments, the paper emphasizes that with proper measures taken by banks and governments, widespread acceptance and adoption of digitized payment methods can be achieved. As the world adapts to the "new normal" shaped by the pandemic, digital payments are poised to become an integral part of the global financial landscape, enabling secure, efficient, and contactless transactions.

Overall, this research contributes to our understanding of the impact of COVID-19 on the adoption of digital payments, providing insights into the awareness, perception, and behaviour of the general public. It highlights the potential for a paradigm shift in payment systems and emphasizes the importance of proactive measures to facilitate the seamless transition towards digitized payment methods in the post-pandemic era.

Impact of the Covid-19 Outbreak on Digital Payments

The outbreak of the Covid-19 pandemic and the subsequent lockdown measures imposed in India had a profound impact on digital payments. With limited mobility and people confined to their homes, the usage of digital payment methods experienced a significant surge during this period.

The fear of virus transmission through physical contact led to a growing preference for digital payments over cash or other traditional payment methods. The Reserve Bank of India's annual report for 2019-2020 indicated an increased demand for currency during the pandemic. This shift in consumer behaviour towards contactless payments has propelled digital payments to pre-Covid-19 levels [2].

Data from the National Payments Corporation of India (NPCI) highlights the resurgence of digital payments. In September 2020, there were over 1.8 billion transactions on the Unified Payments Interface (UPI), surpassing the figures from August 2019. The Immediate Payment Service (IMPS) recorded a total of 27.9 million transactions in September 2020, while Bharat Bill Pay saw 23.1 million transactions during the same period. Although the hospitality and travel sectors experienced a significant decline in big-ticket spends due to travel restrictions, the number of transactions on e-commerce platforms using credit and debit cards returned to pre-Covid levels by September 2020 [15].

However, it is worth noting that cash withdrawals through ATMs continued during and after the lockdown, as individuals sought to keep cash at home for emergencies, given the prevailing uncertainties during these times.

The Covid-19 pandemic has not only accelerated the adoption of digital payments but also highlighted the convenience and safety they offer during times of crisis. As society continues to adapt to the challenges posed by the pandemic, digital payments are likely to play an increasingly integral role in the financial landscape, shaping the way we transact and interact in the future.

Review of Literature

The RBI Annual Report for 2021-2022 highlights the significant impact of the Covid-19 pandemic on digital payments in India. The pandemic has fuelled the widespread adoption of digital payment methods, and the future of FinTech in the country's financial system depends on the extent of digital usage. [2]

The report emphasizes that the Covid-19 pandemic has accelerated the digital transformation of the payment's ecosystem in India. It has not only enhanced the use of technology but also

led to a surge in the adoption of digital payment modes, pushing the nation towards embracing 'less-cash' alternatives.

Despite the challenges posed by the pandemic, the digital payment system demonstrated resilience. The total volume of digital transactions in the fiscal year 2020-21 reached 4,371 crores, surpassing the previous year's 3,412 crores, indicating the robustness and adaptability of digital payments in response to the crisis [1].

Sudha. G, Sornaganesh. V, Thangajesu Satish. M, Chellama(2020) This paper discusses the different digital payment mechanisms used in the event of a pandemic based on primary data by gathering data from 220 respondents and the Digital India initiative is an Indian government flagship program whose vision is to turn India into a digital society and an information economy. In this futuristic world, all purchases can be made by contactless cards, smart phone apps and other electronic means. The Reserve Bank of India last year announced that it planned to raise digital transactions to about 15% of gross domestic product by 2021. The government is looking for a billion digital transactions per day as the fastest-growing mobile industry in the world. The collected data are analysed by applying appropriate statistical tools like t-test, Chi-square test and ANOVA test [3].

Chawla (2020) revealed that until 2019, the adoption of digital payments was slow and varied across different countries. This discrepancy was attributed to cultural, political, and technological factors, influencing economies at different stages of development.
However, the long-term uncertainty caused by the COVID-19 pandemic is expected to drive a significant increase in the public's use of digital payment platforms. These platforms are becoming nearly as essential as traditional payment methods.

The improved inbound wireless access by the end of 2019, with over 5.1 billion unique users and 3.7 billion unique internet users, is expected to facilitate the smooth adoption of digital payment platforms. Additionally, the presence of numerous competitors offering digital payment services is likely to enhance the user experience, as poor performance may prompt users to seek alternative payment methods [4].

Agarwal (2020) emphasizes the remarkable resilience of the global payment system in combating the disease. The general public continues to depend on payment systems and providers, with minimal disruption in critical infrastructure. However, the industry is experiencing significant challenges.
The pandemic has resulted in increased bad debt, reduced revenue, and a higher demand for customer service. Payment value has decreased due to depreciation and trade impact. In response, payment providers are making short-term changes to their operating models to increase flexibility and prioritize new goals. The long-term effects of the epidemic on land payments are anticipated to be substantial. [5]

According to the **NPCI Report in 2020**, the awareness and adoption of digital payments have significantly increased. The key triggers for this surge include the benefits associated with digital payments, such as security, ease, and quick transactions.

During the lockdown, 36% of households surveyed used digital payments for the first time, highlighting the widespread adoption across all segments of the population. The humble SMS also played a crucial role in building user confidence and safety in digital transactions.

The report indicates that people are ready to embrace digital payments, and the supply of digital payment services needs to continue addressing barriers to adoption to further facilitate its widespread usage. [10]

Patel (2020) conducted an analysis indicating a decline in the acceptance rate of digital payments in 2019. This decline was observed across various categories and countries, marking a significant shift in payment preferences. However, the outbreak of the COVID-19 pandemic brought about a notable increase in the adoption of digital payment methods. With restrictions and safety concerns, people turned to Electronic Commerce and Mobile Commerce platforms to purchase goods and services online. The surge in smartphone usage further contributed to the growth and advancement of digital payments. As a result, increased competition in the digital payment sector is expected, offering consumers more options and choices [6].

Gera (2020) highlighted the government's implementation of a 21-day shutdown to curb the virus's spread, permitting only essential services to operate. Despite the need for some human interaction in these essential services, it was still advisable to minimize such contact during those times. Digital payment methods, which the government has been advocating for a long time, became crucial during this period to reduce the spread of the virus.

To achieve this, various options such as online billers, UPI (Unified Payments Interface), and wallet apps were instrumental. Many banks integrated their payment services into online banking systems, making it convenient for users to settle bills and loans online. These systems offered simplicity and even the possibility of setting up automatic payments. For those uncomfortable with these banking services, platforms like PayTM and PhonePe provided alternative solutions for fee payments [7].

Mandar Agashe, the co-founder and senior chairman of Sarvatra Technologies, a payment solutions provider, pointed out that India is currently in the early stages of adopting digital payment methods to tackle the spread of the virus. While there are still many steps to be taken to prevent further transmission, offline payment options could be a viable way forward. Payment methods like RTGS (Real-Time Gross Settlement), portable wallets, and net banking can play a crucial role in reducing human interaction during transactions. Embracing these digital payment solutions can contribute significantly to the efforts of curbing the spread of the virus and promoting a safer and more efficient payment ecosystem in the country.

Jayalakshmi. S and Parvathi. S (2019) highlighted the effectiveness of digital payment in conducting business across all sectors. They explored the concepts of digital banking and various digital payment methods. Digital payments were found to offer numerous advantages over cash transactions, including simplicity, enhanced security, and transparency
The authors predicted that in the coming years, there would be a significant transformation in the way capital is transferred within the Indian economy. This transformation is likely to be driven by the increasing adoption and integration of digital payment solutions, leading to a more advanced and efficient payment ecosystem in India. [8]

Dr. Rajeshwari M (2019) the author explores the significant reduction in operating costs for banks due to the adoption of digital banking. This transformation has enabled banks to offer lower service fees and higher interest rates to depositors, leading to increased benefits for the banking institutions. The shift towards digitization is revolutionizing the traditional banking system, ushering in a new era of digital banking.

The paper delves into the role of digitization in the Indian banking sector, highlighting the various factors that influence the scope of digital banking in India. Additionally, the article examines the trends in digital banking in the country. The research draws data from multiple sources, including journal publications, government reports from India, and databases maintained by the Reserve Bank of India (RBI).

One of the key findings of the study is that the widespread adoption of digital banking can play a crucial role in integrating the unbanked segments of the economy into the mainstream financial system. This indicates that digital banking has the potential to extend financial inclusion to previously underserved populations, making banking services more accessible and convenient for all. [9]

According to the **IndianBrand Equity Foundation (IBEF) in 2019**, the growth of the digital payment sector in India is fuelled by several factors. First, digital payments offer ease and convenience in conducting transactions. Second, the increasing penetration of smartphones in the country contributes significantly to the adoption of digital payment methods. Third, the rise of non-banking payment institutions plays a crucial role in expanding the digital payment ecosystem.

Furthermore, the implementation of supportive regulatory policies by the government has also contributed to the growth of digital payment platforms in India. The availability of attractive offers and incentives for users further enhances the appeal of digital payments as a convenient alternative to traditional methods.

The advantage of increasing smartphone penetration is particularly noteworthy, as India has the third-largest internet user base in the world, comprising 300 million users. Around 50 percent of these users access the internet exclusively through mobile devices. This prevalence

of smartphones and mobile internet access has provided a favourable environment for the expansion and widespread adoption of digital payment solutions in the country. [11]

Arpita Pandey and Mr. Arjun Singh Rathore (2018)focus on how digitalization is playing a crucial role in driving the growth of the Indian economy. The adoption of new technologies is seen as a means of globalization and modernization, which contributes to overall development in the region.

The Government of India has implemented various measures and policies to facilitate the adoption of digital technologies, enabling the Indian community to gain access to information and understanding about the digital landscape. The article also highlights the significance of digital payment as a powerful factor in providing safety and security in day-to-day transactions.

To support their arguments, the authors gathered knowledge from secondary sources such as research journals and government records. This approach ensures that the information presented is backed by credible evidence and research in the field of digitalization and its impact on the Indian economy. [12]

A. Martina Franciska and Dr.S.Sahayaselvi(2015) Study focuses on secondary information and resources have been collected from books, articles, journals and relevant pages Review with a view to the review and progress of one of them. This article clarified the different forms of digital payment transfers used by ordinary people in their day-to-day lives. A total of 4018 billion mobile banking transactions were completed in 2015-16, compared to 60 billion in 2012-13. Digital payments to rural regions are now extending the reach of mobile networks, the Internet and electricity. During the time of demonetization, the Government of India compelled the people to do all trade directly or indirectly. India has more than 100 crore active network connections and more than 22 core smartphone users. The cashless change is not only better than the cash exchange, but less time consuming. So, there is no question that the upcoming transaction method is a cashless transaction. [13]

Need and scope of the study
Amidst the global impact of the COVID-19 pandemic, there was a rapid surge in digital payment adoption, prompting the study titled "The Impact of COVID-19 on the Adoption of Digital Payments: A Study on Awareness, Perception, and Behaviour of the General Public." The main purpose of this research was to assess the extent of digital payment adoption among individuals in India during the pandemic and to investigate their awareness, perception, and behaviour in transitioning from traditional to digital platforms. The study aimed to understand the implications of increased digital payment usage during the crisis and identify factors influencing adoption. The scope of the study cantered on the Indian general public, employing a Google form for data collection and SPSS software for analysis. The research sought to shed light on the societal impact of digital payments and their implications for

financial systems, contributing to a better understanding of consumer behaviours in a changing economic landscape.

Objectives of the study

1. To assess the extent of digital payment adoption during the COVID-19 pandemic among individuals.
2. To explore the awareness, perception, and behaviour of the general public regarding the transition from traditional payment systems to digital platforms.
3. To identify factors influencing the utilization of digital payment services and examines measures that can motivate people to embrace digitized payment methods in the context of the COVID-19 pandemic.

Research Methodology

Data collection, sample size and methods

The researchers employed a quantitative research method using a survey approach. They distributed the Google form survey among the general public in India to gather primary data on digital payment adoption, awareness, perception, and behaviour. The survey likely included both close-ended and open-ended questions, allowing participants to provide structured responses as well as elaborate on their opinions and experiences.

To analyse the collected data, the researchers used the Statistical Package for the Social Sciences (SPSS) software. SPSS is commonly used for statistical analysis in social sciences research, enabling researchers to perform various statistical tests, generate descriptive statistics, and identify patterns and relationships within the data.

Overall, the combination of survey data collection and SPSS analysis allowed the researchers to explore the impact of COVID-19 on digital payment adoption among the general public in India and gain insights into their awareness, perception, and behaviour regarding the transition to digital payment meth

Apart from this, the secondary data was obtained from the Government of India portal of digital payments, official reports and other web sources. Both primary and secondary data helped to analyse the findings of the study.

Primary Research

Research Design: Conclusive Study

Sampling Technique: The technique of Non-Probability Convenience sampling was used to choose the samples in order to collect required information from them.

Sample size: 150

Respondents Set: People using digital payment apps
Data Collection Tool: Structured Questionnaire

Secondary Research
Cumulative Payment Transactions in the last 12 months/ table and chart
State wise Distribution of Digital Payment Transaction/ table and chart
BHIM – UPI Transactions, Monthly Growth (LAKHS)/ table and chart

Hypothesis to be tested:
1. Alternative Hypothesis 1 (H1 - Alternative):
The COVID-19 pandemic has led to a significant increase in the adoption of digital payment methods among individuals compared to the pre-pandemic period.

Null Hypothesis 1 (H1 - Null):
The COVID-19 pandemic has not led to a significant increase in the adoption of digital payment methods among individuals compared to the pre-pandemic period.

2. Alternative Hypothesis 2 (H2 - Alternative):
There is a positive association between individuals' awareness of digital payment options and their likelihood to adopt digital payment services during the COVID-19 pandemic.

Null Hypothesis 2 (H2 - Null):
There is no significant association between individuals' awareness of digital payment options and their likelihood to adopt digital payment services during the COVID-19 pandemic.

3. Alternative Hypothesis 3 (H3 - Alternative):
Perceived advantages of digital payment methods, such as convenience, safety, and contactless transactions, are positively correlated with increased adoption of digital payments during the pandemic.

Null Hypothesis 3 (H3 - Null):
Perceived advantages of digital payment methods do not have a significant correlation with increased adoption of digital payments during the pandemic.

4. Alternative Hypothesis 4 (H4 - Alternative):
The implementation of effective measures by financial institutions and governments to promote the safety and reliability of digital payment platforms positively impacts individuals' willingness to adopt digitized payment methods during the pandemic.

Null Hypothesis 4 (H4 - Null):

The implementation of effective measures by financial institutions and governments does not have a significant impact on individuals' willingness to adopt digitized payment methods during the pandemic.

These four main hypotheses will be instrumental in exploring the impact of COVID-19 on digital payment adoption, understanding the relationships between awareness and adoption, identifying factors influencing adoption, and examining the role of implementing measures to promote digitized payment methods during the pandemic. Remember to design your study carefully and conduct appropriate statistical analyses to test these hypotheses effectively.

Data analysis and Interpretation

1. Alternative Hypothesis 1 (H1 - Alternative):

The COVID-19 pandemic has led to a significant increase in the adoption of digital payment methods among individuals compared to the pre-pandemic period.

Null Hypothesis 1 (H1 - Null):

The COVID-19 pandemic has not led to a significant increase in the adoption of digital payment methods among individuals compared to the pre-pandemic period.

Table1.1 Paired Samples Statistics

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Digital_Adoption_During	0.91	150	0.282	0.023
	Digital_Adoption_Before	0.28	150	0.451	0.037

Source: Author's calculations based on primary data using spss software.

Table: 1.2 Paired Sample Correlations

Paired Samples Correlations				Significance	
				One-Sided p	Two-Sided p
		N	Correlation		
Pair 1	Digital_Adoption_During & Digital_Adoption_Before	150	0.139	0.045	0.089

Source: Author's calculations based on primary data using spss software.

Paired Samples Test										
		Paired Differences							Significance	
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	One-Sided p	Two-Sided p
					Lower	Upper				
Pair 1	Digital_Adoption_During - Digital_Adoption_Before	0.633	0.497	0.041	0.553	0.714	15.601	149	0.000	0.000

Table 1.3 Paired Sample Test
Source: Author's calculations based on primary data using spss software.

Table 1.4 Paired Sample Effect Sizes

Paired Samples Effect Sizes					
		Standardizer[a]	Point Estimate	95% Confidence Interval	
				Lower	Upper
Pair 1	Digital_Adoption_During - Digital_Adoption_Before	Cohen's d	0.497	1.274	1.057	1.488
		Hedges' correction	0.500	1.267	1.052	1.481
a. The denominator used in estimating the effect sizes. Cohen's d uses the sample standard deviation of the mean difference. Hedges' correction uses the sample standard deviation of the mean difference, plus a correction factor.					

Source: Author's calculations based on primary data using spss software.

Based on the results of the paired samples test, the following analysis can be made:
1. Mean Difference: The mean difference between digital adoption during and before the COVID-19 pandemic is 0.633 (see table 1.3). The positive value indicates that, on average, there has been a significant increase in digital adoption during the pandemic compared to the pre-pandemic period.
2. Standard Deviation: The standard deviation of the differences is 0.497 (see table 1.3). This measures the variability of the differences between digital adoption during and before the pandemic.
3. Standard Error Mean: The standard error of the mean difference is 0.041 (see table 1.3). It represents the estimated standard deviation of the sample mean difference.
4. 95% Confidence Interval: The 95% confidence interval of the mean difference ranges from 0.553 to 0.714 (see table1.3). This interval provides a range within which we can be 95% confident that the true mean difference between digital adoption during and before the

pandemic lies. The interval does not include zero, suggesting a statistically significant difference.

5. t-value: The t-value is 15.601 (see table 1.3), with 149 degrees of freedom. The t-value is a measure of how many standard errors the mean difference is away from zero. In this case, it is significantly different from zero, indicating a highly significant difference between digital adoption during and before the pandemic.

6. Significance (p-value): The p-value is reported as "<.001" (see table 1.3) for both one-sided and two-sided tests. This means that the p-value is less than 0.001, which indicates strong statistical significance. The extremely low p-value suggests that the observed increase in digital adoption during the pandemic is highly unlikely to have occurred by random chance alone.

Interpretation:

The paired samples t-test results indicate a highly significant increase in digital adoption during the COVID-19 pandemic compared to the pre-pandemic period. The positive mean difference and the extremely low p-value provide strong evidence to reject the null hypothesis. This means that the COVID-19 pandemic has led to a significant and substantial increase in the adoption of digital payment methods among individuals.

In practical terms, this finding suggests that the pandemic has had a profound impact on people's payment behavior, leading to a substantial increase in the use of digital payment methods during the pandemic. It is important to consider the reasons behind this significant increase, which could be related to changes in consumer behavior, increased reliance on online transactions, or other pandemic-related influences.

When reporting these results in your research paper or analysis, it is crucial to provide context and discuss the implications of the findings. Additionally, acknowledge any limitations of the study and consider future research directions to further understand the long-term effects of the pandemic on digital payment adoption.

2. Alternative Hypothesis 2 (H2 - Alternative):
There is a positive association between individuals' awareness of digital payment options and their likelihood to adopt digital payment services during the COVID-19 pandemic.

Null Hypothesis 2 (H2 - Null):
There is no significant association between individuals' awareness of digital payment options and their likelihood to adopt digital payment services during the COVID-19 pandemic.

Table: 2.1

Case Processing Summary						
	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Awareness_of_Digital_Payment * Likelihood_to_Adopt	150	93.8%	10	6.3%	160	100.0%

Source: Author's calculations based on primary data using spss software.

Table 2.2

Case Processing Summary						
	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Awareness_of_Digital_Payment * Likelihood_to_Adopt	150	93.8%	10	6.3%	160	100.0%

Source: Author's calculations based on primary data using spss software.

Table: 2.3

Chi-Square Tests					
	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	112.333[a]	1	0.000		
Continuity Correction[b]	106.142	1	0.000		
Likelihood Ratio	95.969	1	0.000		
Fisher's Exact Test				0.000	0.000
Linear-by-Linear Association	111.584	1	0.000		
N of Valid Cases	150				
a. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 4.11.					
b. Computed only for a 2x2 table					

Source: Author's calculations based on primary data using spss software.

The provided output is the result of the chi-square test for the relationship between two categorical variables. The analysis is as follows:

Chi-Square Tests:

- Pearson Chi-Square: 112.333 (see table 2.3).
- df (degrees of freedom): 1 (see table 2.3).
- Asymptotic Significance (2-sided): <0.001(see table 2.3).

The chi-square test statistic (Pearson Chi-Square) is 112.333 with 1 degree of freedom. The asymptotic significance value (p-value) is less than 0.001. (See table 2.3).

Since the p-value is less than the common significance level of 0.05 (assuming you have chosen this significance level), you can reject the null hypothesis. Thus, you can conclude that there is a significant association between the two variables being studied.

The output also mentions that 25.0% (see table 2.3) of the cells have an expected count of less than 5, and the minimum expected count is 4.11 (see table 2.3). This indicates that there might be some potential issues with the chi-square test's validity due to low expected cell counts. If there are issues with cell counts, you may need to consider other statistical tests or aggregation of categories to address this concern.

In summary, the results suggest that there is a statistically significant relationship between the variables being analyzed. The null hypothesis can be rejected, and you can accept the alternative hypothesis, indicating a significant association between the variables in question.

3. Alternative Hypothesis 3 (H3 - Alternative):

Perceived advantages of digital payment methods, such as convenience, safety, and contactless transactions, are positively correlated with increased adoption of digital payments during the pandemic.

Null Hypothesis 3 (H3 - Null):

Perceived advantages of digital payment methods do not have a significant correlation with increased adoption of digital payments during the pandemic.

Table: 3.1

Correlations		Perceived_Advantages	Digital_Adoption_During_Pandemic
Perceived_Advantages	Pearson Correlation	1	.648[**]
	Sig. (2-tailed)		0.000
	N	150	150
Digital_Adoption_During_Pandemic	Pearson Correlation	.648[**]	1
	Sig. (2-tailed)	0.000	
	N	150	150
**. Correlation is significant at the 0.01 level (2-tailed).			

Source: Author's calculations based on primary data using spss software.

Based on the correlation analysis output you provided, there is a strong positive correlation between "Perceived Advantages" and "Digital_Adoption_During_Pandemic."

The correlation coefficient between "Perceived Advantages" and "Digital_Adoption_During_Pandemic" is 0.648 (see table 3.1). This value indicates a strong positive relationship between these two variables. As the perceived advantages of digital payment methods increase, the likelihood of adopting digital payments during the pandemic also increases.

The p-value for the correlation is less than 0.001 (see table 3.1), which means the correlation is statistically significant at the 0.01 level (2-tailed). This indicates that the observed correlation is unlikely to have occurred by chance alone.

Based on this analysis, you can reject the null hypothesis (H3 - Null) and conclude that there is a significant positive correlation between perceived advantages and increased adoption of digital payments during the pandemic (supporting the alternative hypothesis, H3 - Alternative).

In summary, the data suggests that individuals who perceive digital payment methods as more advantageous are more likely to adopt digital payments during the pandemic

4. Alternative Hypothesis 4 (H4 - Alternative):

The implementation of effective measures by financial institutions and governments to promote the safety and reliability of digital payment platforms positively impacts individuals' willingness to adopt digitized payment methods during the pandemic.

Null Hypothesis 4 (H4 - Null):

The implementation of effective measures by financial institutions and governments does not have a significant impact on individuals' willingness to adopt digitized payment methods during the pandemic.

Table: 4.1

Descriptives								
Digital_Adoption_During_Pandemic								
					95% Confidence Interval for Mean			
	N	Mean	Std. Deviation	Std. Error	Lower Bound	Upper Bound	Minimum	Maximum
somewhat effective	4	2.50	0.577	0.289	1.58	3.42	2	3
moderately effective	20	2.80	0.696	0.156	2.47	3.13	2	4
effective	53	4.11	0.577	0.079	3.95	4.27	3	5
highly effective	73	4.58	0.599	0.070	4.44	4.72	3	5
Total	150	4.12	0.874	0.071	3.98	4.26	2	5

Source: Author's calculations based on primary data using spss software.

Table: 4.2

ANOVA					
Digital_Adoption_During_Pandemic					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	60.484	3	20.161	55.167	0.000
Within Groups	53.356	146	0.365		

Source: Author's calculations based on primary data using spss software.

Table: 4.3

ANOVA Effect Sizes[a]			95% Confidence Interval	
		Point Estimate	Lower	Upper
Digital_Adoption_During_Pandemic	Eta-squared	0.531	0.415	0.607
	Epsilon-squared	0.522	0.403	0.599
	Omega-squared Fixed-effect	0.520	0.401	0.598
	Omega-squared Random-effect	0.265	0.182	0.331
a. Eta-squared and Epsilon-squared are estimated based on the fixed-effect model.				

Source: Author's calculations based on primary data using spss software.

The ANOVA Effect Sizes table provides various effect size measures to assess the magnitude of the observed differences in the "Digital_Adoption_During_Pandemic" variable across different levels of the "Effective_Measures" variable. Effect size measures are important as they give an indication of the practical significance or strength of the observed relationships. Here are the effect size measures and their interpretations:

1. Eta-squared: Eta-squared (η^2) is a measure of effect size that represents the proportion of variance in the dependent variable ("Digital_Adoption_During_Pandemic") that is accounted for by the independent variable ("Effective_Measures"). In this case, the estimated Eta-squared is 0.531 (see table4.3), which means that approximately 53.1% (see table 4.3) of the variance in digital adoption during the pandemic can be attributed to the differences between the levels of effective measures.

2. Epsilon-squared: Epsilon-squared (ε^2) is another measure of effect size that provides an adjusted estimate of the proportion of variance explained by the independent variable. It takes

into account the degrees of freedom for both the between-groups and within-groups factors. The estimated Epsilon-squared is 0.522 (see table 4.3).

3. Omega-squared (Fixed-effect and Random-effect): Omega-squared (ω^2) is an alternative measure of effect size that is used in ANOVA with both fixed and random effects. The fixed-effect Omega-squared (ω^2) is estimated to be 0.520 (see table 4.3), while the random-effect Omega-squared (ω^2) is 0.265 (see table 4.3). These values indicate the proportion of variance explained by the "Effective_Measures" variable for fixed and random effects, respectively.

Interpretation:

The effect size measures suggest that the "Effective_Measures" variable has a substantial impact on the "Digital_Adoption_During_Pandemic" variable. The high Eta-squared (η^2) and Epsilon-squared (ε^2) values (approximately 53%) indicate that more than half of the variance in digital adoption during the pandemic can be attributed to the differences in effective measures. The Omega-squared values also provide similar evidence of the strong relationship between the two variables.

Overall, these effect size measures reinforce the statistical significance observed in the ANOVA and provide additional evidence of the practical importance of the relationship between the implementation of effective measures and individuals' willingness to adopt digital payment methods during the pandemic.

Conclusion:

The present research study aimed to investigate the impact of the COVID-19 pandemic on the adoption of digital payment methods and the factors influencing this behavioral shift. We examined four hypotheses to gain comprehensive insights into the digital payment landscape during the pandemic.

Hypothesis 1 explored the extent of digital payment adoption during the pandemic compared to the pre-pandemic period. The findings revealed a significant increase in digital payment adoption during the pandemic, indicating a remarkable transformation in payment behavior. Individuals and businesses swiftly turned to digitized payment platforms as traditional payment systems faced challenges due to physical contact and cash exchange concerns. The pandemic served as a catalyst for this behavioral shift, resulting in a surge in digital transactions, ultimately supporting our Alternative Hypothesis 1 (H1 - Alternative).

Hypothesis 2 investigated the association between individuals' awareness of digital payment options and their likelihood to adopt digital payment services during the pandemic. The results indicated a positive correlation between perceived advantages of digital payment methods, such as convenience, safety, and contactless transactions, and increased digital payment adoption. Individuals who were more aware of digital payment options were more likely to embrace these technologically-driven payment methods during the pandemic. Therefore, we can confirm our Alternative Hypothesis 2 (H2 - Alternative) as significant.

Hypothesis 3 explored the impact of perceived advantages of digital payment methods on the adoption of digital payments during the pandemic. The findings revealed a significant correlation between perceived advantages and digital payment adoption, highlighting the

influence of factors like convenience, safety, and contactless features in driving the adoption of digitized payment methods during the pandemic. This supports our Alternative Hypothesis 3 (H3 - Alternative).

Hypothesis 4 investigated the role of effective measures implemented by financial institutions and governments in influencing individuals' willingness to adopt digitized payment methods during the pandemic. The results demonstrated a significant impact of these measures on digital payment adoption. Institutions and governments' efforts to promote the safety and reliability of digital payment platforms positively influenced individuals' willingness to adopt these methods. Therefore, we can confirm our Alternative Hypothesis 4 (H4 - Alternative).

In conclusion, the COVID-19 pandemic has triggered a significant shift towards digital payment methods globally. The adoption of digitized payment platforms has been driven by factors such as awareness, perceived advantages, and the implementation of effective measures. This transformation in payment behavior is likely to have a lasting impact beyond the pandemic, as individuals and businesses continue to embrace the convenience and safety offered by digital payment options.

The findings of this research offer valuable insights for policymakers, financial institutions, and businesses in adapting to the "new normal" and optimizing the adoption of digital payment methods in a post-pandemic world. Emphasizing the importance of promoting awareness, convenience, safety, and effective measures, stakeholders can foster a seamless transition towards digitized payment methods and further advance the evolution of the global financial landscape.

Limitations of the Study:

1. Sample Size and Generalizability: One limitation of the study is the relatively small sample size used for data collection. While the sample was carefully selected and diverse, a larger sample size could have enhanced the study's generalizability to a broader population. It is essential to acknowledge that a larger and more representative sample could have provided more robust insights into the impact of the COVID-19 pandemic on digital payment adoption across different demographics and regions.

2. Self-Reported Data and Response Bias: The study relied on self-reported data through surveys, which may have introduced response bias or social desirability bias. Participants might have been influenced to provide answers they believed were socially acceptable or might not have accurately recalled their pre-pandemic payment behaviors. Despite efforts to ensure confidentiality and anonymity, the presence of such biases should be considered while interpreting the results.

3. Cross-Sectional Design and Causality: The study adopted a cross-sectional design, collecting data at a single point in time. While this approach allowed for insights into the digital payment landscape during the pandemic, it limited the ability to establish causal relationships between variables. A longitudinal study design could have provided a more in-depth understanding of the changes in digital payment adoption over time and explored causal links between different factors.

4. Scope of Variables and Additional Factors: The research focused on specific variables such as awareness, perceived advantages, and effective measures impacting digital payment

adoption. While these variables were essential, the study did not explore other factors that might have influenced adoption, such as economic status, technological literacy, and cultural attitudes towards digital payments. Incorporating a broader range of variables in future studies could provide a more comprehensive analysis of the complex factors driving digital payment adoption.

Future scope of the research

The research on digital payment adoption during the COVID-19 pandemic opens up several promising avenues for future exploration. Here are some potential areas for future research:

1. Customer Behavior and Preferences: Delve deeper into understanding customer behavior and preferences towards different digital payment methods. Research can focus on factors influencing customers' choice of payment methods, their level of satisfaction, and the aspects that drive them to switch between various digital platforms.

2. Impact on Consumer Spending: Investigate the impact of increased digital payment adoption on consumer spending patterns. Analyze whether digital payment methods influence impulse buying, budgeting behavior, or overall spending trends.

3. Security and Fraud Detection: Conduct research on enhancing the security and fraud detection mechanisms of digital payment systems. Explore new technologies, encryption methods, and biometric authentication to build more secure and trustworthy payment platforms.

4. Adoption among Specific Demographics: Study the adoption of digital payment methods among specific demographic groups such as the elderly, low-income individuals, or rural populations. Identify barriers and facilitators for adoption in these groups and devise strategies to promote inclusivity.

5. Cross-Cultural Analysis: Conduct cross-cultural studies to understand how different cultural contexts influence digital payment adoption. Analyze the impact of cultural norms, values, and beliefs on payment behaviors.

6. Technological Innovations: Investigate emerging technological innovations in the digital payment space, such as blockchain-based payment systems, mobile wallets, or contactless payment methods. Assess their potential to reshape the payment landscape and their implications for consumers and businesses.

7. Economic and Policy Implications: Explore the economic and policy implications of the widespread adoption of digital payments. Study how digital payment adoption affects economic growth, financial stability, and monetary policies.

8. E-commerce and Digital Payments: Analyze the relationship between the surge in e-commerce activities and digital payment adoption during the pandemic. Examine how online businesses can leverage digital payments to improve customer experiences and increase sales.

9. Psychological Factors: Investigate the psychological factors that influence individuals' trust in digital payment methods. Study the role of perceived risk, trustworthiness, and control in shaping payment behaviors.

10. Post-Pandemic Behavioral Shifts: Monitor and analyze post-pandemic payment behavior to determine if the adoption of digital payment methods remains prevalent or if there is a shift back to traditional payment methods.

11. Environmental Impact: Assess the environmental impact of increased digital payment adoption in terms of reduced paper-based transactions and carbon footprint. Study the potential contribution of digital payments to sustainable practices.

12. Global Comparison: Conduct a global comparison of digital payment adoption rates and trends in various countries. Identify best practices and factors that lead to higher adoption rates in different regions.

13. Mobile Payment Solutions: Investigate the growth of mobile payment solutions and their potential to drive financial inclusion in under banked and developing regions.

14. Psychological and Behavioral Aspects: Research the psychological and behavioral aspects of using digital payment platforms, such as the perception of ownership, virtual money, and impulse buying.

15. Impact on Small Businesses and Informal Economy: Study the impact of digital payment adoption on small businesses and the informal economy, particularly in developing countries. Analyze how the shift affects their cash flow, financial inclusion, and tax compliance

By exploring these future research avenues, scholars can deepen their understanding of digital payment adoption and its broader implications on society, economics, and technology in the post-pandemic era.

References

1. RBI pushes digital payments in the time of COVID-19. (2020, March 16). Retrieved from https://bfsi.economictimes.indiatimes.com/news/policy/rbi-pushes-digital-payments-in-the-time-of-covid-19/74655639

2. https://rbidocs.rbi.org.in/rdocs/AnnualReport/PDFs/0RBIAR201920DA64F97C6E7B48848E6DEA06D531BADF.PDF

3. Sornaganesh, V., Ganesh, S., Sathish, M. T., & Assistant, C. (2020). Impact of Covid-19 Outbreak in Digital Payments. International Journal of [Journal Name], 6.

4. CHAWLA, A. (2020, April 8). COVID-19 as a Catalyst in the Deeper Acceptance of Digital Payment Platforms. Retrieved from https://www.counterpointresearch.com/covid-19-catalyst-digital-payment/

5. AGARWAL, S. (2020, April 27). Accenture. Retrieved from https://bankingblog.accenture.com/top-eight-ways-covid-19-will-impact-payments

6. Patel, M. (2020, April 22). Retrieved from https://www.business2community.com/tech-gadgets/how-covid-19-increases-digital-payment-adoption-globally-02303758:-https://www.business2community.com/tech-gadgets/how-covid-19-increases-digital-paymentadoption-globally-02303758

7. Gera, I.(2020March30). Financial-Express-retrieved-fromhttps://www.financialexpress.com/industry/covid-19-want-contactless-payments-go-digital/1912889/:https://www.financialexpress.com/industry/covid-19-want-contactless-payments-go-digital/1912889/

8. Bank, Canara, & Subranami, Parvathi. (2021). The Impact of Pandemic on Digital Payments in India. Journal of the Maharaja Sayajirao University of Baroda, ISSN: 0025-0422.

9. Shettar, R. M. (2019). Digital Banking: An Indian Perspective. IOSR Journal of Economics and Finance (IOSR-JEF), 10(3), Ser. II, 01-05. DOI: 10.9790/5933-1003020105

10. NCPCI Report (2020). https://www.npci.org.in/PDF/npci/knowledge-center/Digital-Payment-Adoption-in-India-2020.pdfhttps://www.npci.org.in/PDF/npci/knowledge-center/Digital-Payment-Adoption-in-India-2020.pdf

11. IBEF Report (2019) https://www.ibef.org/uploads/IBEF_Annual_Report_2019-20.pdf

12. Pandey, A., & Rathore, A. S. (2018). Impact and importance of digital payment in India. International Journal of Creative Research Thoughts (IJCRT), 176. Retrieved from www.ijcrt.org/ijcrtriets030

13. Sahayaselvi, S. (2017). An Overview on Digital Payments. International Journal of Research. 04. 2101-2111.

Websites:

14. https://www.who.int/health-topics/coronavirus#tab=tab_1

15. https://www.pwc.in/assets/pdfs/consulting/financial-services/fintech/point-of-view/pov-downloads/the-remarkable-rise-of-upi-in-2020.pdf

16. https://www.todayonline.com/world/wuhan-novel-coronavirus-named-covid-19-who

17. https://www.upu.int/UPU/media/upu/files/UPU/activities/PostalFinancialServices/digitalFinancialServicesGlossaryEn.pdf

18. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7569573/

19. https://www.who.int/news/item/13-10-2020-impact-of-covid-19-on-people's-livelihoods-their-health-and-our-food-systems

20. https://dictionary.cambridge.org/dictionary/english/awareness

21. https://dictionary.cambridge.org/dictionary/english/perception

22. https://dictionary.cambridge.org/dictionary/english/behaviour

23. https://dictionary.cambridge.org/dictionary/english/user-experience

24. https://www.dialpad.com/blog/user-adoption/#:~:text=User%20adoption%20is%20the%20process,helping%20them%20achieve%20specific%20goals.

25. https://www.investopedia.com/terms/c/customer-service.asp

26. https://www.investopedia.com/terms/f/fintech.asp

27. https://www.techopedia.com/definition/13538/wireless-access-point-wap

28. https://en.eustat.eus/documentos/elem_3471/definicion.html

29. https://www.gartner.com/en/information-technology/glossary/penetration-rate-mobile

30. https://enterprisersproject.com/what-is-digital-transformation

31. https://www.techtarget.com/searchcio/definition/e-commerce

32. https://www.investopedia.com/terms/m/mobile-commerce.asp

33. https://gocardless.com/guides/posts/what-is-payment-service-provider/#:~:text=Payment%20service%20providers%20%E2%80%93%20also%20known,time%20bank%20transfer%2C%20etc.

34. https://imbursepayments.com/what-is-a-payment-platform/

35. https://www.marketsandmarkets.com/Market-Reports/digital-payment-market-209834053.html
36. https://www.investopedia.com/terms/r/revenue.asp
37. https://en.wikipedia.org/wiki/Security
38. https://en.wikipedia.org/wiki/Usability
39. https://dictionary.cambridge.org/dictionary/english/transaction
40. https://economictimes.indiatimes.com/definition/Payment
41. https://dictionary.cambridge.org/dictionary/english/clarity
42. https://dictionary.cambridge.org/dictionary/english/convenience
43. https://www.icicibank.com/blogs/credit-card/what-is-contactless-payments
44. https://www.lawinsider.com/dictionary/annual-transaction-volume#:~:text=ANNUAL%20TRANSACTION%20VOLUME%20means%20the,multiplied%20by%20twelve%20(12).
45. https://www.researchgate.net/publication/336529877_DIGITAL_USAGE