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A COMPARATIVE STUDY ON CASHLESS PAYMENTS BEFORE AND AFTER COVID PERIOD IN BENGALURU

Ullas.G
Research scholar,
Sanskriti university
&
Dr. Pradeep Meghwal
Assistant professor,
Sanskriti university

ABSTRACT

The impact of the COVID-19 pandemic has introduced a material change in the behavior of consumers when it comes to payments. The study offers a comprehensive analysis of the use of cashless payments in Bengaluru both in the pre-COVID and the post-COVID era. The study adopts a secondary approach and utilizes information gathered from credible sources such as RBI reports, NITI Aayog reports, Global Payment Reports, Deloitte reports, and Infosys reports. The analysis utilizes trend analysis and percentage change techniques to examine the changes in the use of cashless payments over the pre-COVID and post-COVID eras. The study observes a significant rise in cashless payments in the post-COVID era in sectors like grocery retail, e-commerce, education, and utility services. However, sectors related to traveling and entertainment incurred a short-term impact due to the pandemic. The study concludes that safety and technology introduced by the government of India have had a material impact on the development of the cashless payment systems of Bengaluru and provides significant information and guidance for the development of the Indian digital economy.

Keywords: *Cashless Payments, Digital Transactions, COVID-19 Impact, Bengaluru.*

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1. INTRODUCTION

The advancements in technology have had a significant impact on the way and means of executing financial transactions; thus, there has been a gradual shift towards cashless transactions in the Indian economy. With the emergence of new technology-driven platforms like Unified Payments Interface (UPI), mobile wallets, debit and credit cards, and internet banking services, consumers are enjoying numerous benefits and benefits of increased convenience and speed associated with cashless transactions. Bengaluru has been at the foreground of the technological revolution in the Indian economy and has adopted finance technology advancements. The trend of cashless transactions was on the rise even before the outbreak of the Covid-19 pandemic; however, the pandemic has proven to be a great motivator for this shift.

The COVID-19 outbreak posed unparalleled challenges to the traditional modes of economic exchange, due to health concerns related to the handling of physical cash and in-person transactions. Lockdowns, social distancing norms, and the demand for contactless services drastically changed consumer behavior, forcing people and businesses to stay dependent on digital modes of payment. The surge in digital transactions saw an upside during the pandemic period for essential sectors like grocery retail, e-commerce, utility services, and online education. However, sectors such as travel, hospitality, and entertainment reportedly suffered due to the pandemic. These diverging trends help indicate the need to consider how the pandemic has reshaped the aggregate landscape of cashless payments, particularly in a metropolitan city such as Bengaluru.

In this background, the current study aims at carrying out a comparative study on the trends of cashless payments in Bengaluru both before and after the era of the COVID-19 pandemic. By assessing the changes in patterns, number, and preferences of various cashless modes of payments, the study will help in gaining a holistic understanding about the future effects of the pandemic on the financial practices of the country. The results of the proposed study will help in generating useful knowledge on how to develop a robust digital payment system in India in the future.

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2. LITERATURE REVIEW

Kumar and Sharma (2020) analyzed the usage of prepaid payments in India before and during COVID-19 and found the adoption of cashless transactions was significantly accelerated by the pandemic. Their study reflected that the usage of mobile wallets, UPI, and cards had increased in the essential sectors while discretionary sectors showed a decline. They concluded that COVID-19 acted as a major catalyst in strengthening India's digital payment ecosystem.

Achutamba and Hymavathi (2022) studied the impact of the COVID-19 era on the use of digital payments in India, finding a significant increase in the use of UPI, mobile wallet payments, and internet banking. The study concluded that the adherence to the rule of following 'social distancing' measures, as well as the government's facilitation of the use of cashless transactions, had increased public confidence in cashless transactions, thereby making them a regular financial activity.

Kumar and Singh (2021) studied the effect of demonetization and COVID-19 on digital financial inclusion in India and found that both events considerably caused a shift toward digital finance. Their findings presented that though demonetization started the shift, COVID-19 really imparted strength to the digital adoption of urban and semi-urban areas. They inferred that while things were improving, certain challenges related to digital literacy and access gaps still prevailed.

Szumski (2022) undertook a comparative analysis of digital payment patterns before and after the outbreak of COVID-19. The author found that the COVID-19 outbreak caused the digital payments trend to shift from being a luxury to a need. There has been an increase in the use of mobile payments, contactless credit cards, as well as QR code payments. Additionally, there is a less reliance on cash.

3. RESEARCH METHODOLOGY

The aim of this paper is to explain the overall framework adopted to conduct the study of cashless payments in Bengaluru. It explains the systematic approach followed in collecting data, measuring,

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and analyzing the changes in the consumers' payment behavior pre- and post-COVID period. The section covers research design, area of study, sampling method, techniques of data collection, main variables, and tools of analysis, thereby ensuring the reliability, validity, and clarity of the research process.

3.1 Research Design

The study applied a descriptive and comparative research design to explore the variations in the use of cashless payment systems before and after the COVID-19 era in Bengaluru. The descriptive study enabled a comprehension of the scenario that existed in digital payment use, and the comparative study allowed a systematic comparison to be made regarding consumer behavior in both periods. This study design was appropriate for this study, given that it intended to explore variations in awareness, inclination, and use that resulted from the pandemic.

3.2 Sample and the Study Area

The study took place at Bengaluru, one of the most advancing urban cities of the Indian economy and a hub for technological advancements. The reason for choosing this particular setting for the study includes the extensive usage of the internet by the population of this region. Additionally, this region contains a diverse population that made it an appropriate place to analyze the transition phase of online payments before the COVID-19 outbreak. A total of 100 respondents were selected for the study. These included office-going employees, students, self-employed citizens, or business owners. A convenience sampling method was selected for this study due to time limitations. Additionally, the method seemed appropriate to measure practical experiences for the selected audience.

3.3 Data Collection Method

The investigation utilized both primary and secondary forms of data.

Primarily, the data was gathered using a structured questionnaire. This ensured the collection of relevant details such as the demographic characteristics and awareness and use of digital means

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for payment prior to and after the COVID-19 pandemic. This was conducted online using platforms such as Google forms and to a very limited extent, personal interaction.

The secondary data were extracted from RBI reports, publications from the government, journals, research papers, and reports from the digital payments industry for the purpose of analysis.

3.4 Variables and Measurement

The following important variables were considered in the study:

- **Independent Variable:**
    - The COVID-19 time frame (both before and after COVID-19)
- **Dependent Variables:**
    - The frequency of using cashless transactions
    - Knowledge of online payment systems
    - Cashless transactions are preferred.
    - Convenience perception
    - Perceived safety and confidence
    - Willingness to keep utilizing electronic payments

These variables were measured using a five-point Likert scale, ranging from *Strongly Disagree (1)* to *Strongly Agree (5)*. Frequency of usage was measured using categorical options such as *Never, Rarely, Sometimes, Often,* and *Always*. Demographic variables such as age, gender, education, and occupation were measured using nominal and ordinal scales.

3.5 Data Analysis Techniques

The collected data were coded and analyzed using statistical tools such as MS Excel and SPSS.

- Descriptive statistics such as percentages, means, and standard deviations were employed to describe the respondents and their overall payment behavior.

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- Paired t-tests and cross-tabulations were conducted for the comparison analysis for significant differences in cashless payments used pre-COVID-19 and post-COVID-19.
- Graphic methods such as bar graphs and pie charts were adopted to enable the results to be presented effectively.

4. RESULT AND DISCUSSION

The demographic characteristics of the 100 participants for the study can be viewed in Table 1. The sample included 58 males and 42 females, ensuring a more equal distribution of the two. With regards to the age factor, the two largest groups included those in the 26-35 year bracket, comprising 38 percent, while the other two groups included those below 25, with 22 percent, as well as those in the 36-45 bracket, which made up 25 percent of the responses. The three groups pertaining to the participants' profession included employees, 40 percent, students, 28 percent, self-employed, 20 percent, as well as small business owners, who made up 12 percent.

Table 1. Demographic Profile of Respondents

Category	Sub Category	Frequency	Percentage (%)
Gender	**Male**	58	58
	Female	42	42
Age Group	**Below 25 years**	22	22
	26–35 years	38	38
	36–45 years	25	25
	Above 45 years	15	15
Occupation	**Students**	28	28
	Salaried Employees	40	40
	Self-employed	20	20
	Small Business Owners	12	12

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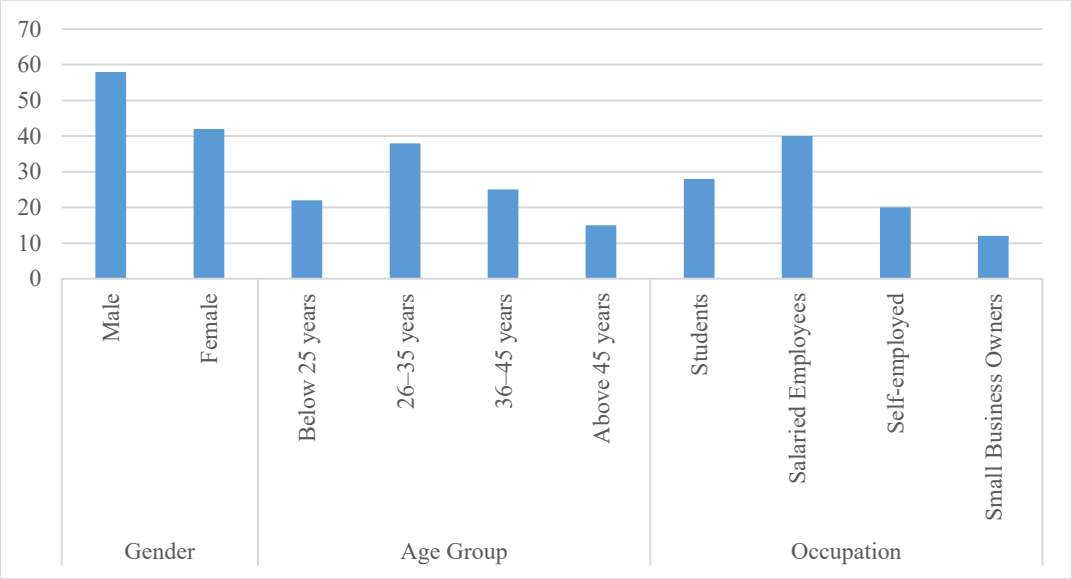

Figure 1. Graphical Representation on Demographic Profile of Respondents

The demographics found in the sample indicated that there was representation from those most likely to participate in cashless transactions. The high representation from those aged between 26-35 years and those who receive salaries indicated that there was representation from people who have been most likely to adapt to using digital technologies in general, making this study relevant to its finding related to post-COVID cashless payment adoption. However, including older generations in this study ensured insights into how different generations have adopted or adapted to cashless payment technologies in Bengaluru. Small business owners were another important group included in this study.

Table 2 presents the comparison of the frequency of using cashless payment methods among the respondents before and after the COVID-19 period. Before the pandemic, a big chunk of the respondents had reported low levels of usage, with 18% stating that they never used cashless payments, 32% use them rarely, while just 15% reported “often” and only 5% reported “always.” On the contrary, the data from post-COVID showed a significant increase in regular usages: 35% of the respondents used cashless payments often and 30% used it always. The proportion of non-users dropped drastically to only 3% after COVID-19.

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Table 2. Frequency of Cashless Payment Usage before and After COVID-19

Usage Frequency	Before COVID (%)	After COVID (%)
Never	18	3
Rarely	32	10
Sometimes	30	22
Often	15	35
Always	5	30

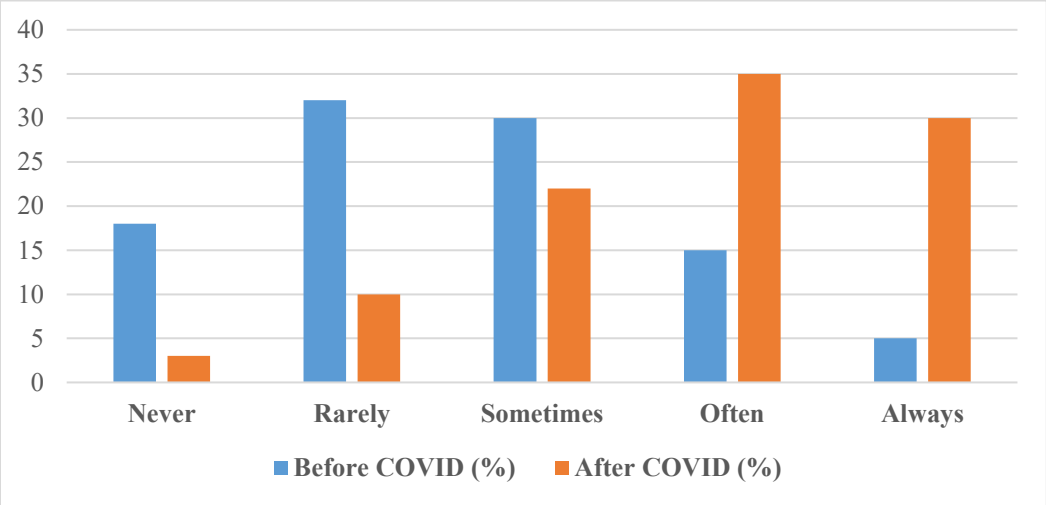

Figure 2. Graphical Representation on Frequency of Cashless Payment Usage Before and After COVID-19

The pattern of use change was evident and indicated that the COVID-19 pandemic was a significant turning point in the acceleration of cashless use in the city of Bengaluru. The drastic reduction in the number of respondents who never or seldom used digital payments, together with the substantial rise in those using digital payments often, indicated a paradigm shift in the pattern of use and not a transitional drift. This supported the belief that digital payments became the staple of all financial transactions after the pandemic.

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Table 3 below compares the mean scores for key variables associated with cashless payment adoption before and after the COVID-19 era. It was observed that there was a steady rise for all variables after COVID-19. Awareness for digital payment options rose from 3.1 to 4.4, and preference for cashless payment options increased from 3.0 to 4.3. Additionally, perceived convenience rose from 3.2 to 4.5, and perceived security and trust from 2.9 to 4.1. The biggest jump was recorded for the intention to keep using digital payment options, which improved from 3.3 pre-COVID-19 to 4.6 post-COVID-19.

Table 3. Mean Score Comparison of Key Variables

Variable	Before COVID (Mean)	After COVID (Mean)
Awareness of Digital Payments	3.1	4.4
Preference for Cashless Mode	3.0	4.3
Perceived Convenience	3.2	4.5
Perceived Security & Trust	2.9	4.1
Intention to Continue Usage	3.3	4.6

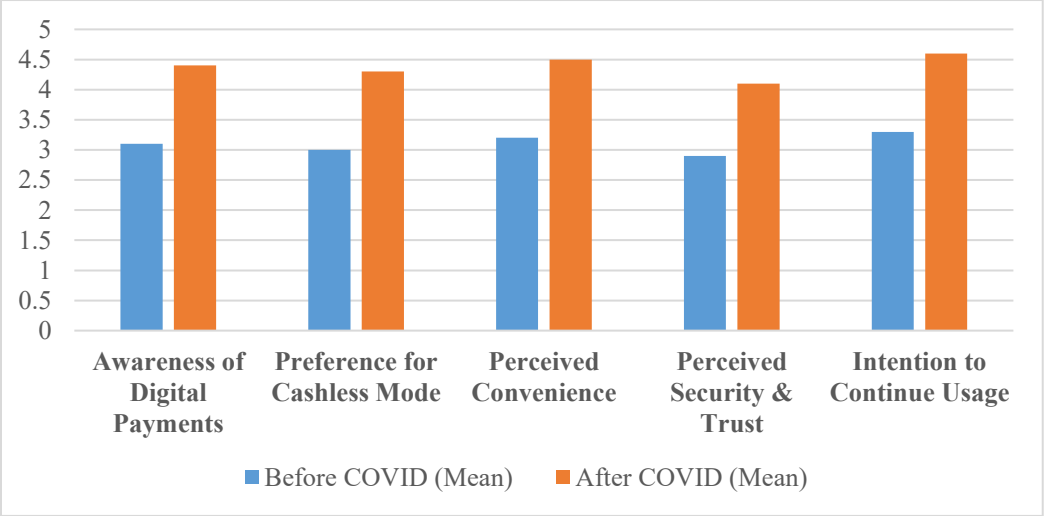

Figure 3. Graphical Representation on Mean Score Comparison of Key Variables

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The improvement in mean values for all the variables revealed that the impact of the COVID-19 pandemic had been substantial in enhancing positive attitudes among the consumers in Bengaluru about cashless transactions. The remarkable increase in the mean value for convenience and trust suggested that the initial reservations among people about the usability of the system had decreased as a result of greater interaction with the digital system. The remarkably high score on the post-COVID value for the intention to continue the use of cashless transactions revealed that the behavioral change in terms of adopting cashless transactions as a result of the COVID-19 pandemic had been profound.

Table 4 below highlights the results for the paired t-test, which evaluates the difference in cashless payment behavior during the pre-COVID-19 era compared to the era after the COVID-19 period. The significant parameters evaluated in this study included the level of usage, awareness levels, preference, convenience, as well as the aspects of security and trust. It is clear that for all the parameters, the t-values are high, while the p-values are 0.000.

Table 4. Paired t-Test Results – Cashless Payments Before vs After COVID-19

Variable	t-value	p-value	Result
Frequency of Usage	8.72	0.000	Significant
Awareness Level	7.95	0.000	Significant
Preference	6.88	0.000	Significant
Perceived Convenience	9.10	0.000	Significant
Security & Trust	6.42	0.000	Significant

Since all the variables were statistically significant, it proved that the observed differences in cashless payment behavior before and after COVID-19 were not a result of chance. That means the COVID-19 pandemic significantly and measurably changed how consumers in Bengaluru perceive and use digital methods of paying for goods and services. Strong significance across usage, awareness, convenience, and trust suggested that COVID-19 played a decisive role in accelerating digital adoption and in strengthening long-term confidence in cashless transactions.

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5. CONCLUSION

The COVID-19 pandemic has played a revolutionary role in changing the behavior pattern of cashless payments in Bengaluru. A comparative study showed that there was a considerable rise in the usage of digital payments, awareness, preference towards cashless systems, and convenience and security perceptions in the post-COVID scenario. The statistical proof from a paired t-test further authenticated that this was no ordinary phenomenon but a remarkable change in behavior that went beyond adapting to crisis situations. The increased use of UPI, mobile wallets, and net banking in essential services like retail, utilities, and education reflected how payments were no longer limited to digital platforms. The findings of this study indicated that in spite of health concerns, with positive government support and further development in fintech, Bengaluru is now at the forefront in getting India on to its journey towards its totally digital financial future.

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Dr. Pradeep Meghwal

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