

Adoption of Cashless Mobile-Based Digital Payment Apps in India during the Covid-19 Pandemic with Particular Reference to Auto Rickshaw Drivers and Street Vendors in Bangalore

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Abstract:- The covid-19 pandemic was a key factor in India shifting towards a cashless economy. Due to the requirement of a contactless method of money transfer, mobile based payment apps emerged as the preferred means for monetary transactions. Using a quantitative survey of 200 people in the city of Bangalore, this research study aims to examine and analyse the prevalence of mobile payment systems in the Indian economy. This study also aims to understand the reasons for the prominence of the aforementioned apps and analyse the mobile payment apps that are most widely used.

Keywords:- Cashless economy, Digital payments, Mobile based payment.

I. INTRODUCTION

The dawn of covid-19 introduced India to widely accept and utilize cashless mobile-based digital payment systems. Cash payments, internet banking and credit and debit cards were used as a mode of transfer of money prior to the introduction of digital payments. With the advent of the covid-19 pandemic and the requirement for contactless means of money transfer, India is slowly shifting into a cashless and digital economy. The acceptance of mobile-based cashless payments brings with it the benefits of convenience, security, and quick transfers of money.

II. BACKGROUND

Initially, the citizens of India hesitated to embrace digital payment systems as they were accustomed to dealing in cash or credit and debit cards. The newly introduced mobile payment apps invoked scepticism and provoked concerns over the security provided by the developers. There was also a lack of awareness about mobile payment apps that particularly prevailed among the rural parts of the country. The advent of the covid-19 pandemic in 2020 served as a catalyst for the adaptation of mobile payment apps. Cash payments were no longer accepted as they facilitated the spread of the virus and mobile payment apps

served as a convenient and contactless mode of money transfer. Although covid-19 has decreased considerably in 2022 and restrictions have started easing up, mobile payment apps still remain as the preferred mode of payment in many places.

III. AREA AND FOCUS OF STUDY

A survey was exclusively conducted in the city of Bangalore, the capital city of the state of Karnataka in order to test and verify the prevalence and reach of mobile payment apps. The survey places a particular emphasis on the auto rickshaw drivers and street vendors of the city.

IV. RESEARCH OBJECTIVES

- To examine mobile payment apps as a widely recognised mode of payment
- To learn and assess the reasons why the residents of Bangalore prefer mobile payment apps
- To find out the mobile payment apps that are preferred the most

V. METHODOLOGY

The research was conducted to examine mobile payment apps as the commonly recognised mode of payment in Bangalore as well as to assess the reasons for their prevalence. Data about daily transactions was collected and analysed. A study was also conducted to analyse which mobile payment app was preferred the most. Quantitative research design method was adopted and a combination of primary data as well as secondary data was collected and examined from sources to achieve the objectives of the research. Microsoft Excel was used for data processing and analysis. Primary data was collected by personal interviews while secondary data included information gathered on mobile payment app based transactions from a selected part of the sample. The sample size used for the study is 200 and the simple random probability sampling method was used for the selection of samples.

VI. ANALYSIS OF DATA

| Age | Auto rickshaw drivers | | Street vendors | |
|--------------|-----------------------|------------|----------------|------------|
| | Frequency | Percentage | Frequency | Percentage |
| below 21 | 0 | 0% | 0 | 0% |
| 21-30 | 32 | 16% | 29 | 14.5% |
| 31-40 | 26 | 13% | 23 | 11.5% |
| 41-50 | 29 | 14.5% | 26 | 13% |
| 51-60 | 11 | 5.5% | 16 | 8% |
| 61-70 | 2 | 1% | 5 | 2.5% |
| above 71 | 0 | 0% | 1 | 0.5% |
| Total | 100 | 50% | 100 | 50% |

Table 1: Distribution of age group

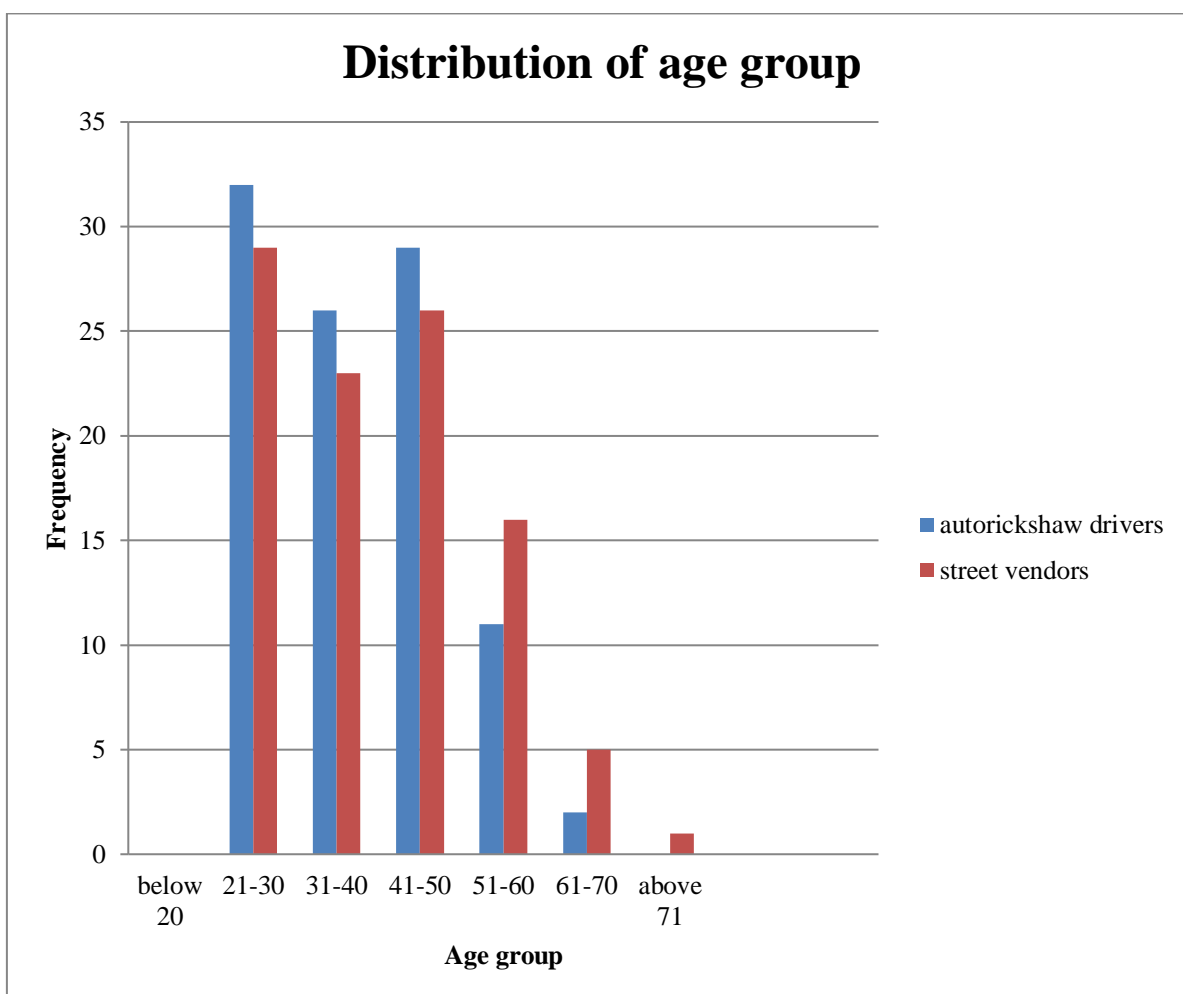


Fig. 1: Distribution of age group

The above table represents the age distribution of the sample. The sample size of 200 people was chosen which consisted of 100 auto rickshaw drivers and 100 street vendors. There were 61 people belonging to the 21-30 years age group, 49 people belonging to the 31-40 years age

group, 55 people belonging to the 41-50 age group, 27 people belonging to the 51-60 years age group and 7 people belonging to the 61-70 years age group. There was only 1 person belonging to the age group of 71 and above. No person belonged to the age group of 20 and below.

| Age | Use mobile payment apps | | Do not use mobile payment apps | |
|-------------------------|-------------------------|----------------|--------------------------------|----------------|
| | Auto rickshaw drivers | Street vendors | Auto rickshaw drivers | Street vendors |
| below 20 | 0 | 0 | 0 | 0 |
| 21-30 | 32 | 29 | 0 | 0 |
| 31-40 | 26 | 23 | 0 | 0 |
| 41-50 | 28 | 26 | 1 | 0 |
| 51-60 | 11 | 15 | 0 | 1 |
| 61-70 | 1 | 3 | 1 | 2 |
| above 71 | 0 | 0 | 0 | 1 |
| Sum | 98 | 96 | 2 | 4 |
| Percentage | 49% | 48% | 1% | 2% |
| Total sum | 194 | | 6 | |
| Total percentage | 97% | | 3% | |

Table 2: Usage of mobile payment apps

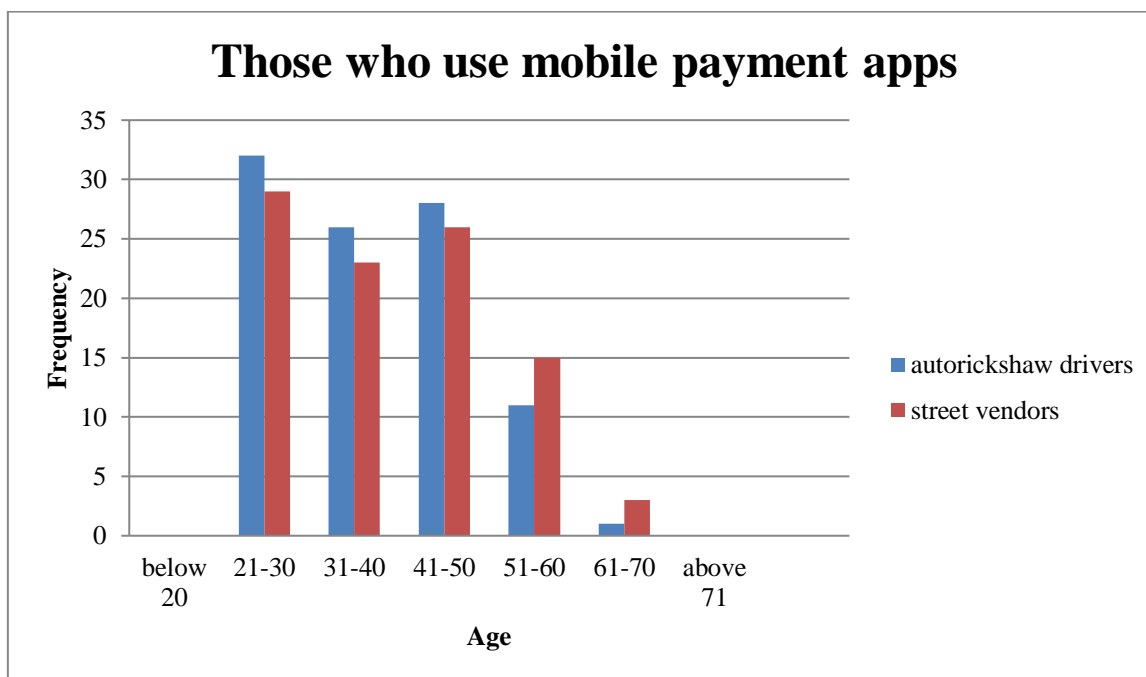


Fig. 2: Those who use mobile payment apps

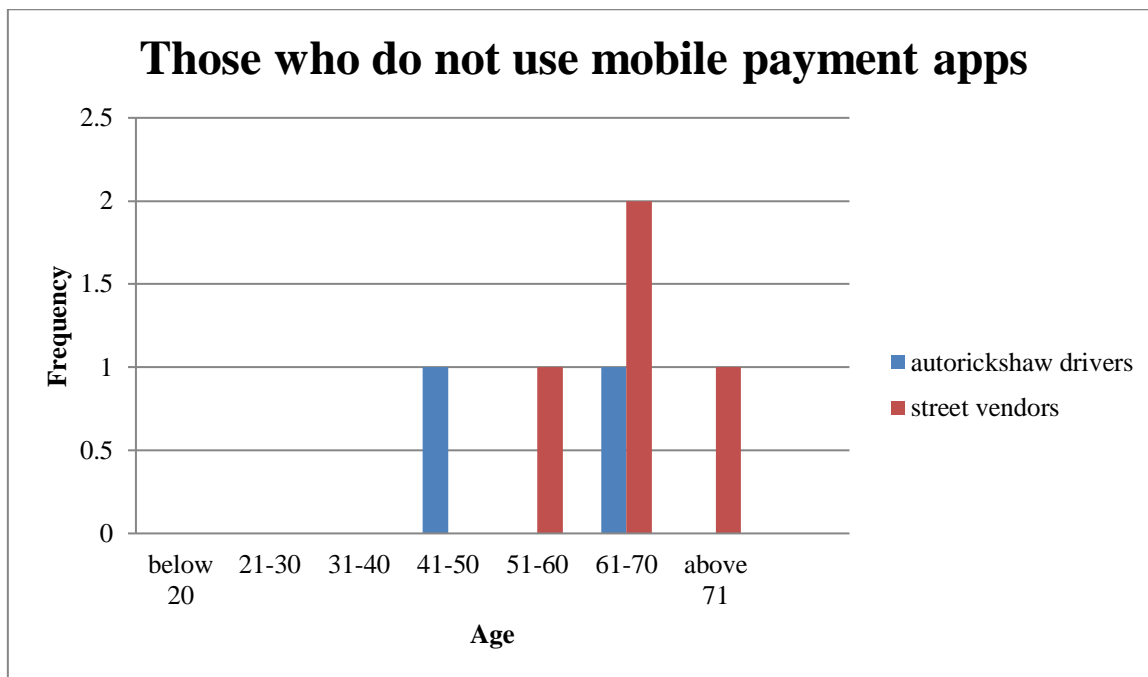


Fig. 3: Those who do not use mobile payment apps

The above table shows the age wise distribution of those who accept and use mobile payment apps as a mode of money transfer and those who do not. Out of the 200 participants, 194 of them used mobile payment apps i.e. 97% of the sample use and accept mobile payment apps as a

mode of payment. 6 of the participants did not use any mobile payment apps and preferred cash payments i.e. 3% of the sample did not use and accept mobile payment apps as a mode of payment.

| Reasons for using mobile payment apps | Frequency | | Total frequency | Percentage |
|---------------------------------------|-----------------------|----------------|-----------------|------------|
| | Auto rickshaw drivers | Street vendors | | |
| convenient | 92 | 85 | 177 | 88.5% |
| fast | 90 | 85 | 175 | 87.5% |
| secure | 91 | 77 | 168 | 84% |
| contactless | 95 | 90 | 185 | 92.5% |
| No problem of returning change | 89 | 81 | 170 | 85% |
| Requested by customers | 29 | 34 | 63 | 31.5% |

Table 3: Reasons for using mobile payment apps as a mode of payment

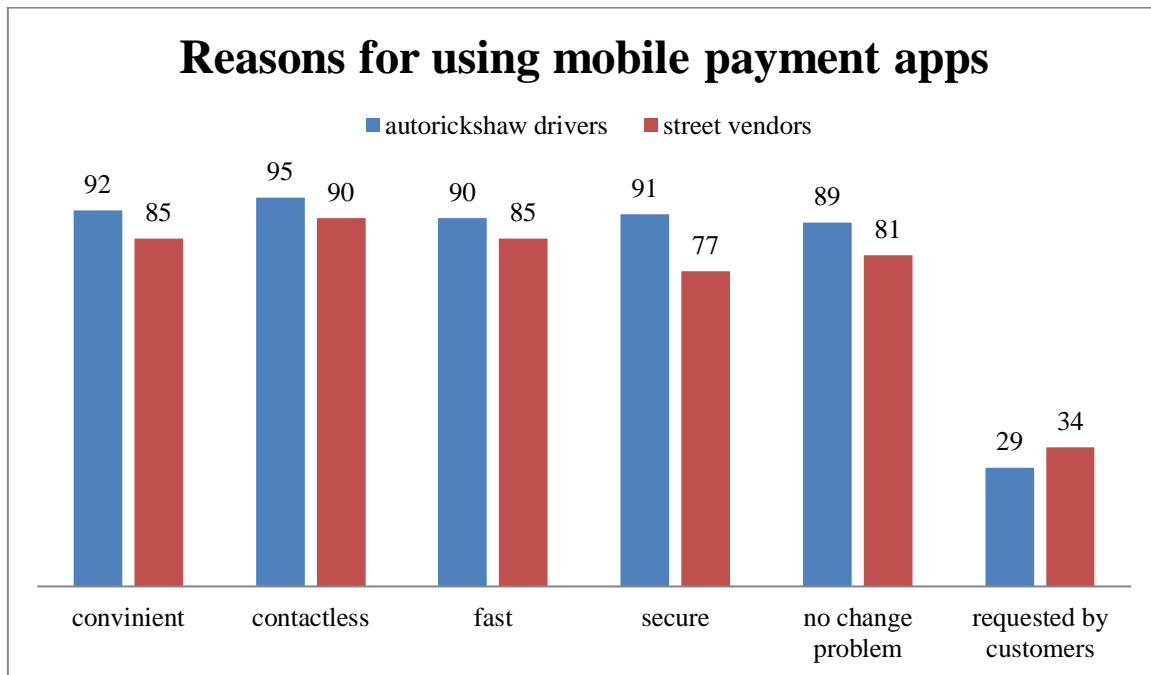


Fig. 4: Reasons for using mobile payment apps

The above table lists the reasons why the 194 participants preferred using mobile payment apps. The sample was asked to select one or more reasons why they opted to use mobile payment apps and a majority of the respondents selected multiple reasons. Contactless transfer of money, selected by 185 participants, is the main reason for using mobile payment apps because it prevents the spread of covid-19. The second reason for choosing this mode of payment was convenience, selected by 177 participants, as the money could be transferred at any place during any point of time. This was followed by quick transfer of money, selected by 175 participants and no problem of having to return change as the exact amount of money could be transferred, selected by 170 participants.

The next reason was security selected by 168 participants. The fifth and last reason, selected by 63 participants, was because they were requested by their customers to accept mobile payment apps as a mode of payment.

“This payment method is contactless so they were very helpful to me and my business during covid” remarked Mr X, a street vendor, upon being asked why he does not use mobile payment apps. “The exact amount can be transferred and there is no problem of returning the change” stated Mr Y, an auto rickshawdriver, upon being asked why he does not accept mobile payment apps as a method of payment from his customers.

| Reasons for preferring cash | Frequency | | Total frequency |
|---|-----------------------|----------------|-----------------|
| | Auto rickshaw drivers | Street vendors | |
| do not trust the security of the app | 2 | 2 | 3 |
| lack of information about mobile payment apps | 1 | 1 | 1 |
| do not own smartphone | 0 | 2 | 2 |
| No technological knowledge about how to use the app | 0 | 1 | 1 |
| lack of awareness | 0 | 0 | 0 |

Table 4: Reasons for preferring cash as a mode of payment

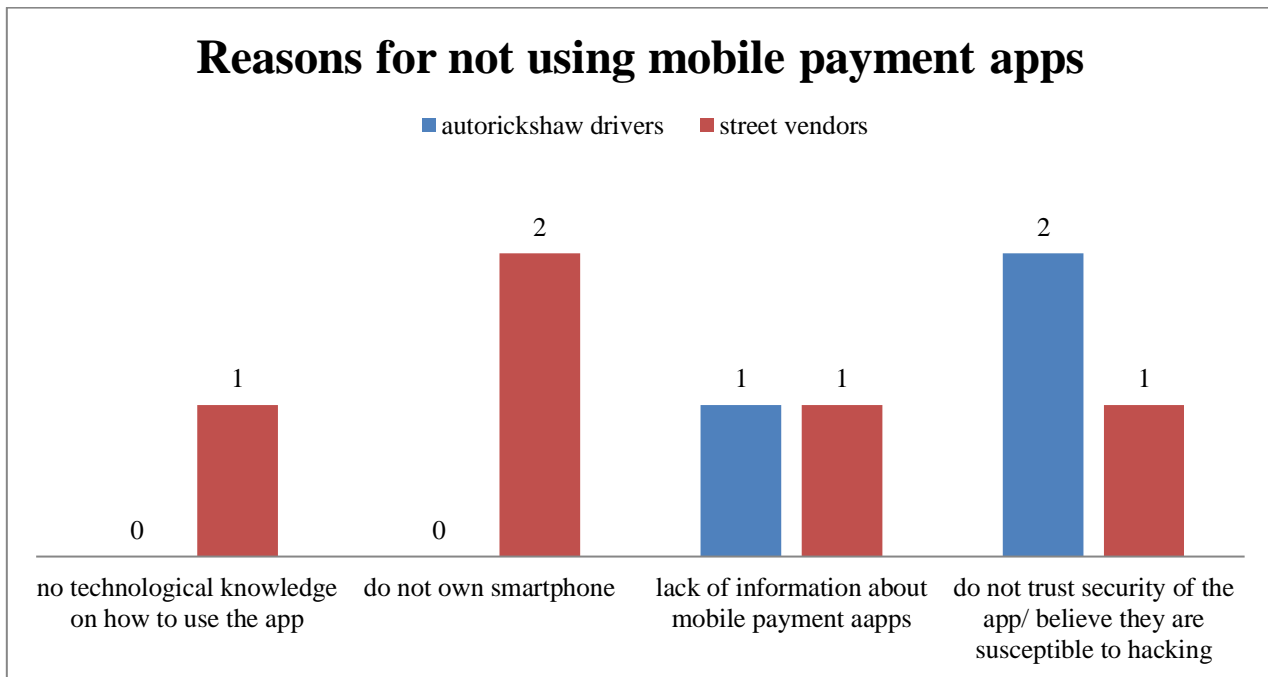


Fig. 5: Reasons for not using mobile payment apps

The above table lists the reasons why 6 of the participants preferred using cash and did not accept mobile payment apps as a means of payment. The sample was asked to select one or more reasons why they opted out of using mobile payment apps and a majority of them selected multiple reasons. Doubting the security provided by the apps, selected by 3 participants, and was the main reason why they were hesitant to use mobile payment apps as they believed it made their account susceptible to hacking. The next reason, selected by 2 participants, was because they did not own smartphones and thus, could not use mobile payment apps. This was followed by lack of information about mobile payment apps and no possession of technical knowledge on how to use mobile payment apps, both of

which were selected by 1 participant. Lack of awareness did not play a role in the participant’s preferring cash as all of the participants were aware of the widespread usage of mobile payment apps.

“I do not know much about this technology and how to use these apps” remarked Mr A, an auto rickshaw driver, upon being asked why he does not accept mobile payment apps. “I don’t know a lot about these apps and I don’t trust them with my money because nowadays people can hack anything. I don’t want to lose all my money” stated Mr B, a street vendor, upon being asked why he does not accept mobile payment apps as a method of payment.

| App name | Auto rickshaw drivers | | Street vendors | | Total | |
|------------|-----------------------|------------|----------------|------------|-----------|------------|
| | Frequency | Percentage | Frequency | Percentage | Frequency | Percentage |
| Google Pay | 97 | 98.97% | 95 | 98.95% | 192 | 96% |
| Phone Pe | 96 | 97.95% | 93 | 96.87% | 189 | 94.5% |
| Paytm | 97 | 98.97% | 95 | 98.95% | 192 | 96% |
| BHIM upi | 95 | 96.93% | 92 | 95.83% | 187 | 93.5% |
| All 4 | 94 | 95.91% | 91 | 94.79% | 185 | 95.36% |

Table 5: Most commonly used mobile payment apps

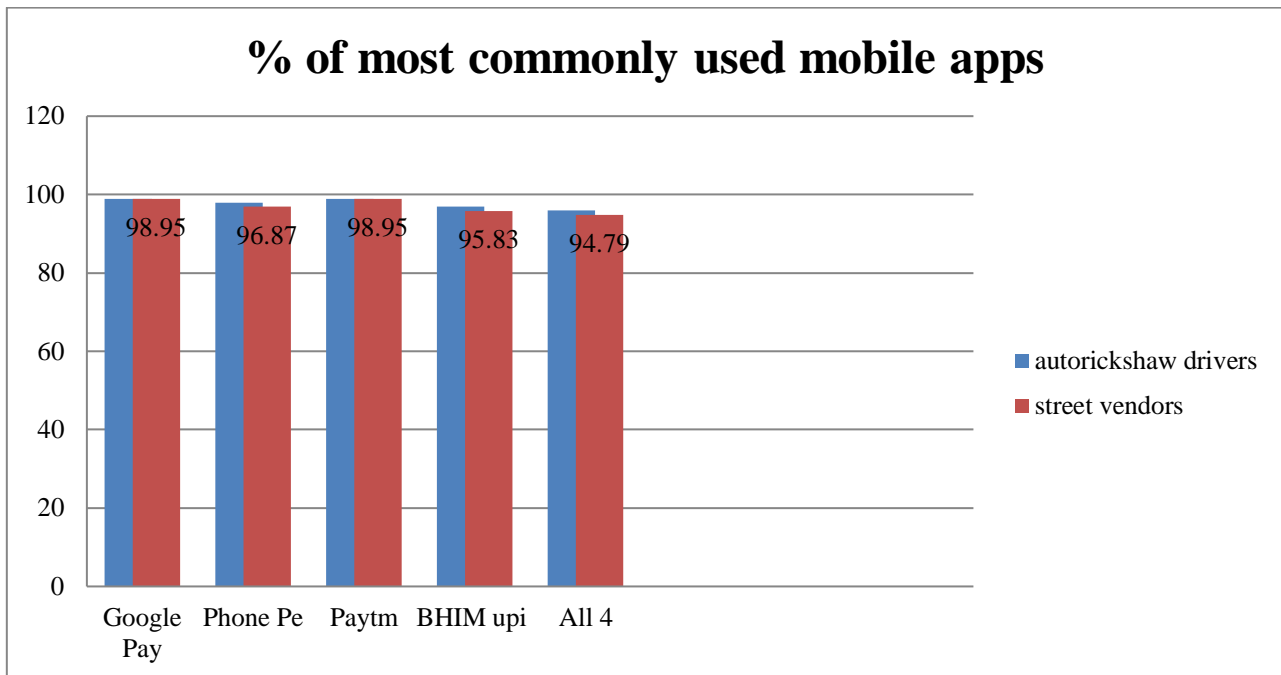


Fig. 6: % of most commonly used mobile apps

The above table shows the most widely used mobile payment apps. The 194 participants were asked to list out the apps they used to accept and transfer money. Almost all of the participants used more than one app for money transactions. The most prominent apps were Google Pay, Paytm, Phone Pe and BHIM UPI at percentages of 96%, 96%, 94.5% and 93.5% respectively. 95.36% of those who used mobile payment apps accepted money through all four of the abovementioned apps. Other commonly used apps included MobiKwik, Jiopay and Airtel Money.

VII. RESULTS

97% of the surveyed sample made use of mobile payment apps for the acceptance and transference of money. The most widely used mobile payment apps consist of GooglePay, PhonePe, Paytm and BHIM upi. 95.36% of the sample that accepted mobile payment apps presented its customers with the option to pay through all four of the above mentioned apps.

VIII. DISCUSSION

97% of the surveyed population used mobile payment apps for money transactions thus proving India is one step closer to becoming a digital and cashless economy. However, 3% of the surveyed population are still reluctant to switch to mobile payment apps despite being aware of their widespread usage across the country. The reasons for their reluctance include doubting the security of these apps, lack of information about mobile payment methods, lacking technological knowledge to operate these apps and not owning a smartphone.

Upon analysing the data with respect to age groups it is observed that all of the people between the ages of 21 and 40 years had embraced mobile payment methods. The majority of those who did not use mobile payment apps

were above 60 years old. These people preferred cash as a payment method.

IX. CONCLUSION

The research study concludes with the verification that mobile payment apps are indeed widely recognised as a form of payment. 97% of the surveyed sample used mobile payment apps to accept or transfer money.

The reasons for the preference of mobile payment apps by the residents of Bangalore include:

- They are contactless- a necessity during the peak of the covid-19 pandemic
- They are convenient
- They are secure
- The transactions are fast unlike the case of credit or debit cards
- There is no problem of returning the change as the exact amount can be paid directly
- They are widely used and accepted in a majority of shops including street vendors

The most widely used mobile payment apps are GooglePay, PhonePe, Paytm and BHIM UPI with 95.36% accepting payment through all four of the above mentioned apps. .

X. SCOPE

The adoption and usage of mobile based payment apps and their implications is a fairly new subject and therefore it is yet to be explored in full depth. This research study can be replicated with different sample sizes in the same city or in different cities. Furthermore, studies can be conducted to study the impact and effect mobile based payment apps produce on the Indian economy.

XI. LIMITATIONS

This study was conducted exclusively in Bangalore and it is unknown whether the results can be directly applied to other cities. In addition, a sample size broader than that of this study may provide different results as the responses obtained in the study are subjective.

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APPENDIX

The sample of 200 participants were asked the following six questions

1. What is your age and profession?
2. Do you use and accept mobile payment apps?
3. If yes, which of the reasons prompted you to start using mobile payment apps? You can select more than one option
 - a. they are convenient
 - b. they are fast
 - c. they are contactless
 - d. they are secure
 - e. there is no problem of returning the change
 - f. they were requested by the customers
4. If not, which of the following reasons prevents you from using mobile payment apps? You can select more than one option
 - a. you do not trust the security/ feel it is susceptible to hacking
 - b. lack of information about mobile payment apps
 - c. do not own a smartphone
 - d. do not know how to use the app
 - e. lack of awareness about mobile payment apps
5. Which mobile payment app(s) do you use and accept payment though?