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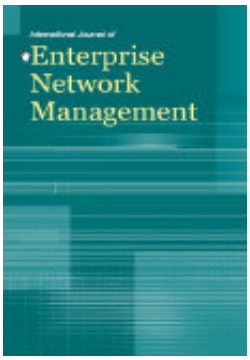

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Digital payment apps: perception and adoption – a study of higher education students

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Abstract: The advancement in technology and digitalisation provides a pathway for the adoption of digital payment. The study aimed to determine the awareness, perception, and role of demonetisation regarding the adoption of digital payment apps. The study collected the primary data through a structured questionnaire from 396 UG and PG students in the Ghaziabad district. The study found no significant difference between the expected and actual benefits of digital payment apps. Qualification and gender were found to be significant factors for the adoption of digital payment apps. Convenient, time-saving, and no need to carry cash are the main factors for adopting and using the digital payment app. Lack of trust, risk associated with it, and unavailability of the technical equipment are the reasons found by the study for not using digital payment apps. The study suggests ways for companies to build the trust of their customers to adopt digital payment apps.

Keywords: digital payment; demonetisation; online transactions; digital apps.

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1 Introduction

"Evolving social and digital media platforms and highly innovative and relevant payment capabilities are causing seismic changes in consumer behaviour and creating equally disruptive opportunities for business." (Howard Schultz)

Digitalisation and the development of technology in the current scenario make the smartphone a vital part of daily life. smartphones nowadays are a part of various daily life activities. It was not so long ago when everyone needed to pay the amount in cash for every transaction they made, but now all these have become so fast and easy. With the advancement in technology and digitalisation, they provide a pathway for the adoption and use of digital payments. When the payer transfers the payment amount to the payee in digital mode, it means that there is hard money or cash involved in the transaction. And a tremendous increase was witnessed in digital payment adoption after the demonetisation. Digital payment helps in providing the facility of payment of insurance, mobile bills, gas bills, electricity bills, etc. According to the report of KPMG, digital payment in India is increasing at a fast rate with a CAGR value of 12.7%. Payments on the digital platform have become easier with the help of various digital payment apps like Paytm, Mobikwik, and Google pay, etc. Applications for digital payments make it easy because they provide a direct connection to the payment portal along with privacy, security, and authenticity. Digital payment apps help in providing a cashless transaction for various purposes.

> "'Payment instruments' that facilitate the purchase of goods and services, including funds transfers, against the value stored on such instruments." (RBI under the Payment and Settlement Systems Act 2007)

1.1 Objectives of the study

The various objectives of the study are listed down:

1 To know about the awareness and the perception regarding the digital payment app.

2 To determine whether there is any difference between the expected and actual benefits of the adoption of the digital payment app or not.

3 To determine the impact of demonetisation on the adoption of digital payment apps.

4 To determine the reason for not adopting the digital payment app.

5 To know the impact of gender and qualification on the adoption of digital payment apps.

2 Literature review

Arora and Panchal (2019) have studied the secondary data to see how Fintech has brought a new financial landscape to India. By analysing the data, it is found that 96% of consumers are aware of at least one digital payment and money transfer globally. 75% of consumers globally have at least one contact payment service as a tool for money transfers. Various startups are working to provide financial services like online lending systems, crowd funding, online trading, blockchain, insurtech, etc.

Arora and Sharma (2022) studied the awareness level of m-banking, the impact of demonetisation on the adoption of m-banking, and the factors for not adopting m-banking. Using logistic regression, t-test, and descriptive statistical tools, the study found a significant change in m-banking transaction adoption after the demonetisation. It

is also found from the study that lack of trust, risk, not being technologically friendly, and inconvenience are the major factors for not adopting m-banking.

Manikandan and Jayakodi (2017) studied the primary data collected from 150 respondents in Chennai City with the help of a structured questionnaire to analyse the customer perception about digital payments, the adoption of digital payments, and study the various factors that are influencing digital payments. It is found from the study that if the risk and security factors are reduced, then it will help to increase the adoption of digital payments. Customers are more influenced by the ease of making payments, convenience, and rewards for adopting the digital payment mode.

Sumathy and Vipin (2017) conducted the study to get an overview of the growth of digital transactions in India, to study people's perceptions and experiences of safety and security while doing digital transactions, and to determine the level of awareness of digital transactions among people in India. A sample of 100 has been taken of urban people of Malapuram District. The study found that digital transactions are increasing at a rapid rate. In FY 2014, digital transactions grew by 50%, and in FY 2015, the growth was 52%. A t-test was used to find the difference between awareness among males and females, and it was found that there was no significant difference between awareness among males and females. The study also concluded that people feel it is a habit to use cash; this is the main reason why they are not using digital transactions. From the ANOVA test analysis, it is found that there is no significant difference between respondents' education level and their awareness of digital transactions.

Yuvaraj and Evelin (2018) have studied the primary data collected from 160 consumers to identify the consumer's perception of cashless transactions, to find out the factors that are influencing consumers towards cashless transactions, and to evaluate the consumer's awareness concerning safety and security during digital transactions. By using the chi-square test, percentage analysis with the help of SPSS 23.0, it is found that 47% of the customers use debit/credit as the most comfortable mode of payment, and 23% prefer digital payment. 67% of customers are aware of digital payments, according to the government guide of Digishala. The factors that are influencing customers towards digital payment are 49% safety and privacy, 36% convenience, 6% shortage of currency notes, 4% compulsion and discount, 1% other factors, and only 0.6% low transaction fees.

Vidyashree et al. (2018) conducted a study to find out about consumer attitude and perception towards digital payments and whether the consumer prefers to use them for the transaction of goods and services. A sample of 50 respondents has been taken for the study. The study found that out of sampled respondents, 90% of them have awareness about digital payments, 80% of people are using digital payments, and 82% of people prefer to use digital payments. From the data, it is found that people are scared of making digital payments because they have an issue with security and safety of their transactions and the details thereof. It is also found from the study that of the people who use digital payments, 92% use them because it saves time, and 50%-60% use them because of safety and security.

Pai (2018) studied the top 5 digital wallet service providers in India to analyse consumer perception and awareness towards digital payments, the merit and demerit of digital payments, and the updation of such on updating technology. A sample size of 120 respondents of Banwal Taluk has been taken for the study, out of which 90 were users and 30 were non-users of payment through the wallet. According to the study, 80%

of respondents are heaters and used the wallet payment, 17.5% only heard about it but never used it, and only 2.5% never heard of it and used it.75% of respondents who use digital wallets for monetary transactions are there. Among the top 5 digital wallets, Paytm is one, which people use most. Of the users of digital wallets, 75.5% prefer Paytm over others. It is also found in the study that 38.89% of respondents are highly satisfied with the payment through their wallet, while 55.56% are satisfied. 85.56% of respondents said they have never encountered any difficulties when using a digital wallet to complete a transaction.

Brahmbhatt (2018) analysed customer awareness and satisfaction while using e-wallet services and their safety and privacy of e-wallet. The sample of 102 people from Ahmedabad city has been analysed with the help of t-test, chi-square and descriptive statistics. Out of 102 people, about 50% of consumers are highly satisfied with the e-wallet, and most of those are those who are using a single e-wallet service. Out of the selected sample, 72% were using Paytm. More likely, it shows that Paytm is penetrating the market. 79% of the respondents were aware of the government initiative. It is found from the study that people prefer e-wallet transactions over other transactions, and that 24% of respondents who are highly satisfied with the e-wallet are also 66%. There are people there who are satisfied with the e-wallet, and about 50% of people are satisfied with the privacy and safety of the e-wallet.

Gokilavani et al. (2018) analysed the consumer perception towards the use of digital payment and evaluated the consumer perception towards digital payment on the rate of adoption of digital transactions through a sample of 300 consumers in the Coimbatore District. The study found half of the selected consumers have a medium level of perception and satisfaction towards digital transactions. There is a fear in the mind of the consumer about doing digital transactions. So, digital transactions should be strengthened from a safety and security point of view. Because digital transactions are risk-free, consumers can easily adopt them.

Pattan and Agarwal (2018) studied the data collected from 400 respondents via questionnaire from various districts of Indore. The collected data has been analysed with MS Excel and SPSS 21.0 for various statistical tests. It is found from the study that in the various districts of Indore, debit cards are most frequently used, having a weighted score of 1,532, followed by net banking with a score of 1,333, and e-wallets like Paytm are in third place in payment modes with a weighted score of 1,155, and credit cards are least used in Indore.

Himani (2018) studied the data collected from 100 respondents by using a structured questionnaire in India to know the customer perception while using the digital payment mode and to know the impact of various demographic factors on digital payment adoption. The sample has been analysed by using ANOVA through SPSS 19. The study found no impact of education on the adoption of digital payment modes. When it comes to digital payment mode adoption, there is a significant difference based on age, gender, and profession. It is also found from the study that safety and security are the major challenging issues with digital payments. The study also recommended that rewards, offers, and discounts can be used to increase the adoption of digital payment modes.

Dhanya (2019) conducted the study to analyse the level of awareness and usage of digital payments among customers using digital payments to determine the most preferable electronic payment platform used by consumers. The sample of 200 consumers who visited the market to purchase goods and services included 80 young customers, 80 adults, and 40 elderly people. The study found Paytm is the most used digital

transaction platform after demonetisation and then Pay U Money. Out of 200 samples, 114 consumers used payment via card to complete the transaction. 95% of the sample respondents use different banks' e-transaction services.

Eswaran (2019) conducted a study with a sample of 150 respondents of the Virudhunagar District to find out the consumer perception and impact of various factors in adopting the digital payment system. The data collected from the sample has been analysed through ANOVA and descriptive statistics analysis by using SPSS 19. ANOVA analysis found no significant difference between male and female perceptions of digital payment, except that education. All other demographic factors had an impact on the adoption level of digital payment.

Makhija (2019) studied customer perception of various attributes and the level of adoption of digital payment. From the primary data of 350 respondents, the Mumbai study found that 63.1% of respondents are using digital payment methods. Customers are positively adopting the digital payment mode. The respondents' age and gender influenced their use of digital payment methods. The majority of respondents believe that digital payment is safe and secure, saves time, and is simple to use. It is also found from the study that discounts, rewards, and various benefits serve as the influencers for adopting the digital payment mode.

Usha and Kumar (2019) studied a sample of 50 respondents from the Karur District to determine customer perceptions of making digital payments using Paytm, to understand Paytm's role in the growth of Digital India, and to comprehend Paytm's flexibility and services in India. According to the study, 66% of respondents use Paytm as a payment mode, and 4% of those respondents use Paytm on a daily basis.36% of the respondents are using Paytm to recharge their phones due to convenience and time flexibility. 24% of the respondents are using Paytm for the payment of various bills. A high level of acceptance among respondents found that Paytm supports Digital India. It is also found from the study that there is no significant difference between the age, gender and the acceptance of Paytm. The study also determines that Paytm is used by the majority of the respondents as it saves time, cash alternative, is fast, safe, and secure.

De Kerviler et al. (2016) discussed the perceptions and attitudes related to digital payment apps, and also the various risks and conveniences related to the adaptation of mobile payment, and explored the adaptation of mobile payment technology (p-m-payment) during purchase in a physical store. They have done a comparative analysis between the risks and benefits related to it and have recommended it to retailers. This technology is also beneficial to consumers.

Pinchot et al. (2016) strongly suggest that perceived security risks are one of the major barriers to the acceptance of digital payment apps. They suggested that due to unawareness, lack of internet access, and risk related to online transactions are commonly considered as one of the barriers to the adaptation of digital payment apps.

Bollweg et al. (2016) created the model and tried to apply the PLS algorithm in their research by considering the SERVQUAL gap model, and found that the perceived customer expectations may positively impact the use of digital payment technologies by owner-operated retail outlets.

In Shaikh and Karjaluoto (2015), most developed and developing countries are also adopting this innovative method of payment and have found that the adoption of digital payment apps commonly relies on compatibility, usefulness, and adaptation behaviour

attitudes, which are considered as one of the key drivers of intentions to adopt digital payment services.

Etim (2014) found that mobile banking and payment through mobile apps were easily adopted by the customers for basic transactions.

In Ho et al. (2013), it was found that the acceptance and adoptability of digital payment through apps are more useful, time-saving, as well as leading to comfort, which leads to the adaptation of payment through digital apps.

As per Pope et al. (2011), it has been found that socio-economic factors might act as stimulants for the adoption of digital payments in various countries or in any particular market.

In Dutta (2015), apart from the comfort, user-friendliness and customer convenience for various financial transactions such as enquiry of available funds, money transfer, bus and train reservations, utility payment, and other financial and monetary transactions, there are certain issues and challenges associated with digital payment apps such as online fraud and spying.

2.1 Gap analysis

From the literature review, we received a very clear understanding related to the adaptation of digital payment apps. However, it has been observed that most of the researchers have only focused on the employed, salaried, and earning individuals in urban areas. The gap analysis aims to highlight the issues and challenges related to digital payment apps among higher education students. Based on the gap analysis, our aims are to find out the attitude, perception, and adoption of digital payment apps by higher education students.

3 Research methodology

Data collection procedure: the present study is based on the primary data collected through the structured questionnaire filled out by the students of UG and PG programs in Ghaziabad district in Uttar Pradesh. The questionnaire consists of three parts. The first part of the questionnaire is for the respondents who are using digital payment apps and it includes the questions related to determining the benefits of using digital payment apps, most used digital payment apps, etc. The second part is for those respondents who are not using digital payment apps to determine the reason for their non-adoption. The third and last part consists of the basic information regarding the respondents, such as their qualifications, gender, etc.

The test-retest method was used to determine the questionnaire's reliability, the correlation value was determined 0.874, value above 0.7 is considered as reliable.

3.1 Sample

The study targeted 450 respondents out of which 408 responses received. Out of the 408 responses, 12 responses were not suitable so the study considered only 396 responses.

3.2 Research tools

To analyse the data collected through the 408 respondent t-test, chi-square test and descriptive analysis has been used through SPSS.

t-test tells how significant the differences between groups are. So in the study to check is there is any difference exists between the expected and actual benefits from the adoption of digital payment apps t-test has been used.

Chi-square test has been used to know the impact of gender and qualification on the adoption of digital payment apps. The reason behind using the chi-square test is as both the variables are categorical.

3.3 Research design

Exploratory and descriptive research design has been used for the study. The study is a cross-sectional study conducted during the first quarter of 2020.

3.4 Sampling technique used

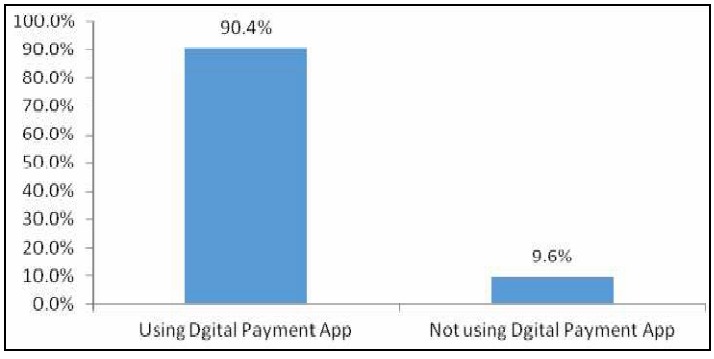
The study used the convenience sampling method, which is one of the non-probability sampling techniques. We use a convenience sampling method when primary data source available can be used without additional prerequisites for research.

4 Data analysis

4.1 Adoption rate of digital payment apps

Out of the 396 respondents, 358 (90.4%) respondents are using digital payment app mode for payments and only 38 (9.6%) respondents are not using the digital payment mode, shown in Figure 1.

Figure 1 Usage of digital payment (see online version for colours)

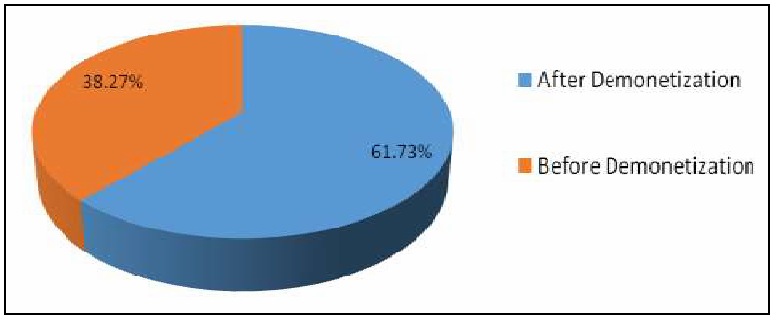


Source: Author compilation from primary data

4.2 Impact of demonetisation on the adoption rate of digital payment apps

The respondents who are using digital payment apps for their payments are using them majorly after the demonetisation, when there was a shortage of cash in the market to pay for their various expenses. Figure 2 clearly shows that out of 358 respondents who are using it, 221 (61.73%) respondents are using it after the demonetisation and only 137 (38.27%) respondents are using it before the demonetisation. It shows that the non-availability of sufficient cash in the market turned people to go for digital payments so that they could pay for their expenses without cash.

Figure 2 Impact of demonetisation of its adoption (see online version for colours)



Source: Author compilation from primary data

4.3 Reason for not using digital payment apps

To find out the reason for not using digital payment apps, the study asked the same of those who are not using digital payment apps. The study found risk as the major factor with a mean score of 4.13 for not using it, lack of trust in digital payments with a mean score of 3.87, unavailability of desired payment option with a mean score of 3.55, followed by not technology-friendly, lack of technology equipment, time-consuming, connectivity issues, inconvenient, and lack of awareness as shown in Table 1. It implies that lack of trust and the risk involved are the main factors due to which people are not using digital payment apps. Thus, the companies providing the digital payment facility should consider improving the safety and security of the apps, and then there is a chance to improve the adoption of digital payment apps. The above findings coincide with the study conducted by Arora and Sharma (2022) and Vidyashree et al. (2018).

4.4 Comparative analysis of expected and actual benefits from the adoption of digital payment apps

The study found from the literature the following seven benefits of digital payment apps, i.e., convenient, time-saving, rewards and incentives, no need to carry cash, trend and enjoyment, government initiatives, and maintain records. The respondents were asked to rate all these on a Likert scale of one to five parameters, i.e., strongly disagree to strongly agree for expected benefits before the adoption of digital payment apps and actual benefits after the adoption of digital payment apps. The t-test was used to determine whether there is a difference between the expected and actual benefits of using digital

payment apps. Table 2 shows the paired sample statistics where we can see that the mean score of the expected benefits of using digital payment is higher as compared to the mean score of the actual benefits received while using the digital payment app. The benefits which are taken and associated with the use of digital payment are: convenient, time-saving, rewards, no need to carry cash, enjoyment, government initiatives, and maintaining records. Expected benefits by the respondents are having a mean score of 3.83, which is more than the actual benefit received, and having a mean score of 3.69.

Table 1 Descriptive statistics: reason for not using digital payment

Response options	*N*	*Minimum*	*Maximum*	*Mean*	*Std. deviation*
Time consuming	38	1	5	2.84	1.569
Lack of awareness	38	2	4	2.53	.893
Lack of trust	38	3	5	3.87	.578
Lack of technological equipment	38	2	4	3.08	.941
Connectivity issues	38	2	4	2.79	.664
Unavailability of desired payment option	38	2	5	3.55	.921
Inconvenient	38	1	3	2.74	.685
Risky	38	3	5	4.13	.623
Non-technological friendly	38	2	5	3.11	1.085
Valid N (listwise)	38				

Source: Author compilation from primary data

Table 2 Paired samples statistics

		Mean	*N*	*Std. deviation*	*Std. error mean*
Pair 1	Expected benefits	3.8316	7	.38058	.14385
	Actual benefits	3.6903	7	.43693	.16514

Source: Author compilation from primary data

Table 3 shows the paired sample t-test. We can interpret that the significance value is 0.06, which is greater than 0.05. It means we have failed to reject the null hypothesis. This implies that no significant difference exists between the mean score of expected benefits for using the digital payment app and the mean score of actual benefits received by using the digital payment app. The mean score of expected benefits is 0.14129 more than the mean score of actual benefits, but the difference is not statistically significant.

Table 3 Paired samples t-test for expected and actual benefits

		Paired differences					*t*	*df*	*Sig. (2-tailed)*
		Mean	*Std. deviation*	*Std. error mean*	*95% confidence interval of the difference*				
					Lower	*Upper*			
Pair 1	Expected benefits Actual benefits	.14129	.16193	.06120	–.00846	.29105	2.309	6	.060

Source: Author compilation from primary data

Further to know the individual factor which are significant and which are non-significant, individual factor t-test has been performed and the output of the test is given in Table 4.

Table 4 Paired samples test

		Paired differences					*t*	*df*	*Sig. (2-tailed)*
		Mean	*Std. deviation*	*Std. error mean*	*95% confidence interval of the difference*				
					Lower	*Upper*			
Pair 1	Expected convenient – actual convenient	.087	1.286	.068	–.047	.220	1.274	357	.203
Pair 2	Expected time saving – actual time saving	.223	1.095	.058	.110	.337	3.861	357	.000
Pair 3	Expected reward/incentives – actual reward/incentives	.117	1.134	.060	–.001	.235	1.957	357	.051
Pair 4	Expected no need to carry cash – actual no need to carry cash	–.075	1.101	.058	–.190	.039	–1.296	357	.196
Pair 5	Expected trend and enjoyment – actual trend and enjoyment	.148	1.086	.057	.035	.261	2.579	357	.010
Pair 6	Expected govt. initiatives – actual govt. initiatives	.047	.929	.049	–.049	.144	.967	357	.334
Pair 7	Expected maintain record – actual maintain record	.444	1.111	.059	.329	.560	7.566	357	.000

Source: Author compilation from primary data

From Table 4, we can interpret that convenient, time saving and maintain records have a significant difference between the expected mean and actual mean. The value of the actual meaning is too small as compared to the expected. This implies that the above three factors significantly contribute less. All the factors have a positive mean difference between the expected and actual, except the need to carry cash, which has a negative mean difference, which implies that the actual benefit is greater than the expected benefits, though this factor is not significant. On the other hand, factors, i.e., convenience and government initiatives, are not significant factors with a positive mean difference, while expected rewards and incentives are very important factors, though they are not significant marginally as the value is .051.

4.5 Impact of qualification and gender on the adoption of digital payment apps

Chi-square test has been used to know the impact of gender and qualification on the adoption of digital payment apps.

4.5.1 The relation between qualification and digital payment apps

From crosstab Table 5, we can interpret that out of the 396 respondents, 42.9% of respondents are from UG and 57.1% of respondents are from PG. Among the respondents who are not using the digital payment app, 65.8% of respondents are from UG and 34.2% of respondents are from PG. It means UG students are more in numbers who are not using the digital payment app. Among the students who are using digital payment apps, 40.5% of respondents are from UG and 59.5% of respondents are from PG. It means PG students are more numerous in numbers who are using the digital payment app.

Table 5 Crosstab between qualification and digital payment apps

			Qualification		*Total*
			UG	*PG*	
Digital app	No	Count	25	13	38
		% within digital app	65.8%	34.2%	100.0%
		% within qualification	14.7%	5.8%	9.6%
		% of total	6.3%	3.3%	9.6%
	Yes	Count	145	213	358
		% within digital app	40.5%	59.5%	100.0%
		% within qualification	85.3%	94.2%	90.4%
		% of total	36.6%	53.8%	90.4%
Total		Count	170	226	396
		% within digital app	42.9%	57.1%	100.0%
		% within qualification	100.0%	100.0%	100.0%
		% of Total	42.9%	57.1%	100.0%

Source: Author compilation from primary data

4.5.1.1 Chi-square test

The null hypothesis, i.e., no significant difference assumed, is rejected. This implies that a significant difference exists between the adoption of the digital payment app and the qualification of the respondents. It means that the qualification of the respondents (UG and PG) has a significant impact on the adoption of digital payment apps. The above finding coincides with the study conducted by Makhija (2019), but the above finding does not coincide with the study conducted by Sumathy and Vipin (2017).

4.5.2 The relation between gender and digital payment apps

From crosstab Table 7, we can interpret that out of the 396 respondents, 69.7% of respondents are male and 30.3% of respondents are female. Among the respondents who are not using the digital payment app, 34.2% of respondents are male and 65.8% of respondents are female. This implies that females outnumber males among those who do not use the digital payment app. Among the respondents who are using digital payment apps, 73.5% of respondents are male and 26.5% of respondents are female. This implies that males are more numerous among those who are using digital payment apps.

Table 6 Chi-square test between qualification and digital payment apps

	Value	*df*	*Asymp. sig. (2-sided)*	*Exact sig. (1-sided)*
Pearson chi-square	8.966	1	.003	
Continuity correction	7.963	1	.005	
Likelihood ratio	8.904	1	.003	
Fisher's exact test				.002
Linear-by-linear association	8.943	1	.003	
N of valid cases	396			

Source: Author compilation from primary data

Table 7 Crosstab between gender and digital payment apps

			Gender		*Total*
			Male	*Female*	
Digital app	No	Count	13	25	38
		% within digital app	34.2%	65.8%	100.0%
		% within gender	4.7%	20.8%	9.6%
		% of total	3.3%	6.3%	9.6%
	Yes	Count	263	95	358
		% within digital app	73.5%	26.5%	100.0%
		% within gender	95.3%	79.2%	90.4%
		% of total	66.4%	24.0%	90.4%
Total		Count	276	120	396
		% within digital app	69.7%	30.3%	100.0%
		% within gender	100.0%	100.0%	100.0%
		% of total	69.7%	30.3%	100.0%

Table 8 Chi-square test between gender and digital payment apps

	Value	*df*	*Asymp. sig. (2- sided)*	*Exact sig. (1- sided)*
Pearson chi-square	25.062	1	.000	
Continuity correction	23.238	1	.000	
Likelihood ratio	22.725	1	.000	
Fisher's exact test				.000
Linear-by-linear association	24.999	1	.000	
N of valid cases	396			

Source: Author compilation from primary data

4.5.2.1 Chi-square test

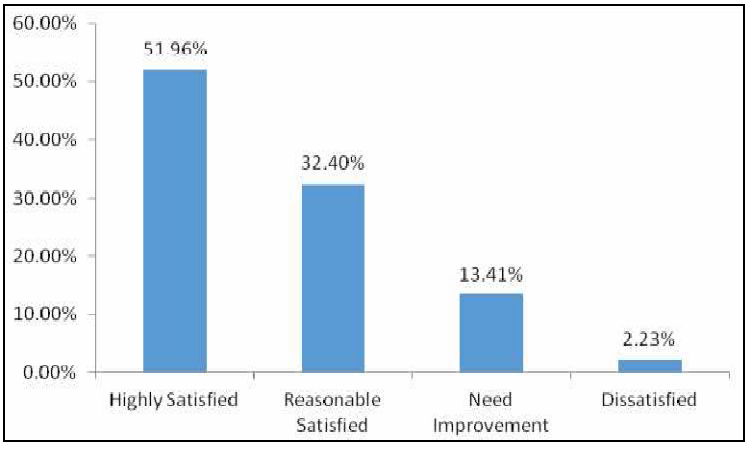
The null hypothesis, i.e., no significant difference assumed, is rejected. This implies that a significant difference exists between the adoption of the digital payment app and the

gender of the respondents. It means that gender has a significant impact on the adoption of digital payment apps. The above finding coincides with the study conducted by Makhija (2019), but the above finding does not coincide with the study conducted by Sumathy and Vipin (2017).

4.6 Satisfaction level of the respondents

Figure 3 clearly shows that out of 358 respondents who are using the digital payment app, 186 respondents (51.96%) are highly satisfied, 116 respondents are reasonably satisfied (32.4%), 48 respondents (13.41%) are saying that it needs improvement, and only eight respondents (2.23%) are dissatisfied with the benefits provided and using the digital payment app.

Figure 3 Satisfaction level of respondents by adopting digital payment app (see online version for colours)



Source: Author compilation from primary data

Table 9 Preferable payment app used by the respondent

Name of the app	*No. of respondents*	*Percentage*	*Rank*
Paytm	291	81.28	1
Google Pay	231	64.52	2
Phone Pay	171	47.76	3
Bhim	72	20.11	4
Amazon	66	18.43	5
Mobikwik	15	4.18	6
Others	12	3.35	7

Source: Author compilation from primary data

4.7 Use of digital payment apps

The study found Paytm is the preferable app used by 81.28% of respondents. Google Pay is the second used by 64.52% of respondents, followed by PhonePay used by 47.76% of respondents, Bhim used by 20.11% of respondents, Amazon used by 18.4% of respondents, Mobikwik used by 4.18% of respondents, and 3.35% of respondents are using other payment apps as shown in Table 9.

5 Result, suggestion and conclusions

The objective of the study was to determine the awareness, perception and adoption level of the students of higher education. The study found that the majority of students are using digital payment apps, and demonetisation has played a crucial role in the adoption of digital payment apps, as 61.73% of the users started using them after the demonetisation date. Most of the users of digital payments are very satisfied with the services. Lack of trust, risk associated with it and unavailability of the technical equipment are the reasons found by the study for not using digital payment apps. The study found no significant difference between the expected benefit and actual benefit of using the digital payment app. Qualification and gender were found to be significant factors for the adoption of digital payment apps. Convenient, time-saving, and no need to carry cash are the main factors for adopting and using the digital payment app. The study found Paytm to be the most used digital payment app, followed by Google Pay and Phone Pay.

Rewards and incentives induce customers to use digital payment apps. As a result, businesses should provide good rewards and incentives for using digital payment apps. It will get customers used to the digital payment apps. Security and safety are the major issues for non-adoption of digital payment apps. Hence, companies are suggested to make their apps fully secured; this can help to build the trust of customers to adopt digital payment apps.

6 Future scope of the study

The present study considered only the students of UG and PG in the Ghaziabad District. The deeper study of the same can be done by considering the other sectors of society along with the students, like businessmen, servicemen, housewives, and those not working. Further studies can be conducted for other districts also.

References

Arora, A. and Sharma, D. (2022) 'Mobile banking services adoption in India: the current scenario', *International Journal of Business and Globalisation*, Vol. 32, No. 3, p.1. DOI: 10.1504/ijbg.2022.10040523.

Arora, A.K. and Panchal, A. (2019) 'FINTECH – new financial landscape in India', *The Management Accountant – Journal of ICMAI*, Vol. 54, No. 10, pp.26–29.

Bollweg, L., Lackes, R., Siepermann, M., Sutaj, A. and Weber, P. (2016) 'Digitalization of local owner operated retail outlets: the role of the perception of competition and customer expectations', *PACIS*, p.348.

Brahmbhatt, M. (2018) 'A study on customer's perception of e-wallets in Ahmedabad City', *IUJ Journal of Management*, Vol. 6, No. 10, pp.11–15.

De Kerviler, G., Demoulin, N.T. and Zidda, P. (2016) 'Adoption of in-store mobile payment: are perceived risk and convenience the only drivers?', *Journal of Retailing and Consumer Services*, July, Vol. 31, pp.334–344.

Dhanya, B.K. (2019) 'Consumer perception of digital payment mode', *International Journal of Research and Analytical Reviews*, Vol. 6, No. 1, pp.176–183.

Dutta, S. (2015) ''Go Digital & Go Branchless': the new catchline of Indian banking sector using mobile telephony: issues & challenges', *International Journal of Management, IT and Engineering*, Vol. 5, No. 7, pp.252–263.

Eswaran, K.K. (2019) 'Consumer perception towards digital payment mode with a special reference to digital wallets', *Research Explorer – A Blind Review & Referred Quarterly International Journal*, Vol. 5, No. 22, pp.13–20.

Etim, A.S. (2014) 'Mobile banking and mobile money adoption for financial inclusion', *Research in Business and Economics Journal*, August, Vol. 9, p.1.

Gokilavani, R., Kumar, D.V., Durgarani, M. and Mahalakshmi, R. (2018) 'Can India move towards digital sovereign currency – a study on the perception of consumers towards digital payment', *International Journal of Pure and Applied Mathematics*, Vol. 119, No. 7, pp.2167–2175.

Himani (2018) 'A study of consumer perception regarding digital payment system in India', *International Journal in Management and Social Science*, Vol. 6, No. 8, pp.13–23.

Ho, E., Apostu, S., Michahelles, F. and Ilic, A. (2013) 'Digital receipts: fostering mobile payment adoption', *International Joint Conference on Ambient Intelligence*, pp.140–149, Springer, Cham.

Makhija, T. (2019) 'Consumer adoption of digital payment modes', *An Online Interdisciplinary. Multidisciplinary Multi-Cultural Journal*, Vol. 8, No. 1, pp.1–15.

Manikandan, S. and Jayakodi, J.M. (2017) 'An empirical study on consumers adoption of mobile wallet with special reference to Chennai City', *International Journal of Research – GRANTHAALAYAH*, Vol. 5, No. 5, pp.107–115.

Pai, A.H. (2018) 'A study on consumer perception towards digital wallets', *International Journal of Research and Analytical Reviews*, Vol. 5, No. 3, pp.385–391.

Pattan, P. and Agarwal, M. (2018) 'A study of consumer's perception towards frequent use of types of e-payment system in Indore division', *International Journal of Research and Analytical Reviews*, Vol. 5, No. 2, pp.1884–1888.

Pinchot, J.L., Mishra, S., Paullet, K.L. and Kohun, F.G. (2016) 'Exploring barriers to adoption of mobile payments for university students: lack of awareness, lack of availability, and perceived security risks', *Issues in Information Systems*, Vol. 17, No. 3, pp.20–30.

Pope, M., Pantages, R., Enachescu, N., Dinshaw, R., Joshlin, C., Stone, R., Seal, K. et al. (2011) 'Mobile payments: the reality on the ground in selected Asian countries and the United States', *International Journal of Mobile Marketing*, Vol. 6, No. 2.

Shaikh, A.A. and Karjaluoto, H. (2015) 'Mobile banking adoption: a literature review', *Telematics and Informatics*, Vol. 32, No. 1, pp.129–142.

Sumathy, M. and Vipin, K.P. (2017) 'Digital payment systems: perception and concerns among urban consumers', *International Journal of Applied Research*, Vol. 3, No. 6, pp.1118–1122.

Usha, M. and Kumar, K.R. (2019) 'Consumers' perception towards Paytm with special reference to Karur District', *International Journal of Research in Advent Technology*, special issue, pp.8–12.

Vidyashree, D.V., Harshitha, J.S. and Darshini, A. (2018) 'A study on people's attitude towards digital money', *International Journal of Computer Engineering and Applications*, May, Vol. 12, pp.1–9.

Yuvaraj, S. and Evelin, S.N. (2018) 'Consumers' perception towards cashless transactions and information security in the digital economy', *International Journal of Mechanical Engineering and Technology*, Vol. 9, No. 7, pp.89–96.