

## An Empirical Study of Intention to Use E-Wallets During Covid-19 Crisis

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### Abstract

*For any business or economic environment, in order to stay competitive, need new strategies and technology practices. Twenty first century is one, which has brought a major shift in the technology in terms of digitalization. With the help of new technologies, new opportunities are explored to contribute in world's economy. E-fund transfer and E-transactions is the new wave in the world of digitalization. Digital wallets are one of the major technology advancements in the area of e-commerce, which has become one of the greatest supports in Covid-19 outbreak to continue to meet the needs and wants of the consumer to shop online/ offline with E-payments convenience, in order to maintain social distance and zero physical contact norms. As it gains more popularity, E-wallets drive its users to spend more.*

*Therefore, the purpose of this research study is to explore the influence of Covid-19 on the intentions of using E-wallets amongst the people residing in North India. It also intends to find out the factors affecting intention to adopt E-wallets. Attempts to understand the relationship between age and the factors influencing intention to use E-wallets amongst North Indians was also done. This study adopted empirical research design to online survey methods to gather the perception of E-wallet users in the study area. The study comprises the sample size of 281 respondents from North India. The analysis was done using SPSS 21. The study used Exploratory Factor Analysis and Chi-square for finding out the results. The study identified perceived benefits, perceived risk, perceived government security and intention of future usage as four factors affecting intentions to use E-wallets during Covid-19. Snowball sampling method was used for the study. The questionnaire was circulated to 298 respondents who agreed to participate in the survey.*

**Keywords:** E-Wallets, Covid-19, Digital Payment, Perceived Risk, Perceived Intention, Government Support, Digital India.

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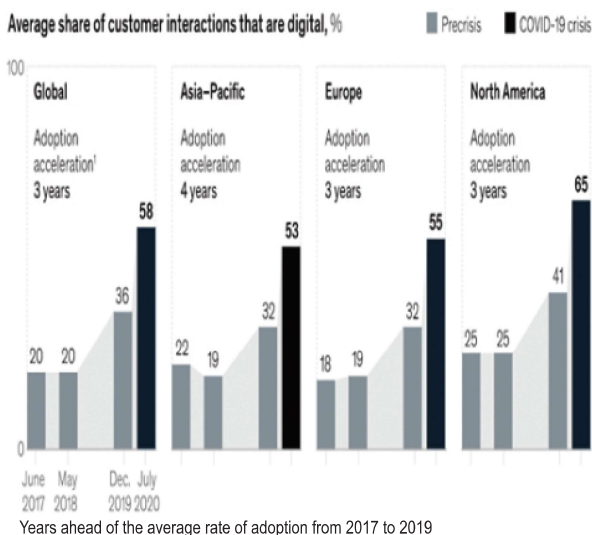
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## 1. INTRODUCTION

Covid-19 pandemic resulted in another major global economic crisis in recent times. Almost every country had to force lockdown their people in their houses to curb the spread of the disease. This affected the world's economy. It has brought significant change in the means of doing business by every company across industries. In developing countries like India, almost every sector of the economy, like socio-economic, tourism and travel, finance or supply chain, got affected because of the crisis. But the above situation provided another opportunity related to the usage of digitalization by filling gaps for technology, innovation, speeding experience, use of advanced technology, use of digital transactions and E-fund transfer in every corner of the country. The measures of social distancing and zero physical contact actually facilitated the initiative taken by Government of India, i.e., *Digital India*, to make the Indian economy into a cashless economy.

Initially, there was reluctance and apprehensions about the adoption of this “e” revolution. However, cashless payment transactions had already gained interest in the country. The revolutionary adoption of “E” world by Indians

**Figure 1. Digitalization of customer interaction during Covid-19 crisis.**



Source: McKinsey & Company (2020)

astonished investors, analysts and prognosticators. The rate of digitalization adoption in India is more than expected. As per the reports, published by McKinsey and Company, in Figure 1, the Covid-19 crisis has accelerated the customer interaction with the companies digitally by several years. Globally, the average number of digital customer's interaction has gone up by almost 190% in just 3 years, from 20% in June, 2017 to 58% in July, 2020.

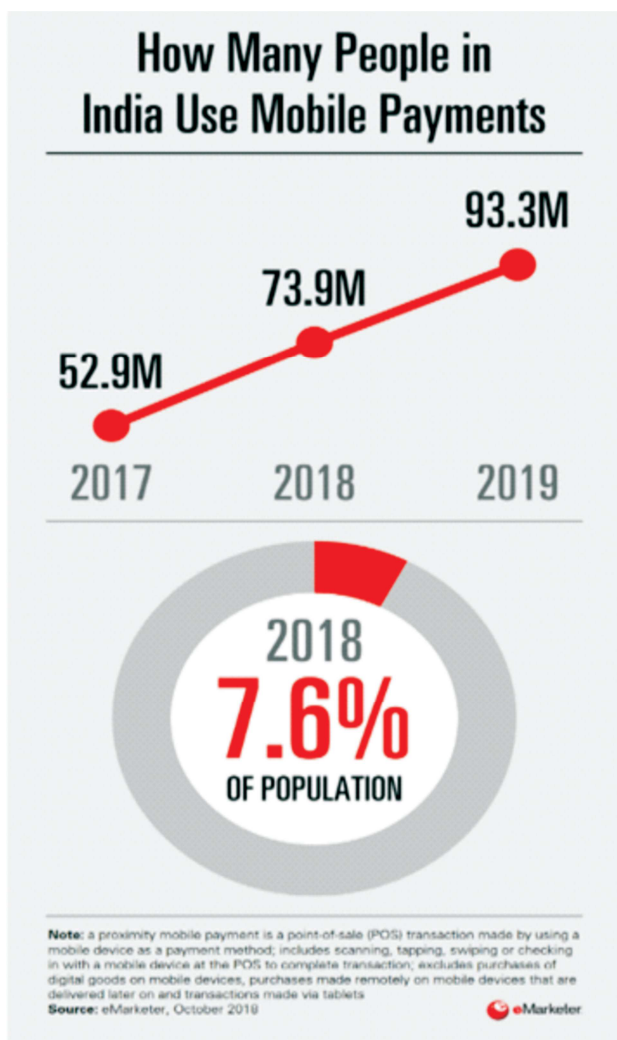
According to McKinsey Global Survey report, to address the rapid shift of interacting with customers through digital channels, companies shifted their supply chain and internal operations digitally by several years. Companies have also accelerated their share of digital investment or digital products in their portfolio. The e-commerce aided the performance of all businesses dealing online. Among the technologies introduced by e-commerce, one of the major technology/fledglings is Mobile Wallet.

As per cashlessindia.gov.in, “a mobile wallet is a way to carry cash in digital format. User has to link his/her credit/debit card information in mobile device to the mobile wallet application or can transfer money online to mobile wallet. An individual's account is required to be linked to the digital wallet to load money in it. Most banks have their E-wallets and some private companies. e.g., Paytm, Freecharge, Mobikwik, Oxigen, mRuppee, Airtel Money, Jio Money, SBI Buddy, itz Cash, Citrus Pay, Vodafone M-Pesa, Axis Bank Lime, ICICI Pockets, SpeedPay etc.” It is one of the flagship programs of Government of India under the umbrella of Digital India Program. Hence, to enhance cashless economy, to make digital payments and to avoid carrying physical purses, E-wallets were introduced. It is an intangible payment service that has been launched in the form of an application where it can be installed in the smart phones and acts as one of the online payment methods. As, per the cashless India government portal, “there are approximately 40 companies providing E-wallet services.” According to Magneto IT solutions, “the first E-wallet introduced in India was Oxigen Wallet launched in July 2014.”

The accelerated usage of smart phones supported

the usage of mobile wallets in a remarkable way. As per the BCG and Google Report (2018) the Smartphone users also accelerated to 320 million in 2017 from 68 million users in 2013. According to eMarketer, “India has 337 million active smartphone users until November 2018. Now, according to Cisco, by 2022, there will be 829 million smartphone users in India, which will be 60% of the total population. With so many people using smartphones in India, the use of mobile wallets are also increasing day by day. According to the report released by eMarketer, as shown in Figure 2, over the total number of smartphone users in India in 2018, India had 73.9 million people using mobile wallets.”

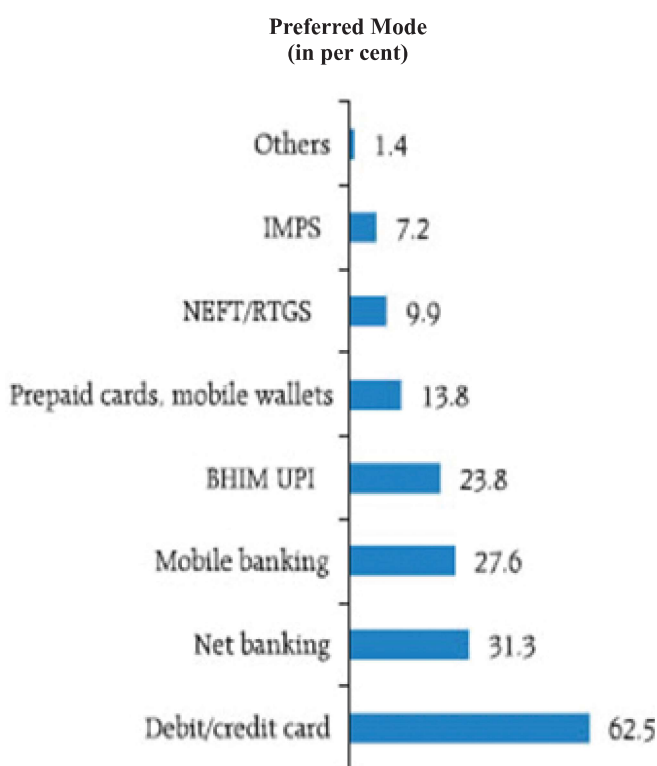
Figure 2. Mobile payment usage in India



Source: Rimma Kats, (2018, Nov 5) The mobile payment services: India. <https://www.emarketer.com/content/the-mobile-payments-series-india>

To understand the payment behavior and customer preferences from numerous payment methods available, the Reserve Bank of India conducted a pilot survey on retail payment habits of consumers, in six major cities of India (Delhi, Mumbai, Kolkata, Chennai, Bangalore and Guwahati) between December 2018 and January 2019. The focus of the survey was to assess the awareness and usage frequency of digital payments, which will help in formulation of future policy frameworks. The survey report indicated that there was a widespread awareness of digital payment with a favorable viewpoint of convenience.

Figure 3. Mode for digital payments



Source: Raja Ram Priyadarshi (2020)

The survey illustrated that 'credit/debit cards' are the most preferred mode for digital payment amongst individuals with 62.5%, followed by 'net banking' with 31.3%, 'mobile banking' as 27.6% and 'BHIM UPI' 23%. 'Prepaid cards and E-wallets' are preferred by 13.8% of the population for making digital payments. The survey results also indicated that various infrastructure related

logjams should be removed to enhance the awareness and usage of e-payments. However, the low safety awareness, safety norms and increase in the number of cyber frauds in the digital payment system were the major concern among the individuals.

## 2. LITERATURE REVIEW

The existing literature advocates that an extensive usage, adoption, and usefulness of digital payments helps not only in increase in financial inclusion but also, to ascertain the attitude, behavior, payment habits, perceived risk attached with payment systems. The literature also suggests government support in framing the suitable policies without compromising on financial stability. Nag & Gilitwala (2019) keenly investigated “perceived usefulness, perceived ease of use, security/privacy confidence, social influence and trustworthiness” as factors that influence the use of E-wallets.

According to Shukla (2016) the convenience of usage of digital payment and smartphone captured the attention and enhanced the usage frequency of a wide range of consumers. The users find e-payment as a swift and time saving mode of payment when catering to Covid-19 social distancing norms. Faster transaction facility with the help of 3G and 4G technologies by telecom companies are a great helping-hand along with motivation and reinforcement by government agencies for digital payments are proved well-known contributors towards the initiative of *Digital India*. The Author has suggested four types of E-wallet in India such as “open, closed, semi-open and semi-closed”. The author also suggested certain promotional offers to be provided by the companies to promote the use of E-wallet among consumers such as coupons, lucrative offers, gift cards, cash backs as the market still holds the potential to expand in future.

### 2.1 Perceived risk

Perceived risk can be defined as an uncertainty in a purchase transaction (Im et al., 2008). Bauer

(1960) illustrated perceived risk as a sense of loss which involves positive or some negative outcomes, but according to Stone & Gronhaug (1993), Tanadi et al., (2015) perceived risk in consumer behavior is more focused on negative outcomes. Kassim & Ramayah (2015) stated that perceived risk is a multi-dimensional construct that may vary according to a certain product or service. When we study online payments, perceived risk has certain other dimensions such as psychological risk, financial risk, performance risk, time oblique convenience risk (Forsythe & Shi, 2003).

In this study, perceived risk is identified as a condition where customers are unclear about the spread of Covid-19 through physical cash transfer. Therefore, here the risk associated is more connected to the cognitive risk, the risk of being infected by novel corona-virus through physical exchange of money, along with the financial risk of an increase in the number of cyber fraud cases.

### 2.2 Perceived usefulness

Riquelme & Rios (2010) suggest that mobile payments can be adopted as a new alternative means for customer perceived advantages or usefulness. According to Hampshire (2017); Lu et al. (2005), perceived trust and risk at the key factors to determine the mobile payment adoption which has significant effect of perceived usefulness.

Haderi (2014); Hai & Kazmi (2015) discussed that perceived usefulness as a fundamental factor in the essential use of technology, government played a vital role in encouraging E-wallet usage especially during Covid-19 crisis, which has a positive effect on customers in terms of digital payments.

### 2.3 Perceived government support

The literature suggests perceived risks are influenced by technological systems, but to a certain extent they are directly correlated with government support. The government plays a vital role in the times of facing a certain risk (Baker &

Moss, 2009). It acts as a regulator with the primary duty to avert the negative outcomes of that risk towards its citizens. Sheikh et al. (2020) discussed that the Ministry of health, as a representative of government, plays the role of “*de jure*” meaning “responsible for its people's health”.

Brown (2020); Huang (2020) suggested that in relation to E-wallets, government support can be in the area of network infrastructure, speedy access, security, policy packages in digital transactions, to minimize the physical money transaction and to use more E-transactions. Thus, this study evaluates the role of government support towards influencing consumers to use E-wallet at the time of Covid-19 outbreak.

#### 2.4 Intention to use E-wallets

Davis et al. (1989) argued that a perceived usefulness is the extent of confidence which a customer considers by using a specific process that he can improve performance. E-wallet is a platform which was established as a most effective method for payment during Covid-19 crisis. It also helped as a support system for curbing the risk of spreading risk of Covid-19. Several studies have found that to assess the intention of using E-wallet, perceived usefulness can be a strong predictor, Aji & Dharmmesta (2019) also to explain the user acceptance level of such technology (Venkatesh & Bala, 2008).

### 3. OBJECTIVES OF THE STUDY

1. To identify the factors influencing intention to use E-wallets during Covid-19 pandemic.
2. To understand the relationship of age and factors influencing intention to use E-wallets during Covid-19 pandemic.

### 4. RESEARCH METHODOLOGY

The study is based on 281 responses considered for analysis. The 18 responses were rejected due to missing values or inappropriate responses. Total 299-targeted population of North India submitted the responses on questionnaire. The items of the

study were adopted from validated scales. The questionnaire has two sections; Section A consists of information related to demographics whereas section B is based on 5 point Likert scale ranging from (5) Strongly Agree to (1) Strongly disagree. Perceived Risk is measured from items adopted by Olya & Al-Ansi (2018). Perceived usefulness was adopted by the TAM's model from Davis et al. (1989). Further, Aji et al. (2020) suggested items to measure the intention to use E-wallets in future especially during Covid-19 pandemic. The fourth factor, government support is a major factor as during Covid-19 outbreak stated and people were majorly dependent on the support and services provided by Covid-19. Also the aim to digitalize India played a major role in adoption of E-wallets, so this was assumed as perceived support from the government of the country. The sampling was a snowball sampling technique. Online tools and social media platforms were used for collecting responses. Further, editing and coding was done. For analysis SPSS 21.0 was used. Cronbach Alpha was used to assess the reliability of scale and factors derived. “The study in general, reliabilities less than 0.60 are considered poor, those in the 0.70 range, acceptable and those over 0.8 good” (Sekaran, 2006). The tests applied are exploratory factor analysis (EFA) to identify the factors affecting adoption of E-wallet and chi-square to understand the existence of relationship between age and factors affecting E-wallet.

### 5. DATA ANALYSIS

The analysis of data has been divided into three sections. The section 5.1 is majorly about the demographic profile of respondents. The section 5.2 tests the reliability of scale for the current study. The section 5.3 briefs about objective wise analysis.

#### 5.1 Respondents profile

As per the Table 1, Age group 20-25 years is 27.4 % of the total responses whereas, age group 25-30 years have 45.2% of the total respondents. Further, there are 66 respondents from the 30-35 age group

*Table 1. Demographics of Respondents*

Variables		Frequency	Percentage
Age	20-25	77	27.4
	25-30	127	45.2
	30-35	66	23.5
	35-40	11	3.9
	<b>Total</b>	<b>281</b>	<b>100.0</b>
Gender	Female	133	47.3
	Male	148	52.7
	<b>Total</b>	<b>281</b>	<b>100.0</b>
Course	Under Graduate	136	48.4
	Post Graduate	122	43.4
	Others	23	8.2
	<b>Total</b>	<b>281</b>	<b>100.0</b>
Awareness	Aware and using M-Wallets	193	68.6
	Aware but not using M-Wallets	76	27.0
	Unaware	12	4.4
	<b>Total</b>	<b>281</b>	<b>100</b>

framing 23.5% of the total proportion. The age group of 35-40 years of age carries 3.9% of the total number of respondents. Table 1, further reflects that out of 281 respondents, 47.3% respondents are females and 52.7% are males. On the education front, 48.4% respondents are from under graduate courses whereas 43.4% respondents are post grads. The Table 1 also depicts that 4.4% respondents are unaware about E-wallets, whereas 27% are aware but not using it. However, 68.6% are aware and using E-wallets

### *5.2 Reliability analysis*

The present study has adopted Alpha (Cronbach's) to carry out the reliability analysis (Cronbach's, 1951). Cronbach's alpha is majorly used to test the reliability of instruments (Pallant, 2007; Green et al., 2000; Hair et al., 1998). Many studies have been done so far based on Cronbach's alpha (Dabholkar, Thorpe & Rentz, 1996; Sureshchandar, Rajendran & Anantharaman, 2002, Jabnoun & Khalifa, 2005; Akbaba, 2006; Chowdhary & Prakash, 2007; Caro & Garcia,

2007). The coefficient of Cronbach's alpha lies between 0 to 1. As per the prevailing and suggested studies, a minimum of 0.6 reflects reliability whereas 0.7 above is considered a high level of internal reliability (Hair et al., 1998; Nunnally, 1978).

**Table 2. Reliability statistics**

Cronbach's Alpha	No. of Items
.766	17

The Cronbach' Alpha test was used for testing the reliability of scale. Table 2 depicts the value of *Reliability Statistics* as 0.766, which is above the threshold of 0.6. Thus, the scale used is reliable for the study conducted and is considered as highly reliable.

### 5.3 Objective wise analysis

#### Objective 1. To identify the factors influencing intention to use e-wallets during Covid-19 pandemic.

Exploratory Factor Analysis was performed in order to examine the factors influencing usage of mobile wallets. KMO and Bartlett's Test gave satisfactory results as 0.803 for 17 items. Thus, it reflects that the data set is highly acceptable and suitable for factor analysis. (Kim & Mueller, 1978). A significant. value of 0.00 indicates that the data does not produce an identity matrix (George & Mallery, 2000). Bartlett's test of sphericity also shows a significant level and hence the instrument was apt for further analysis. The communalities were derived for 17 items.

Communalities values which are relatively large i.e. greater than 0.5 are normally considered or suggested appropriate (Stewart, 1981) for further analysis.

The rotated component matrix yielded four factors namely Perceived Ease of Usage (PEU), Perceived Risk (PR), Perceived Government Support (PGS) and Intention for future usage (PIFU). The items having factor loading score less than 0.5 were rejected. In total, 4 items were rejected due to less

factor loading namely (PGS4). During Covid-19, government controls E-wallets transactional operations, (PEU4) During Covid-19, using E-wallet would improve my productivity, (PR3) I am not comfortable making payment using cash and (IFU3) I prefer using E-wallets always. The factor loading for the rest of the 13 items are above 0.5.

**Table 3. KMO and Bartlett's test**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.728
Bartlett's Test of Sphericity	Approx. Chi-Square	1975.992
	df	78
	sig	.000

As per Table 3, the **KMO value for 13 items resulted as 0.728** and sig value .000 is acceptable for further study. As per Table 4, the cumulative variance resulted as 75.11% and reliability value derived through Cronbach Alpha is also above 0.7.

**Table 4. Exploratory factor analysis**

Item	Perceived Ease of Usage (PEU)	Perceived Government Support (PGS)	Perceived Risk (PR)	Intention for future usage (PIFU)
PEU1	0.73			
PEU2	0.82			
PEU3	0.82			
PEU5	0.80			
PGS1		0.81		
PGS2		0.91		
PGS3		0.94		
PR1			0.79	
PR2			0.82	
PR4			0.81	
PR5			0.55	
IFU1				0.89
IFU2				0.90
Eigen Value	3.17	2.66	2.97	1.79
Expected Variance	22.32	19.67	18.75	14.38
Cumulative Variance	22.32	41.99	60.73	75.11
Cronbach $\alpha$	0.79	0.71	0.81	0.76

**Objective 2. To understand the relationship between age and factors influencing intention to use e-wallets during Covid-19 pandemic.**

The study further intends to understand the relationship between factors influencing intention to use E-wallets during Covid-19 pandemic.

The objective is achieved by framing four hypotheses namely: -

H1: There is a significant relationship between Age and Perceived Ease of Usage offered by E-wallets.

H2: There is a significant relationship between Age and Perceived Risk of E-wallets.

H3: There is a significant relationship between Age and Perceived Government Support of E-wallets.

H4: There is a significant relationship between age and Intention for Future Usage of E-wallets.

To test the Hypothesis, Pearson Chi-Square test is used. The test is analyzed by the fundamental rule of value of p and  $\alpha$  where  $\alpha = 0.05$ . If  $p < \alpha$ , null hypothesis is rejected and if  $p > \alpha$ , null hypothesis is accepted.

H1<sub>0</sub>: There is no significant relationship between Age and Perceived Ease of Usage Offered by E-wallets

H1<sub>A</sub>: There is significant relationship between Age and Perceived Ease of Usage Offered by E-wallets

**Table 5. Chi-Square tests**

	Value	df	Asymp. Sig. (2-sided)
Person Chi-Square	56.210	36	.017
Likelihood Ratio	64.329	36	.003
Linear-by-Linear Association	2.432	1	.119
N of Valid Class	281		

a. 40 cells (76.9%) have expected count less than 5. The minimum expected count is .05

The above Table 5 reflects that the p value ( $p=.017$ ) is lesser than significance level of the study ( $\alpha= 0.05$ ), thus null hypothesis is rejected. The Pearson Chi-Square test results the acceptance of alternate hypothesis i.e. it states that

there is a significant association between age and perceived ease of usage offered by E-wallets. Thus, users intends to use e-wallets according to their understanding of technology.

H1<sub>A</sub>: We reject the null hypothesis since the value of  $p < \alpha$ . Thus, there is significant relationship between Age and Perceived Ease of Usage Offered by E-wallets

H2<sub>0</sub>: There is no significant relationship between Age and Perceived Risk of E-wallet

H2<sub>A</sub>: There is significant relationship between Age and Perceived Risk of E-wallet

**Table 6. Chi-Square tests**

	Value	df	Asymp. Sig. (2-sided)
Person Chi-Square	29.441	33	.645
Likelihood Ratio	36.173	33	.323
Linear-by-Linear Association	.000	1	.988
N of Valid Class	281		

a. 40 cells (88.3%) have expected count less than 5. The minimum expected count is .05

The above Table 6, reflects that the p value ( $p=.645$ ) is greater than significance level of the study ( $\alpha= 0.05$ ), thus null hypothesis is not rejected at 5% level of significance. Thus, the Pearson Chi-Square test results suggest that there is no significant relationship between age and perceived risk of e-wallet. Hence, no significant difference was found among the users concerning age found on risk factor that influences consumer intention to use an e-wallet.

H2<sub>0</sub>: We accept the NULL hypothesis since the value of  $p > \alpha$ . Thus, we can conclude that there is no significant relationship between Age and Perceived Risk of E-wallets.

H3<sub>0</sub>: There is no significant relationship between Age and Perceived Government Support of E-wallets

H3<sub>A</sub>: There is significant relationship between Age and Perceived Government Support of E-wallet.

**Table 7. Chi-Square tests**

	Value	df	Asymp. Sig. (2-sided)
Person Chi-Square	59.030	63	.619
Likelihood Ratio	59.653	63	.596
Linear-by-Linear Association	.492	1	.483
N of Valid Class	281		

a. 78 cells (88.6%) have expected count less than 5. The minimum expected count is .05

The above Table 7, reflects that the p value ( $p=.619$ ) is greater than significance level of the study ( $\alpha=0.05$ ), thus null hypothesis is not rejected at 5% level of significance. Thus, the Pearson Chi-Square test results suggest that there is no significant relationship between age and Perceived Government Support of E-wallets. Hence, age factor is not related to perceived support of government.

*H3o: We accept the NULL hypothesis since the value of  $p > \alpha$ . Thus, we can conclude that there is no significant relationship between Age and Perceived Government Support of E-wallets.*

*H4o: There is no significant relationship between Age and Intention for future usage of E-wallets.*

*H4<sub>A</sub>: There is a significant relationship between Age and Intention for future usage of E-wallets.*

**Table 8. Chi-Square tests**

	Value	df	Asymp. Sig. (2-sided)
Person Chi-Square	24.195	21	.284
Likelihood Ratio	26.099	21	.203
Linear-by-Linear Association	2.820	1	.093
N of Valid Class	281		

a. 40 cells (88.3%) have expected count less than 5. The minimum expected count is .05

The above Table 8, reflects that the p value ( $p=.284$ ) is greater than significance level of the study ( $\alpha=0.05$ ), thus null hypothesis is not rejected at 5% level of significance. Thus, the Pearson Chi-Square test results suggest that there is no

significant relationship between age and Intention for future usage of E-wallets. However, continued use of e-wallet contributes to individuals' daily lives through time- and cost-effective financial transactions (Nizam et al., 2018). It also brings more hygiene life to the people during the ongoing Covid-19 pandemic and helps governments to control the Covid-19 pandemic as physical wallet and cash may increase the chance of covid transmission (Singh et al., 2020).

*H4o: We accept the NULL hypothesis since the value of  $p > \alpha$ . Thus, we can conclude that there is no significant relationship between Age and Intention for future usage of E-wallet.*

## 6. DISCUSSION

The current study is an attempt to contribute to various existing theories to understand the E-wallet usage intention by the customers during Covid-19 crisis. The study is aimed at exploring the various direct or indirect relationship between the perceived risk, security/ safety awareness, age, government's support towards E-wallet users especially during covert 19 crisis, to avoid the spread of the novel corona-virus by physical cash transfer. The present study adds an imperative knowledge to the literature of E-wallet showing a positive adoption of E-wallets by consumers during pandemic. In the study, various statistical test results prove that age and perceived ease of usage offered by E-wallet have a positive significant relation.

Various government measures help in spreading the awareness and importance of E-wallet and encourage the maximum use of e-transactions, especially during Covid-19 crisis. With the above government support, the e-transactions can now take place in every corner of the country to curb the possible transmission of the virus through physical money transfer. In the study it can be clearly stated, the perceived risk of Covid-19 significantly affects user intention to use E-wallet. Means the pandemic situation has discouraged the intention of users to use physical money and use more of e-transfer.

The E-wallet performance specifies that the user require convenience, speed, safety and security that should be the major areas to be focused by the

service providers. To increase the market-share of E-wallet users, even at post-pandemic time, the service providers must design improved service systems in terms of user friendly, high security standards, and accessibility.

To conclude, E-wallet is a valuable platform to perform various electronic cash transfer transactions to break the chain of COVID-19 virus and to abide by the laws of social distancing and zero physical contact. It is also a proven escape route to stand in long queues for payment and physical transfer of money. RBI along with the government must take special initiatives to ensure high security measures, spread the awareness of E-wallet in remote areas also, and lastly to encourage the habit of regular users to use E-wallet in everyday life rather than only in Covid-19 crisis times.

## 7. LIMITATIONS AND FUTURE SCOPE OF STUDY

The study was only limited to a sample size of 281 respondents. Since, an online survey questionnaire method was applied in the study to collect primary data; the various limitations in respect to online survey will be applicable to this empirical study as well. The snowball sampling technique has been adopted for selecting the respondents. Therefore, limitations associated with snowball sampling are also applicable to the study. Further, the present study is only applicable to North Indian e-wallet users.

A quantitative comparative study may be conducted among various age groups, gender, income groups to evaluate the e-user intention according to demographic segments. Further, a study can also be conducted to understand and measure the consumer behavior intention with regard to E-wallet in post Covid-19 period and the subsequent government measures taken to promote Digital India initiative. The customer experience of E-wallet users can also be studied, as a basis of comparison among different digital payment modes available.

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