The Moderating Effect of Gender on Continuance Intention Toward Mobile Wallet Services in India

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Abstract

With the rapid development of mobile technologies in the last decade, there are many benefits offered to both businesses and individuals, including evolution of an innovative payment method, that is, mobile wallet services. The rapid diffusion of 4G technologies, growth in mobile Internet users, increasing trend of shopping through smartphones, and government's demonetization policy in 2016 resulted in widespread usage of mobile wallet services in India. In this context, this study aimed at understanding the factors influencing the mobile wallet customers' satisfaction and motivations behind the continued usage of a specific service provider. Further, the study attempted to identify the differences in behavioural characteristics of mobile wallet users based on their gender. A conceptual model was developed to measure the impact of three significant variables, that is, perceived usefulness, perceived ease of use, and confirmation on the post-adoption behaviour of mobile wallet customers. The data were collected from 325 mobile wallet customers through a popular online survey website. The analysis of data using structural equation modeling provided certain important insights, including the positive and strong influence of perceived ease of use on both satisfaction and continuance intention, and satisfaction was found to be the key factor that motivated mobile wallet users to continue using a particular mobile wallet application. Finally, the moderating effect of gender on the hypothesized relationships proposed in the model was empirically supported.

Keywords: **mobile wallet, satisfaction, continued usage, perceived ease of use, confirmation**

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The development of information and communication technologies (ICT) and their impact have been phenomenal in all areas of business and society. Among this, the introduction of mobile technology is considered to be highly significant. Mobile technologies have seen a rapid growth around the world and especially in case of developing countries in the last decade. Mobile technologies have fetched many benefits to both individuals and businesses. For individuals, mobile has been the convenient platform for performing almost all activities of their lives. The businesses have been provided with an opportunity to better understand their target market on a one-to-one basis.

The new payment avenues were created for both consumers and businesses due to the rapid development of mobile technologies. The worldwide payment industry has undergone tremendous developments, resulting in convergence of technologies and transaction processes. The mobile payment system is expected to provide convenience, transaction speed, and versatility to the consumers. The total transaction volume of worldwide mobile payment was US$ 450 billion and is expected to exceed US$ 1 trillion in 2019 (Statista, 2016). One of the

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recent developments in the mobile payment technology is the evolution of mobile wallets. A mobile wallet is a virtual wallet on a mobile device that carries one's debit card or credit card information in a digital form. With the introduction of mobile wallets, the need for traditional wallets has been reduced ; thus, users can make the payments electronically through the mobile devices. According to an eMarketer report (2017), the worldwide mobile wallet spending was US$ 1.02 trillion and is expected to surpass US$ 1.35 trillion in 2017, with a growth rate of 32%.

The usage of cellular services has rapidly increased over the last decade in many developing countries, including India, but initially, the adoption of mobile based payment services was very low (Upadhyay & Jahanyan, 2016). However, with the introduction of 4G technologies and their quick diffusion and the demonetization decision of the Indian Government in the year 2016, the concept of mobile wallet services in India has been growing rapidly, complimenting the traditional payment methods, and has also surpassed the number of credit card users in India. Another key factor driving the proliferation of mobile wallets in India has been the increased trend towards mobile commerce through smartphones. Due to this trend, the number of mobile wallet service providers has increased, and the competition has been tightened. Hence, the mobile wallet service providers would focus not only on attracting new customers, but face the challenge of retaining their existing customers. In this context, it is imperative to internalize the components that influence the users' satisfaction and the motivations for continuing using a specific mobile wallet service provider.

The foremost objective of this paper is to propose and empirically validate the research framework for understanding the usage behaviour of mobile wallet users in India, and in particular, it examines the moderating effect of gender. It further provides an overview of appropriate literature and outlines the research model and the hypotheses used in this study.

Literature Review

The motivation behind people accepting and using information technology (IT) have been the key focus for both researchers and practitioners. It is important for service providers to understand the motivators and inhibitors of IT acceptance and their post - adoption behaviour, that is, satisfaction and intention to continue using in the future. Davis (1989) introduced a model to explain the consumer's acceptance and usage behaviour of a specific technology called as the TAM (technology acceptance model). As given in TAM, there are two predictors identified to influence the behavioural intention to use a technology and they are perceived usefulness and perceived ease of use. The first construct (perceived usefulness) measures the benefits and advantages of using a particular system ; whereas, the second one, that is, perceived ease of use indicates how an individual perceives a system requiring minimum effort to use. Further, the model confirms the impact of behavioural intention on actual usage of a technology. Expectation - confirmation model (ECM) was developed by Bhattacherjee (2001) which aimed at understanding the post-adoption behaviour of information systems (IS). This model highlighted the significance of IS users' continuance decision, which was similar to consumers' repurchase decision.

Shin (2009) sought to determine the factors that would influence the behavioural intention and usage of mobile wallets by proposing an integrated theoretical framework. The study results showed that there were three significant predictors (attitude, perceived security, and trust) which explained about 72% of the variance in intention to use mobile wallets. Similarly, usage behaviour was highly influenced by the consumers' intention to use mobile wallet services. Banerjee, Dutta, and Dasgupta (2010) emphasized the need for understanding the customers' attitude towards online shopping in India for marketers to design their strategies and ultimately satisfy their customers.

Yang, Lu, Gupta, Cao, and Zhang (2012) stated that one of the most essential drivers for the rapid development of mobile commerce has been the increasing usage of mobile payment services. The results of the study indicated that independent variables such as perceived risk, social influence, personal innovativeness, relative advantage,

and compatibility had a significant effect on behavioural intention to use/continue using mobile payment services ; whereas, perceived fee was found to be insignificant. Kapoor, Dwivedi, and Williams (2013) conducted a study to understand the influence of innovation attributes on the adoption of inter - bank mobile payment system's (IMPS) application among the bank customers in India. The study found that relative advantage, compatibility, complexity, observability, triability, and cost were the antecedents of IMPS adoption.

Arvidsson (2014) studied the factors that motivated the consumers to adopt mobile payment services in Sweden. The results of the study suggested that the factors such as ease of use, relative advantage, trust, age, and income were found to have strong and positive influence on the attitude towards the mobile payment services. It was further suggested that mobile payment service providers must concentrate and give utmost importance to reliability of their services such that consumers' trust can be enhanced, thus motivating them to adopt such technology. According to Aparna, Ostwal, Baliga, and Sreekumar (2015), the mobile wallets in India are classified into the following categories : open, semi-open, semi-closed, and closed. This classification was based on the purpose of usage and type of payments that can be made through them. The study also found the factors that impede the adoption of digital wallets in India such as non-availability of Internet, lack of technical knowledge, and security issues based on the sample collected.

Aydin and Burnaz (2016) investigated the determinants of attitude towards and intention to use mobile wallets in Turkey and found that perceived usefulness, attitude, and the intention to use mobile wallets were found to be higher for non-users than users. Rathore (2016) studied the consumers' adoption behaviour of digital wallets in India. The study results revealed that convenience, loyalty, and usefulness were the three significant factors reinforcing the adoption of digital wallets among the Indian consumers.

Madan and Yadav (2016) investigated the determinants of attitude towards and intention to use mobile wallets in India. Due to the increased number of smartphones in many developing countries, including India, the volume of mobile payment transactions has been rapidly increasing. The findings, from the statistical analysis using structural equation modelling indicated all factors, except effort expectancy, had a significant impact on mobile phone users' intention to use mobile wallets in India. Interestingly, performance expectancy and perceived trust had a higher influence on users' intention to use mobile wallets. Singh, Panackal, Bommireddipalli, and Sharma (2016) proposed a conceptual framework for capturing the dynamics of youngsters' buying behavior towards e-tailing companies in India. The results of the study stated that there were three significant factors determining this behavior namely, youth quotient, consumerism, and digital media.

Koundinya (2017) conducted a study to measure the impact of demographic factors on consumers' online travel behavior. The study found that gender, educational qualifications, and income were the significant factors influencing the online ticket booking behavior of sample respondents.

Hampshire (2017) conducted a study to determine the impact of trust and risk on the mobile payment behaviour of UK consumers. The study obtained both qualitative and quantitative data about the consumers' beliefs of mobile payments, that is, risk, trust, and perceived usefulness. The results of the study clearly stated that perceived trust had a strong positive influence on perceived usefulness ; whereas, perceived risk was found to have a negative impact on perceived usefulness. Further, it was indicated that perceived usefulness was found to have a strong influence on attitude toward mobile payment services.

Kumar, Nayak, and Shekhar (2018) conducted a study on consumer's knowledge on BHIM (Bharat Interface for Money) app, which facilitates easy transactions on mobile any time, any place. This study found that there were two patterns of users of this technology found on the basis of their motivation to use and drawbacks associated with it. Kurup and Jain (2018) examined the factors that influenced the e-loyalty of online shoppers in India. They proposed a research framework which was validated by the sample responses of 317 online shoppers. The results of this study indicated that there were three - four determinants of e-loyalty and they are past purchase experience, convenience, product offerings, and web-store environment.

Most of the research studies reviewed above focused on determining the factors that influenced consumers'

behavioural intention regarding mobile wallet services (Shin, 2009). In addition, the majority of these studies made use of technology acceptance - related models to evaluate consumers' initial use of mobile wallets (Aparna et al., 2015 ; Aydin & Burnaz, 2016 ; Madan & Yadav, 2016). There is a dearth of research on the factors affecting continued usage behavior towards mobile wallet services as no empirical studies have yet examined consumers' continued intentions toward mobile wallet services. This research gap has been addressed by proposing a research model based on TAM and ECM, aimed at defining the post-adoption behaviour of mobile wallet users. Furthermore, the model explains the impact of key influences of mobile wallet users' satisfaction and continuance intention, which ultimately result in improved customer loyalty and profitability for the service providers.

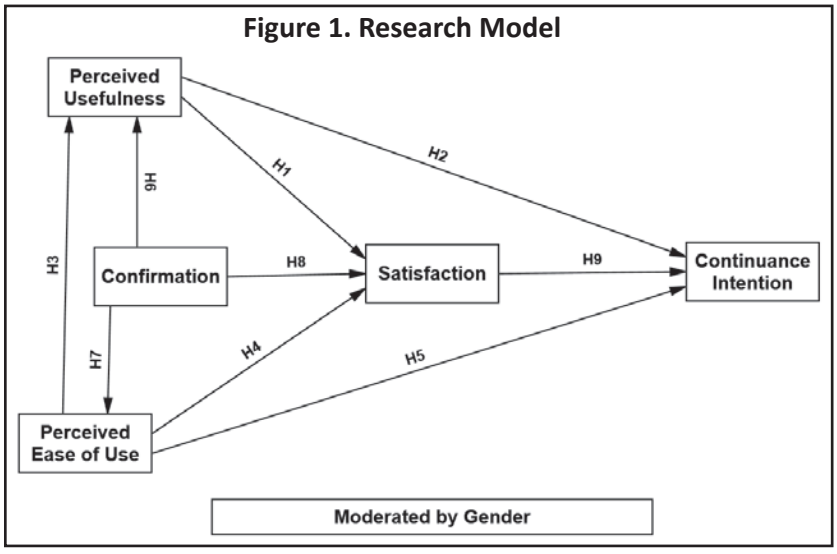
Research Model and Hypotheses Development

A research model was developed based on the technology acceptance model (TAM) and expectation – confirmation model (ECM) to study the effects of mobile wallet customers' perceptions on their satisfaction and continuance intention. The conceptual model was presented with three independent variables, that is, perceived usefulness, perceived ease of use, and confirmation hypothesized to influence customers' post-adoption behaviour. The dependent variables used in this study are : satisfaction and continuance intention (adapted from ECM), included with the effect of satisfaction on continuance intention.

The justification for choice of both independent variables and dependent variables and the hypothesized relationships (Figure 1) are provided in the following paragraphs.

(1) Perceived Usefulness : Perceived usefulness can be defined as the users' perception and beliefs on how adopting and using a mobile wallet can help them in performing their activities better. The association of perceived usefulness and adoption of mobile technology was found to be positive and significant in the earlier studies (Alshare & Mousa, 2014 ; Aydin & Burnaz, 2016 ; Chong, 2013 ; Pal, Vanijja, & Papasratorn, 2015). In the context of this study, it is users' belief of mobile wallet services being more advantageous than other technologies for making payment and doing other transactions. Bhattacherjee (2001) stated that perceived usefulness had a significant influence on users' post-acceptance satisfaction and their intention to continue using the technology .The influence of perceived usefulness on satisfaction and continued usage intention was found to be substantial in the context of various mobile technology services (Hong, Thong, & Tam, 2006 ; Susanto, Chang, &

Figure 1. Research Model



Ha, 2016 ; Marinkovic & Kalinic, 2017). Therefore, it is hypothesized that :

- **H1:** Perception about usability positively influences the satisfaction of mobile wallet services.
- **H2:** Perception about usability has a positive effect on the continuance intention towards the mobile wallet services.

(2) Perceived Ease of Use : In the context of mobile wallets, perceived ease of use refers to how customers find the mobile payment system as less complex and simple to use for making payments, resulting in adoption and usage of it (Aydin & Burnaz, 2016 ; Pal et al., 2015). It is important that users should find the mobile wallet applications easy to use for performing transactions (Rathore, 2016 ; Shin, 2009). According to Hong et al. (2006), the influence of perceived ease of use on post-adoption behaviour (both satisfaction and continued usage intention) was significant in case of mobile internet. Similarly, customer satisfaction towards the mobile commerce vendor significantly influenced perceived ease of use (Chong, 2013 ; Gupta, Madan, & Gupta, 2012). From the above discussion, we propose the following hypotheses :

- **H3 :** Perception about ease of use positively influences the perceived usefulness of mobile wallet services.
- **H4 :** Perception about ease of use positively influences the satisfaction of mobile wallet services.
- **H5 :** Perception about ease of use positively affects the continuance intention towards the mobile wallet services.

(3) Confirmation : Confirmation has been defined as the gap between pre-purchase expectation and the perceived performance of products - goods or services after a period of initial consumption (Bhattacherjee, 2001). The influence of confirmation on satisfaction was introduced in the expectancy - confirmation model (ECM) (Bhattacherjee, 2001). The relationship between confirmation and satisfaction is said to be significantly positive, implying that when perceived performance of customers exceeds their initial expectation, it would result in improved satisfaction towards mobile technology (Chong, 2013 ; Hong et al., 2006 ; Susanto et al., 2016). Accordingly, we hypothesize :

- **H6:** Confirmation positively influences the perceived usefulness of mobile wallet services.
- **H7:** Confirmation positively affects the perceived ease of use of mobile wallet services.
- **H8:** Confirmation positively influences satisfaction towards the mobile wallet services.

(4) Satisfaction : The satisfaction of the customer has been considered to be the most critical area deciding the success of any firm's marketing efforts, and consequently, the determinant of repeat sales, favourable publicity, and brand loyalty. Satisfied customers are more likely to engage in positive word of mouth, thus increasing the overall reputation of the firm, which reduces costs (Bitner, 1990 ; Oliver, 1980 ; Reichheld & Sasser, 1990). Satisfaction has been defined as a result of matching customers' pre-purchase expectations and post purchase evaluation of a product/service quality (Kotler & Armstrong, 2010). Prior studies have given empirical evidence for the association between satisfaction between continued usage intention of mobile technology (Gao, Waechter, & Bai, 2015 ; Kuo, Wu, & Deng, 2010 ; Natarajan, Balasubramanian, & Kasilingam, 2017 ; Oghuma, Libaque - Saenz, Wong, & Chang, 2016 ; Park & Kim, 2013 ; Zhou, 2013). Hence, the following hypothesis is proposed :

- **H9 :** Satisfaction positively influences continuance intention towards mobile wallet services.

(5) Continuance Intention : According to Bhattarcherjee (2001), users' decision to continue using information

technology (similar to consumers' decision to repurchase) would depend on their initial acceptance and the level of experience with the system. Consumers' intention to continue to use a technology would also be determined based on their satisfaction of prior usage of it. Using the expectation - confirmation model of continuance information system usage as the theoretical basis, the construct continuance intention has been developed and the impact of consumers' beliefs on this will be measured. It is proposed that consumers' perception on mobile wallet services (perceived usefulness, perceived ease of use), confirmation, and satisfaction will have a positive influence on their decision to continue using the mobile wallet services in the future.

Research Methodology

This study employed a survey of mobile wallet users to collect data for hypotheses testing and to fulfil the research objectives. The empirical test of the proposed research framework was done by collecting data through an online

Table 1. Demographic Characteristics of the Sample Respondents (*N* = 325)

Category	Items	Frequency	%
Gender	Male	191	58.8
	Female	134	41.2
Age	18 to 25 years	80	24.6
	26 to 35 years	127	39.1
	36 to 45 years	86	26.5
	46 to 55 years	20	6.2
	Above 55 years	12	3.7
Education	School/Diploma	47	14.5
	Bachelor's Degree	120	36.9
	Master's Degree	106	32.6
	Others	52	16
Employment Status	Student	16	4.9
	Salaried	231	71.1
	Business	29	8.9
	Professional	33	10.2
	Others	16	4.9
Monthly Income	Below ₹ 40,000	101	31
	₹ 40,000 to ₹ 80,000	139	42.8
	Above ₹ 80,000	85	26.2
Smartphone Platform	Android	250	77
	IOS	65	20
	Others	10	3
Most Frequently Used Payment Method	Physical cash/Cheque	38	11.7
	Debit/Credit card	113	34.8
	Internet/Mobile banking	96	29.5
	Mobile wallet	78	24
Mobile Wallet Usage Experience	Less than a year	105	32.3
	1 to 2 years	107	32.9

	More than 2 years	113	34.8
Mobile Wallet as a Replacement for Cash	Yes	149	45.8
	No	176	54.2
Mobile Wallet as a Replacement for Debit and Credit Card	Yes	133	40.9
	No	192	59.1
Purposes of Mobile Wallet Usage	Online recharge and bill payments	181	55.7
	Mobile shopping		
	Movie and travel tickets	55	16.9
	Money transfers	46	14.1
		43	13.3
Average monthly spending on mobile wallet apps	Less than ₹ 2000	160	49.2
	₹ 2000 to ₹ 5,000	122	37.5
	Above ₹ 5,000	43	13.3

survey in India. The online questionnaire was created using a leading professional survey website, that is, www.surveymonkey.com. In order to avoid potential replications, the respondents were identified via their e-mails and IP addresses. A link to the online questionnaire was sent to the smartphone users at the beginning of August 2017, and 405 questionnaires were received by the end of November 2017. A total of 325 questionnaires were found to be complete and useful, as 62 respondents had not used mobile wallet services yet, and 18 questionnaires were found with numerous missing values. The survey questionnaire consisted of two parts to test the theoretical model proposed in this paper. The first part comprised of demographic information of the respondents and the second part focused on questions measuring the constructs in the proposed research model. Most of the measurement items were drawn from the literature and accordingly modified to fit the context of this study. The items for perceived usefulness and perceived ease of use were adapted from Davis (1989). The scale items for confirmation, satisfaction, and continuance intention were drawn from Bhattacherjee (2001). All items measuring the constructs used in the study were measured by using a 7-point Likert type scale anchored from 1 *(strongly disagree)* to 7 *(strongly agree)*.

From the information given in the Table 1, among the respondents, 58.8 % were male and 41.2 % were female. The majority of the respondents were between 18 to 35 years of age (63.7 %). Most of the respondents held a bachelor's degree (36.9 %) or master's degree (32.6 %). More than half (71.1 %) of the respondents belonged to salaried category. A total of 42.8 % of the respondents were in the monthly income group of ₹ 40,000 to ₹ 80,000 and a majority (77 %) were using smartphones with Android operating system. Most frequently used method of payment was usage of debit or credit cards (34.8%). Of all the respondents, 32.3% reported having less than one year of experience in using mobile wallet services, and the rest (62.7 %) had more than one year of experience. A large portion of the respondents felt that mobile wallets may not be a complete alternative to physical cash (54.2 %) and debit or credit cards (59.1 %). Majority (55.7 %) of the respondents were using mobile wallet services for 'online recharges and bill payment'. Finally, about half of the respondents spent less than ₹ 2000 monthly on their preferred mobile wallet services.

Data Analysis and Results

The data analysis was performed using structural equation modelling based on the two-step approach given by Anderson and Gerbing (1988) in order to test reliability and validity of the measurement model, followed by testing the research hypotheses and structural model proposed in the study. The statistical packages adopted in this study include IBM SPSS and AMOS to conduct the data analysis.

Table 2 . Reliability Analysis and Convergent Validity

Factor	Item	Standard Item Loading	Cronbach's α	Composite Reliability	Average Variance Extracted (AVE)
Perceived	Perceived Usefulness 1	0.887*	0.960	0.961	0.860
Usefulness	Perceived Usefulness 2	0.925*			
	Perceived Usefulness 3	0.911*			
	Perceived Usefulness 5	0.983*			
Perceived	Perceived Ease of Use 1	0.888*	0.892	0.900	0.696
Ease of Use	Perceived Ease of Use 2	0.936*			
	Perceived Ease of Use 3	0.834*			
	Perceived Ease of Use 4	0.652*			
Confirmation	Confirmation 1	0.746*	0.920	0.927	0.811
	Confirmation 3	0.972*			
	Confirmation 4	0.965*			
Satisfaction	Satisfaction 1	0.766*	0.767	0.776	0.538
	Satisfaction 2	0.637*			
	Satisfaction 4	0.788*			
Continuance	Continuance Intention 1	0.823*	0.893	0.895	0.740
Intention	Continuance Intention 2	0.904*			
	Continuance Intention 3	0.851*			

Note. * $p < 0.001$

Table 3 . Discriminant Validity

	Perceived Usefulness	Perceived Ease of Use	Confirmation	Satisfaction	Continuance Intention
Perceived Usefulness	**0.927**				
Perceived Ease of Use	0.437	**0.834**			
Confirmation	0.395	0.460	**0.900**		
Satisfaction	0.421	0.567	0.496	**0.733**	
Continuance Intention	0.480	0.614	0.416	0.656	**0.860**

Note. Diagonal elements are the square root of AVE; Off-diagonal elements are correlations between constructs.

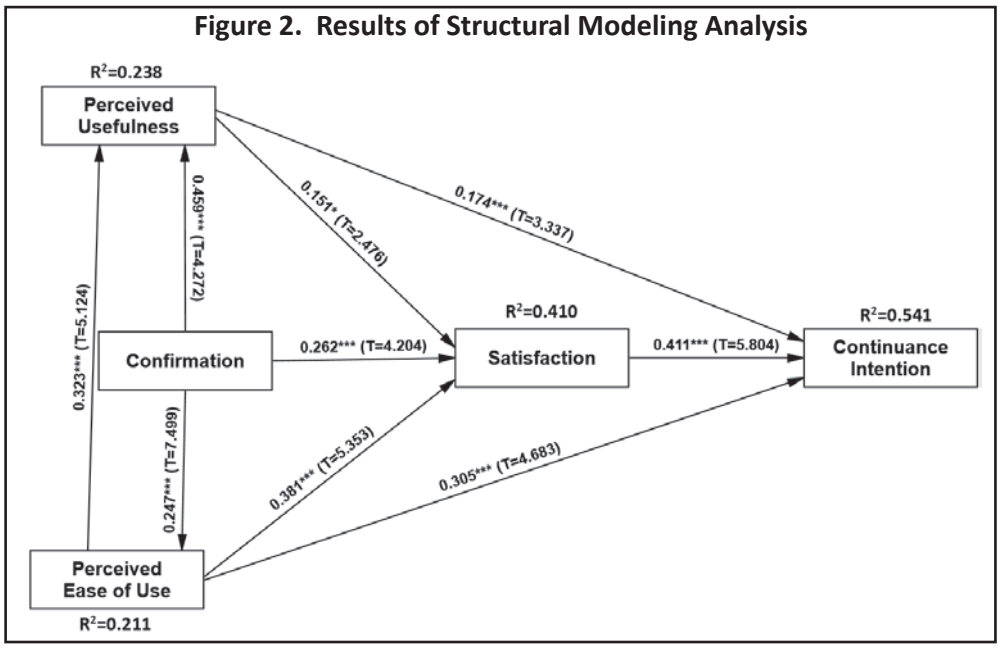
The current measurement model analysis states that all the values of standard regression are over 0.6 and those of squared multiplied correlation are above 0.5, except for PU4. This item was dropped to bring about a judicious model - fit. There was a standardized residual covariance below 2.58 except in case of CONF2 and SAT3 ; hence, these items were deleted. The decision on times not leading to model-fit can be identified through modification indexes, taking into account only those parameters that show high covariance values, plus high regression weight in the modification indexes should be deleted (Byrne, 2001). Based on this guideline, the item SAT3 was deleted. CFA was run again, after the deletion of the above mentioned items for testing the modified measurement model, the results of which are given in the Table 2.

From the Table 2, it is clear that the minimum requirements of the measurement model are satisfied, that is, the standard regression weights are higher than 0.60 and the critical ratios are significant at $p = 0.001$. With regards to composite values, all constructs have conferred to the recommended value of 0.70. Reliability evaluation based on AVE reveals that constructs exceed 0.50 and the Cronbach's alpha values exceed 0.70. The AVE technique was used to assess the discriminant validity. The implied correlation matrix along with the average variance extracted

Table 4 . Measurement and Structural Model Goodness - of - Fit Indices

Fit Measure	Criterion	Measurement Model Result	Structural Model Result
Absolute Fit Measures			
$X^2/d.f.$	<3.00	1.797	1.781
GFI	>0.90	0.936	0.936
AGFI	>0.90	0.911	0.912
RMR	<0.08	0.028	0.028
RMSEA	<0.06	0.050	0.049
Comparative Fit Measures			
NFI	>0.90	0.960	0.960
RFI	>0.90	0.950	0.950
IFI	>0.90	0.982	0.982
CFI	>0.90	0.982	0.982
Parsimonious Fit Measures			
PNFI	>0.50	0.769	0.776
PCFI	>0.50	0.787	0.794
PGFI	>0.50	0.667	0.673

Figure 2. Results of Structural Modeling Analysis



are shown in the Table 3. All the squared constructs' inter-scale correlations are lower than the constructs' average variance extracted, which supports discriminant validity for the measurement model. The measurement model used in this research paper meets all the goodness-of-fit criteria as given in the Table 4.

The research framework proposed in this paper has been tested through AMOS version 21, and the structural model meets all the requirements of good-of-fit indices criteria, as given in the Table 4. The results of structural model validated in this study, as depicted in Figure 2, show that perceived usefulness has a positive impact on satisfaction ($\beta = 0.151$, $p < 0.05$) and continuance intention ($\beta = 0.174$, $p < 0.001$), thus supporting H1 and H2,

Table 5 . Invariant Analysis

Path	Male		Female			
	β	Standard Error	β	Standard Error	*t* - statistic	*p* - value
Perceived Usefulness → Satisfaction	0.102	0.059	0.004	0.076	1.522	0.129
Perceived Usefulness → Continuance Intention	0.156	0.068	0.170	0.074	0.059	0.953
Perceived Ease of Use → Perceived Usefulness	0.212	0.096	0.516	0.138	1.874	0.062*
Perceived Ease of Use → Satisfaction	0.246	0.079	0.500	0.130	1.769	0.078*
Perceived Ease of Use → Continuance Intention	0.297	0.093	0.470	0.145	1.055	0.292
Confirmation → Perceived Usefulness	0.097	0.051	0.228	0.063	1.631	0.104
Confirmation → Perceived Ease of Use	0.194	0.045	0.253	0.050	0.869	0.386
Confirmation → Satisfaction	0.069	0.040	0.221	0.057	2.258	0.025**
Satisfaction → Continuance Intention	0.454	0.133	0.561	0.127	0.561	0.575

Note. *** *p* - value < 0.01; ** *p* - value < 0.05; * *p* - value < 0.10

respectively. Perceived ease of use is found to have a positive influence on perceived usefulness ($\beta = 0.323$, $p < 0.001$), satisfaction ($\beta = 0.381$, $p < 0.001$), and continuance intention ($\beta = 0.305$, $p < 0.001$), confirming H3, H4, and H5, respectively.

The results indicate a positive and significant impact of confirmation on perceived usefulness ($\beta = 0.459$, $p < 0.001$), perceived ease of use ($\beta = 0.247$, $p < 0.001$), and satisfaction ($\beta = 0.262$, $p < 0.001$), thus supporting H6, H7, and H8, respectively. The impact of satisfaction on continuance intention ($\beta = 0.411$, $p < 0.001$) is found to be positive and significant, confirming H9. Finally, the explained variance of perceived usefulness, perceived ease of use, satisfaction, and continuance intention is 23.8%, 21.1%, 41.0%, and 54.1%, respectively.

The moderating effect of gender on proposed relationships given in the structural model has been evaluated by using a multi-group analysis in AMOS. This analysis was done by adopting a systematic approach given by Bollen (1989) by testing a series of hierarchical hypotheses. At first, it was determined whether the covariance structures were invariant across gender with respect to the impact of perceived beliefs on continuance intention. The result of this comparison is found to be positive, that is, $\Delta\chi^2 = 42.605$, Δ degree of freedom = 12, and p value < 0.005. Next, the test for invariance in factor patterns and regression weights was performed. The moderating effect of perceived ease of use on perceived usefulness and satisfaction is found to be statistically significant ($p < 0.10$) and on confirmation on satisfaction ($p < 0.05$) as given in the Table 5. The influence of perceived ease of use ($\beta = 0.516$) on perceived usefulness is stronger among women than among men ($\beta = 0.212$). Similarly, satisfaction is more strongly influenced by perceived ease of use for women ($\beta = 0.500$) than for men ($\beta = 0.246$). Further, the impact of confirmation ($\beta = 0.221$) on satisfaction is stronger among women than among men ($\beta = 0.069$).

Discussion

Overall, the research model proposed in this paper has demonstrated a good fit statistically. The explained variance of post-adoption behaviour of mobile wallet users viz satisfaction and continuance variance account for 41% and 54.1%, respectively. In addition, all nine hypotheses proposed in the research framework have been supported. This clearly indicates that the research model illustrates a good explanatory power in order to meet the research objectives. The results of this paper provide insights into the relationship between perceived beliefs of mobile wallet users and post-adoption behaviour factors - satisfaction and continuance intention. These provide the following theoretical implications : (a) mobile wallet users' satisfaction is strongly influenced by three important

beliefs, namely perceived ease of use, perceived usefulness, and confirmation, and (b) users' intention to continue using mobile wallet services is positively influenced by satisfaction, perceived usefulness, and perceived ease of use.

The findings make it evident that satisfaction, perceived ease of use, and perceived usefulness have a positive and significant impact on users' continuance intention of mobile wallet applications. Users' satisfaction is found to be the most significant factor in explaining their intention to continue using mobile wallet services. This finding is consistent with the ECM model (Bhattacherjee, 2001) based on which the research framework of this paper has been developed. This implies that users' decision to continue using mobile wallet services would primarily be on the basis of their level of satisfaction with the features and benefits derived from them. Moreover, perceived ease of use is another important determinant of users' continuance intention of mobile wallet services. This means that mobile wallet users would be comfortable in continuing using a specific application if it is more convenient and less complex. Finally, the relationship between perceived usefulness and continuance intention, as given in ECM, has been found to be positive and significant. Although, the effect of perceived usefulness on continuance intention is identified as positive but having a lesser impact than other factors, it is justifiable that perception of mobile wallet services being useful, play a major role in the initial adoption decision, and this might become less significant over a period of time for users (Bhattacherjee, 2001).

Next, the important predictors of satisfaction, as identified in the research model, are perceived ease of use, confirmation, and perceived usefulness. It is identified that perceived ease of use has a strong impact on satisfaction, implying that users are concerned about the design aesthetics of mobile wallet apps for the convenience of using them, resulting in higher level of satisfaction. Confirmation is identified to be positively associated with users' satisfaction, meaning that confirmation is a significant factor in the context of mobile wallet services usage. This is consistent with the findings obtained by Hsu and Lin (2015), who suggested that confirmation is a strong determinant of users' satisfaction of paid mobile apps. The two TAM constructs, namely perceived usefulness and perceived ease of use significantly influence satisfaction of mobile wallet users. It is also found that perceived ease of use has a dominant impact on satisfaction than perceived usefulness. This means that users are more focused on ease in using the functional aspects of mobile wallet apps than their usefulness, resulting in higher satisfaction.

In addition, the results of this study also indicate that confirmation and perceived ease are significant determinants of perceived usefulness. The implies that users are not only concerned with the functional aspects being effortless, but also give importance to their evaluation with regard to expected vs. perceived performance of mobile wallet apps. Similarly, confirmation has a positive impact on the users' perceptions of mobile wallet apps being convenient and simple to use. Further, it is found that users' perceptions of mobile wallet apps being useful is positively influenced by their judgement of perceived performance against their expectations and ease of using them. Finally, the results of the moderation effect of gender on the hypothesized relationships in the research model empirically support the significant difference between men and women in their post-adoption behaviour of mobile wallet applications in India.

Managerial Implications

The mobile wallet service providers should focus on two significant post-adoption beliefs and their determinants (perceived usefulness and perceived ease of use) as it would help them in not only encouraging consumers to use their services frequently, but also continuously. The mobile wallet service providers should also be concerned with the benefits that lead to increased satisfaction, ease of use, and usefulness among the users in order to motivate them to use their services in the future. This helps them further to build better relationships with their customers and make them more loyal to their services in order to improve their profitability. The marketers of mobile wallet services should obviously focus on antecedents of customers' satisfaction, thus making their applications more

user friendly, exceeding users' expectations, and ensuring more benefits to the app users. As mobile wallet service providers offer more value - added benefits and offers while providing numerous services to their users, they should also be concerned about users' perceived beliefs while using these apps. Another important practical implication of this paper is the differences found in the relationship between perceived beliefs and post-adoption behaviour of mobile wallet users based on gender. This would help the marketers of these services to customize their strategies by segmenting and targeting the users by understanding the factors motivating their satisfaction and the intention to continue using mobile wallet applications.

Conclusion

In conclusion, this research paper provides valuable insights into identifying the critical components which determine the post - adoption behaviour of mobile wallet applications in India. The mobile wallet post - adoption behaviour model introduced in this paper, an extension of ECM, makes significant contribution to the literature on technology internalization studies in general and mobile technology adoption in particular. Further, it offers valuable inputs to the mobile wallet service providers by elucidating the need for understanding users' perceptions and their impact on post- acceptance beliefs, and highlighting the significant differences among users based on their demographic characteristics. Finally, the marketers can design appropriate marketing strategies for diversified target segments and promote their services accordingly to elevate their market position and operational efficiency.

Limitations of the Study and Scope for Future Research

This research work is a sincere attempt to provide implications for both researchers and practitioners by empirically validating a research framework explaining the determinants of post-adoption beliefs of mobile wallet users. The proposed research framework did not include many predictors of technology adoption and continued usage, such as perceived trust, perceived security, perceived risk, perceived mobility, etc. as mentioned in the literature. Another major limitation of the study was the limited number of sample responses collected from the users of mobile wallet services. Finally, the study did not capture the changing nature of technological features and their impact on adoption and post-adoption behaviour of users. Hence, the future studies can elaborate the research model given in this study by adding more antecedents of post-adoption beliefs, thus making it comprehensive enough and validate the results. Further, the moderating effects of many demographic and technological characteristics of users such as income, age, self-efficacy, personal innovativeness, etc. can be evaluated and provide their implications. Finally, future studies can have a larger sample size with varied backgrounds to add more value to the results.

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