Understanding the Adoption of Mobile Wallets Amongst Rural Indian Women

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Abstract

Acknowledging the great paucity of studies concerning the mobile wallet adoption by the rural women in Indian context; this study intended to explore the mobile wallet (M-Wallet) adoption among Indian rural women along with understanding the factors affecting adoption, challenges and possibility of mobile wallet as a tool of women empowerment. This study adopted the embedded mix method design in which both qualitative and quantitative information were obtained concurrently, however the qualitative information was incorporated throughout the quantitative information. Using Census (2011) as frame of reference, data was collected from rural women of Delhi. Purposive and snowball sampling techniques were used for data collection. Data for qualitative phase was collected from 10 females; whereas for quantitative phase data was collected from 208 females. Qualitative data was analysed using thematic analysis whereas quantitative data was analysed with the help of SPSS employing one independent sample t-test and factor analysis. The study concluded that Paytm Google Pay and PhonePe were the most used mobile wallets amongst Indian rural women. Most common usage of mobile wallet by the Indian rural women included recharges and bill payments. Three factors namely the "perceived ease of use" "perceived usefulness" and "social norms" were identified as the facilitators or drivers. "Self-efficacy" was found essential for effectively using the mobile wallets; however rural Indian women considered themselves less confident possessing limited knowledge about the mobile wallets. "Perceived risk" was identified as a restraining factor impeding usage of mobile wallets. Lack of confidence, socio-cultural barriers, lack of financial resources and lack of awareness were highlighted as the major challenges faced by rural Indian women while using mobile wallets. Mobile wallets have the possibility to act as a tool of women empowerment by facilitating banking needs of the unbanked, fostering cooperation, self-dependence and promoting self-employment and business amongst the rural Indian women.

Keywords: Mobile Wallets, Indian Rural Women, Adoption and Challenges of M-Wallets

Introduction

India is betting big on being digital and has made significant strides towards the same through significant initiatives like Digital Kranti renamed as Digital India and demonetization. Today, India boasts of more than 1.2 billion internet subscribers and now stands at number 2, second only to China, according to the latest Statista report (Statista, 2023). Majority of the people in India access internet through mobiles; especially in the year 2023, around 1.05 billion people accessed internet through their mobile device; thereby mobile devices playing a significant role in India's digital progress (Basuroy, 2023). Availability of cheap and feature laden smartphone and new telecom spectrum licenses have spurred the growth of

mobile device based internet accessibility. One of the most popular trends emerging really fast in past few years is the Cashless truncations. Virtual or cashless transactions are getting increasingly popular in every sphere and mobile wallets are acting as the most important mediums facilitating the virtual transactions. Mobile wallets are a sub-type of digital wallets with latter being a type of software used for making online transactions

through devices like computer, tablet, laptop or smartphone. Mobile wallet represents a type of digital wallet, usually an app storing the details of customers cards namely the debit, credit, rewards, membership and gifts, facilitating them to make payments (Sardar, 2016). Mobile wallets carry out all the tasks of traditional wallets i.e. storing money and making payments; virtually, but in quick, secure and convenient manner. Mobile wallets can be used for various purposes like shopping, travel booking, taxi booking, and even it is acceptable for few other sites which offer food and other services. Mobile wallets can be categorized into many categories with open, semi-closed and closed being the most popular. Open wallets such as Apple Pay, PayPal, Google Pay etc. enable users to send, receive and withdraw money at ATMs (Painuly and Rathi, 2016). Semi-closed wallets like Paytm, Stripe, MobiKwik, Square, Oxigen, PayUMoney, and M-Pesa.offer comparatively constrained services in comparison to open wallets as they don't support cash withdrawal; however, users can receive money into their bank accounts and send others the money using the same platform. The third type of mobile wallet is the closed wallet like Starbucks Pay, Amazon Pay, Flipkart, MakeMyTrip, BookMyShow, etc., issued by the private organizations wherein customers can use these wallets to buy goods and services of the issuing company only. Key technological innovations such as near field communication, tokenization and point of sale system have furthered the usage of mobile wallets in India.

The concept of digital wallets gained immense popularity in India especially after the announcement of demonetization by Prime Minister Mr. Narendra Modi in the year 2016 (G Naga Sridhar, 2018). It was a move towards fostering cashless society which gave a boost to the digital payments sector and created huge opportunities for mobile wallets in India (Kapoor, Sindwani & Goel, 2020). Batra and Kalra (2016)_ in their research, however, deciphering the role of

demonetization as a pivotal activity fostering the growth of mobile wallets in India commented that a specific section of the society was ready and quick to embrace the journey of digital citizen by using the mobile wallets; however, a large section of the society was not that eager to embrak upon that journey. Supporting the similar argument, D'souza and Bhadury (2017) remarked that the typical Indian was anxious about making the changeover to electronic payment methods notwithstanding their fame. The common Indian was curious to learn more regarding the payments and different hazards associated with these kinds of transactions; and because of this, most people avoided using digital wallets and instead favored using ATMs to get cash out. Kumar (2023) in his latest study confirming the rural urban digital divide in India asserts that urban India has been really quick in adopting the mobile wallets; but rural India is still lagging behind. Despite government's impetus for digitization and falling smartphone prices and their rising penetration in rural landscape, rural Indians prefer cash transactions.

Technology has always been forefront of banking and finance industry. There is a little doubt that mobile wallet, the contemporary technological innovation would also pave the path of financial inclusion and empowerment (Wewege & Thomsett, 2019). Also, marketers are enthusiastic to see the widespread adoption of mobile wallets in India, which are currently in the emerging state (Singh, Srivastava & Sinha, 2017). Mobile wallet market is likely to reach 5.7 trillion US $ by the year 2027 (Global Data, 2023). Mobile-wallets oriented research has gained momentum in past few years; yet research on mobile wallet is not in abundance. Understanding the adoption of mobile wallet is therefore necessary as the knowledge of the latter would unveil the significant implications for the financial institutions, financial intermediaries, policy makers and consumers. There are number of research suggesting the association among demographic and geographic factors such as age,

education, gender, income and urbanization with usage of technological developments including mobile wallets (Siddika & Sarwar,2023; Kittipipatputi,2019; Badran, 2017). At the same time, plenty of research indicate that these innovations and developments have not penetrated to the last mile populations, especially the rural women (Grameen Foundation Report, 2013). Hence, their adoption of mobile wallets is not likely to be understood with the help of findings of existing studies. So, this study understands the adoption of mobile wallets amongst rural Indian women along with understanding the sources of information for mobile wallet, purpose of using and factors affecting the mobile wallets. Inclusion of women in financial system is of utmost important. McKinsey study highlights that successful integration of women in financial system would increase the world's GDP by 12 trillion US dollar by 2025 (Sepashvili, 2019). However, gender disparity is prominent in ownership of digital devices wherein women, especially the South Asian women are far less likely to own a mobile phone and use mobile wallets (Paul & Dutta, 2023). Apart from dealing with the challenges of low income and education, rural Indian women are also subjected to the significant socio-cultural barriers in rural settings in India (Thamminaina, Kanungo & Mohanty, 2020). The study also intends to explore the challenges faced by Indian rural women while using mobile wallets and probability of the latter acting as the tool of women empowerment for Indian rural women.

Literature Review

Literature is abuzz with enthusiastic statistics validating the widespread and popular use of mobile wallets. There are no dearth of studies explaining the motivating factors accounting for the greater usage of mobile wallets (George & Sunny,2023; Kaur et al. 2020; Aydin & Burnaz, 2016). Ease to use, benefit, trust and self-efficacy

are the leading factors motivating people to use mobile wallets (Ahuja & Joshi, 2018). Even though the demand for digital wallets is rising, people still have doubts regarding the safety of the transactions and that is why people still prefer cash over digital wallets for monetary transactions (Arora & Yadav, 2018). Mew and Millan (2021) also commented that mobile wallets have to be secure and reliable as bot these traits positively affect the consumers' attitude which in-turn affect the adoption intentions of the consumers. Reddy et al. (2017) in their study also confirmed that convenience, multi-utility, direct operator billing, fast service, ease of use and promotions. Tang et al. (2019) examined the effects of external variables, convenience, compatibility and trust on perception of consumers of the usefulness and easiness of mobile payment system and to understand their satisfaction level with the system. They found that convenience, compatibility and perceived ease of use significantly affect the perceived usefulness and perceived ease of use. It was also found that perceived ease of use significantly affects perceived usefulness, and this perceived usefulness significantly affects the customer's satisfaction with mobile payment system. Chauhan, Shingari and Shingari (2017) in their study referring to mobile wallets in India purported that these are the youngsters who are leading the digital wallet consumption revolution. Despite of the security issues, the prefer using this mode because of the convenience, availability, ease of use and quick service that it provides. Parashar and Rasiwala (2018) analyzed the awareness of consumers (Gen Y and Gen Z) towards digital wallets and found that social media plays a significant role in creating awareness towards digital wallets. One can observe clear paucity of research if one wishes to focus the lens on rural women, that too in Indian context. Existing research does not offer much if one intends to see whether similar factors affecting the adoption of mobile wallets for Indian rural women.

Discussing the role of rural women and mobile

wallet usage globally, Obopay (2018) study purported that despite having lack of financial resources, women are usually proactive home money managers. Mobile money options, with their secure and simple transaction methods, can assist address women's desire for a versatile financial instrument. Their pace, effectiveness, and low cost have shown to be successful financial integration strategies. Nevertheless, there remain a lot of restrictions that prohibit women from adopting mobile monetary solutions. These difficulties can be divided into three categories: a lack of access to tools like mobile phones, illiteracy, and a shortage of conviction. The study offered a global perspective; so, it remained to be seen whether results would hold true for Indian context or not. However, Puri (2019) and Joshi, Gupta and Rangaswamy (2023) conducted studies in Indian context and found similar challenges affecting Indian women using digital and e-wallets; but their respondents were largely the working women in urban settings.

There are few studies that explore the role of mobile wallets as a tool of empowerment for Indian rural women. Studies conducted in different context indicate that usage of digital wallets empower women to have an equal say in family monetary choices that eventually improves the whole family's quality of life (Care, 2020). Another study conducted by Bhattacharjee (2023) in developing countries' context claimed that around 40% women in developing countries do not have a formal bank account and more than 1 billion women don't have any access to financial services; and in such conditions, mobile wallets can offer banking services to the unbanked. However, these findings might not replicate well in Indian context as Indian women, especially from rural contexts are not independent in taking financial decisions. The major financial decisions of the household are either taken by the men of the family. In developing countries like India, women suffer from number of socio-cultural stereotypes, due to which their participation in financial and entrepreneurial ventures become highly restrained. Pekkari and Fransson (2022), however offered rather unclear results regarding the association of mobile wallet usage and women empowerment with Jordanian women respondents as they asserted that women might not get benefited more than taking little control of their expenses and finances. Gupta and Chaudhary (2023) offering a perspective of the formal banking constraints, argue that the latter struggles hard to meet the needs of underprivileged groups and under-served communities like women; and Fintech technologies, such as mobile wallets, have the potential to overcome this disparity and increase financial inclusivity if approached cautiously and with prudence. These companies might utilize technology to render financial services easier to access, inexpensive, and user-friendly, ultimately empowering women as well as underrepresented populations. This study has however, been conducted from the policy making perspective; it remains yet to be seen that such initiatives might actually empower women in India breaking all social and cultural stereotypes.

Review of literature highlighted a great paucity of studies concerning the mobile wallet adoption by the rural women in Indian context. Although there are few industry reports that detail about the digital services usage; of which a small segment of research while discussing about the digital wallet adoption deliberates upon the frequency of usage of such services. However, frequency of publication of such reports have also been irregular as such studies were mostly published after the demonetization and one can observe declining interest of the researchers in the recent years. This study reignites the interest in the area by discussing a comparatively less explored segment i.e. rural woman. Moreover, mere presenting a statistic about the usage of a particular digital channel or medium is not enough for an in-depth understanding of a research phenomenon. Hence, this report extends the contribution of the previous researchers by

elucidating the challenges, factors facilitating usage and probability of mobile wallets acting as a means of women empowerment.

Objectives and Methodology

The main objective of the study is to understand the adoption of mobile wallets by the Indian rural women by comprehending the awareness, purpose, and usage frequency of mobile wallets by the rural Indian women. Mobile wallets' use in India is increasing at a motivating pace, still there are people who do not use digital; wallets. Mobile wallets are increasingly becoming popular for their salient features like ease of use, convenience, and perceived usefulness. However, there are issues of trust, security, and privacy also there. This study aimed to understand the whether similar driving and restraining factors are affecting the adoption of mobile wallets among Indian rural women. Existing literature highlighted that women in India face different types of challenges like illiteracy, lack of information and socio-cultural barriers etc. while using the different financial innovations such as digital finance, e-banking etc. The study intended to unveil whether similar challenges are faced by the Indian rural women while using mobile wallets. Mobile wallets have been touted as one of the most promising tools of empowerment by facilitating the financial inclusion, kindling entrepreneurial mindset, and facilitating cooperation. This study was designed to understand whether mobile wallets might act as means of women empowerment. Specifically, the main objectives of the study were:

- To understand the adoption of mobile wallets by the Indian rural women.

- To understand the key factors affecting the adoption of mobile wallets amongst rural women.

- To understand the challenges faced by rural women while using mobile wallets.

- To understand whether mobile wallets can act as means of women empowerment amongst rural women.

The study adopted a mixed methodology. By combining both quantitative and qualitative information, mixed methods research provides for a more in-depth examination of the topic at hand. There are several types of mixed methods designs namely the parallel, embedded, sequential explanatory and sequential exploratory (Creswell & Clark, 2011). This study adopted the embedded design in which both qualitative and quantitative information were obtained concurrently, however the qualitative information was incorporated throughout the quantitative information (Creswell et al., 2003). Hence, this study primarily concentrated on the quantitative information but supported the results with qualitative information as well to understand in an in-depth manner. Data was collected from the villages of Delhi which were classified as rural area according to the Census 2011. The sampling unit for the study was a female above 18 years of age from the rural area of Delhi having basic knowledge about mobile wallets with a usage history of mobile wallets i.e. at least once in last three months. Purposive and snowball sampling techniques were used for data collection. Data for qualitative phase was collected from 10 females; whereas for quantitative phase data was collected from 208 females. Semi-structured questionnaire was used for qualitative phase whereas structured questionnaire was used for quantitative phase. Personal interview technique was used for qualitative phase whereas survey technique was employed for the quantitative phase. Qualitative data was analyzed using thematic analysis by identifying the codes, sub-themes and themes, Quantitative data was analyzed with the help of Statistical Package for Social Sciences (SPSS) version 23.0 employing one independent sample t-test and factor analysis. Table 1 gives the respondents profile of the study.

Table 1: Respondents' Profile

Sr. No.	Variable	Categories	Respondents (in %)
1	Age	18-30 years	30
		31-45 years	42
		46-60 years	17
		Above 60 years	11
2	Occupation	Student	21
		Service	10
		Self Employed	11
		Home Maker	58
3	Annual Family Income	Less Than or Equal To 5,00,000	39
		5,0,001-10,00,000	28
		10,00,001-15,00,000	23
		More than 15,00,000	10

Source: Authors' Own

This can be seen from the table that 42% of the sample was represented by the women belonging to 31-45 years of age group, followed by 18-30 years age group women representing 30% of the sample. 58% of the women were home makers whereas 21% of the sample was represented by the student respondents. 39% of the respondents corresponded to less than or equal to 5,00,000 Rs. annual family income category followed by 28% of the respondents belonging to 5,0,001-10,00,000 Rs. annual family income category.

4. Adoption of Mobile Wallets

This study was designed to understand the adoption of mobile wallets by the rural Indian women. Adoption of mobile wallets was understood in terms of type of mobile wallets used, years of experience, frequency of usage, sources of information, and purpose of using mobile wallets.

Table 2: Adoption of mobile wallet

1	Type of Mobile Wallet used	PayTm	80
		Google Pay	34
		BHIM	23
		Mobikwik	19
		PhonePe	29
		Others	12
2	Years of experience with mobile wallets	Less than 1 year	44
		1 to 3 years	36
		4 to 5 years	15
		More than 5 years	05
3	Frequency of usage	Less than 3 times in a month	55
		3-5 times in a month	35
		More than 5 time in a month	10
4	Source of information	Internet	62
		Magazine	5
		Television	34
		Radio	12
		Word of Mouth	93
5	Purpose of using mobile wallet	Recharges	90
		Bill payments	72
		Online shopping	25
		Money transfer	20

Source: Authors' Own

Table 2 shows that Paytm was the most used mobile wallet with 80% of the respondents using it, followed by the Google Pay and PhonePe used by 34% and 29% of the respondents. 44% of the respondents had a less than one year experience with mobile wallets whereas 36% of the respondents had 1to 3 years of experience. Majority of the respondents i.e. 55% respondents used mobile wallets less than 3 times a month. Word of mouth (WOM) served as the most prominent source of information about the mobile wallets wherein 93% of the respondents cited the same. Most common usage of mobile wallet emerged as the recharges, accepted by 90% of the respondents, followed by bill payments cited by 72% of the respondents.

Referring to the qualitative aspect of the research, it was found that most respondents identified the cue "Paytm" almost instantly; rather than acknowledging the service category namely the mobile wallets. Researchers had to give examples of various mobile wallets companies such as Paytm, Google Pay etc. to ensure that respondents understand the term mobile wallets easily. These observations indicate the strong brand equity of Paytm whereby the brand is overlapping with the service category for the rural women. Qualitative results also highlighted that the most common reason for increased usage of mobile wallets in recent years is the sheer popularity of mobile wallets and usage by the respondents' friend circle rather than the utility of the apps. Most of the respondents cited reasons like "everybody is using Paytm now a days", "my friends are using it, so I also thought of using them" etc. Only 1 respondent cited utility of the mobile wallets and ascribed the usefulness of the wallets for its increased usage. Interesting insights were obtained about the frequency and purpose of using mobile wallets wherein

respondents citing high frequency of usage of mobile wallets also quoted recharges and bill payments. Only 2 respondents in the qualitative phase cited purpose of using mobile wallets as online shopping and money transfer. Money transfer was also not more than Rs. 5000. The biggest source of information about the mobile wallets emerged as other people in the friend circle as all 10 respondents in qualitative phase accepted getting information about mobile wallets from friends only. Other sources were not mentioned in the qualitative aspect of the study.

4.1 **Factors affecting adoption of mobile wallets**

Responses of the respondents were recorded about salient features and beliefs of mobile wallets unveiled by previous studies through the review of literature. Reliability of the scale used for measuring perception was checked with the help of 'Cronbach's Alpha' whose value was found .882 which was more than .7 indicating the reliability of the scale. The study wished to explore the factors affecting adoption of mobile wallets, the most popular data reduction technique i.e. Factor Analysis, was used to get the results. Factor analysis is a statistical technique which is used to expose the underlying structure of a relatively large set of variables. The underlying variable is a latent variable in factor which is not directly observable.

Kaiser-Meyer-Olkin (KMO) Test was applied to see the overall suitability of the data for factor analysis. The test also assesses the sampling adequacy for each variable and complete model.

Table 3: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.896
Bartlett's Test of Sphericity	Approx. Chi-Square	10182.071
	df	1225
	Sig.	.000

Source: Authors' Own

Table 4 details the descriptive statistics. The table gives the mean value, standard deviation and number of respondents who participated in the survey. It can be seen from the table that all major beliefs related to mobile wallets were rated more than mean value which was 3 as per the measurement tool, which meant that respondents favorably perceived mobile wallets appreciated its key traits such as being easy, convenient, and quick. Respondents also acknowledged the usefulness of the mobile wallets whereby they accepted that the latter facilitating cashless transactions, organization of cards, acceptance at all the places.

Respondents also acknowledged that they could use mobile wallets without help. However, respondents remained concerned about the privacy and security issues while using mobile wallets. Table 4 also gives the communalities. Communality refers to the extent to which an item correlates with all other items. Communality values should be more than 0.5 to be considered for further analysis. This can be seen from the table that for all the variables, communalities value exceeded the minimum cut off value of .5. So, all the statements/variables were considered for further analysis.

Table 4: Descriptive & Communalities

Sr. No.	Variables/Statements	Mean	Std. Deviation	N	Communalities	
					Initial	Extraction
1.	Mobile wallets are easy to use.	4.35	0.595	208	1.000	.573
2.	Mobile wallets are convenient to use.	3.83	0.572	208	1.000	.553
3.	Special skills are not required to use digital wallets.	3.70	1.283	208	1.000	.680
4.	Mobile wallets facilitate cashless transactions.	4.05	0.407	208	1.000	.628
5.	Mobile wallets are less costly to get and operate.	4.21	1.106	208	1.000	.536
6.	Quick payments can be made with mobile wallets.	4.56	0.799	208	1.000	.634
7.	Mobile wallets offer discounts and cash backs.	4.31	1.304	208	1.000	.520
8.	Shopping becomes easy with mobile wallets.	3.73	0.536	208	1.000	.512
9.	I do not need to keep other cards with mobile wallets.	3.84	0.760	208	1.000	.640
10.	Mobile wallets have acceptance at almost all the places.	4.11	0.410	208	1.000	.486
11.	Many people use mobile wallets now a days.	4.26	0.346	208	1.000	.709
12.	I was motivated to use mobile channels after seeing others using it.	4.18	1.156	208	1.000	.671
13.	My friends advised me to use mobile wallets.	3.81	1.050	208	1.000	.501
14.	My family supports the use of mobile wallets.	3.93	0.928	208	1.000	.630
15.	I can use mobile wallets without help.	3.05	.505	208	1.000	.722
16.	I think I can use mobile wallets efficiently.	3.46	1.149	208	1.000	.591
17.	I have all the resources to use mobile wallets.	3.53	0.963	208	1.000	.664
18.	There remains a fear of sharing confidential information with mobile wallets.	4.26	0.679	208	1.000	.515
19.	There remains a risk of device getting stolen.	4.07	0.997	208	1.000	.588
20.	There is risk of malware/ virus with mobile wallets.	4.03	0.882	208	1.000	.682
21.	There remains a risk of money being lost.	4.22	0.876	208	1.000	.782

(Source: Authors' Own)

Table 5 presents the total variance explained. This can be seen from the table 5 that there were five factors which contributed towards the customer adoption. This can be seen from the table that these five factors taken together explained 70% of the variation in mobile wallet adoption.

Table 5: Total Variance Explained

Component	Initial Eigen values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1.	22.167	35.423	35.423	22.167	35.423	35.423	18.388	33.787	33.578
2.	13.319	23.075	58.498	13.319	23.075	58.498	17.778	26.828	60.615
3.	3.084	5.693	64.191	3.084	5.693	64.191	5.137	3.988	64.603
4.	2.583	3.054	67.245	2.583	3.054	67.245	2.223	2.946	67.549
5.	1.818	2.881	70.126	1.818	2.881	70.126	1.436	2.577	70.126
6.	1.633	2. 245	72.371						
7.	1.534	2.201	74.572						
8.	1.415	2.198	76.77						
9.	1.294	1.882	77.952						
10.	1.202	1.871	79.633						
11.	1.136	1.869	81.502						
12.	1.060	1.859	83.361						
13.	.989	1.844	85.805						
14.	.939	1.832	87.537						
15.	.832	1.827	89.064						
16.	.825	1.823	90.887						
17.	.796	1.819	92.726						
18.	.760	1.815	94.561						
19.	.726	1.811	96.842						
20.	.720	1.809	98.651						
21.	.715	1.349	100						

(Source: Authors' Own)

Table 6 given below demonstrates the rotated component matrix. Principal component analysis method was used to extract the factors. Varimax with Kaiser Normalization was used as a rotation method. It can be seen from the table that total five factors were extracted which accounted for the adoption of mobile wallets.

Table 6: Rotated component matrix

Sr. No.	Variables/Statements	Component				
		1	2	3	4	5
1.	Mobile wallets are easy to use.	.739				
2.	Mobile wallets are convenient to use.	.792				
3.	Special skills are not required to use digital wallets.	.881				
4.	Mobile wallets facilitate cashless transactions.		.767			
5.	Mobile wallets are less costly to get and operate.		.855			
6.	Quick payments can be made with mobile wallets.		.741			
7.	Mobile wallets offer discounts and cash backs.		.841			
8.	Shopping becomes easy with mobile wallets.		.694			
9.	I do not need to keep other cards with mobile wallets.		.783			
10.	Mobile wallets have acceptance at almost all the places.		.797			
11.	Many people use mobile wallets now a days.			.841		
12.	I was motivated to use mobile channels after seeing others using it.			.749		
13.	My friends advised me to use mobile wallets.			.799		
14.	My family supports the use of mobile wallets.			.811		
15.	I can use mobile wallets without help.				.775	
16.	I think I can use mobile wallets efficiently.				.728	
17.	I have all the resources to use mobile wallets.				.698	
18.	There remains a fear of sharing confidential information with mobile wallets.					.784
19.	There remains a risk of device getting stolen.					.658
20.	There is risk of malware/ virus with mobile wallets.					.759
21.	There remains a risk of money being lost.					.776
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. a. Rotation converged in 8 iterations.						

(Source: Authors' Own)

First factor was composed of statements 1 to 3; and was named as "perceived ease of use" wherein respondents described mobile wallets as easy to use and convenient in nature. Second factor was composed of statements 4 to 10 and was named as "perceived usefulness" whereby respondents attributed certain benefits to the usage of mobile wallets such as facilitating cashless transactions, less costly to operate, making quacking payments, offering cashbacks, easy shopping, organization of cards and widespread acceptance. Third factor was named as "social norms" and was composed of statements 11 to 14. Respondents acknowledged using mobile wallets after observing others and accepted the support of their friends and family. Fourth factor was named as "self-efficacy" and was composed by the statements ranging from 15 to 17. Respondents claimed to use mobile wallets effectively without help. They also accepted having all the resources to use mobile wallets. The last factor was named as "perceived risk" and was composed by the statements ranging from 18 to 21. Respondents accepted being fearful while sharing personal information. They also remained apprehensive about the probability of device being stolen, exposed to risk of malware and financial fraud.

The qualitative phase of the research highlighted four most important factors affecting adoption. All the respondents unanimously accepted the benefits of the mobile wallets. They acknowledged its easy interface e.g. "just a click and that's it" as quoted by a respondent; and convenient nature. They also acknowledged its widespread usage especially by their family members, friends, and relatives. However, all the respondents also highlighted the "risky" nature of mobile wallets. Citing the commonly observable financial frauds, most of the respondents remained fearful about loosing money.

Citing the same, one of the respondents said, "I think mobile wallets are useful, but they are risky too… that's why I don't have much money in my wallet." Analyzing both the phases of research, it can be said that "self-efficacy" was only acknowledged in the quantitative phase. In qualitative phase, lack of self-confidence and knowledge were acknowledged by the respondents. They accepted using mobile wallets, but at the same time accepted not being truly confident and entirely knowledgeable about the mobile wallets. They further remarked that benefits of mobile wallets and their widespread popularity motivated them to use mobile wallets whereas lack of self-confidence and knowledge; and risky nature of mobile wallets acted as restraining forces.

Challenges faced by rural women while using mobile wallets

This study intended to understand the challenges of rural women using mobile wallets. Review of literature revealed the important challenges faced by rural women while using contemporary technologies like digital or mobile wallets. Several statements were phrased related to the important challenges as highlighted in literature and responses of the respondents were recorded. Reliability of the constructs was measured through Cronbach's Alpha whose value exceeded the cutoff value of 0.7, indicating the usage of internally consistent scale. Table 7 indicates the descriptive and inferential statistics along with reporting the reliability statistics.

Table 7: Descriptive and inferential statistics related to challenges

Challenge	Statements	Cronbach's Alpha	Mean Value	t-value	Sig. (2-tailed)
Lack of confidence	I fear while paying through mobile wallets, especially large amount.	.878	4.23	20.275	.000
	I think I am not as confident as handling cash while using mobile wallets.		4.12	24.463	.000
	Quite often, I think I will make mistake while paying through mobile wallets		3.98	23.383	.000
Socio-cultural barriers	Usually the financial payments, especially big ones are done by my husband, not by me in my family.	.887	3.87	24.792	.000
	Other members in the family encourage me to make utility payments through mobile wallets.		3.98	35.034	.000
	My family thinks that financial matters must be handled by men only.		4.13	30.360	.000
Lack of awareness	I am not fully aware of all the benefits of mobile wallets.	.789	3.76	35.034	.000
	There is a lot of confusion while choosing amongst the different mobile wallets.		4.06	37.138	.000
	Sometimes, I do not understand the exact reason of using digital wallets.		3.59	39.331	.000
	I do not have complete knowledge of mobile wallets.		3.55	29.202	.000

(Source: Authors' Own)

Table 7 indicates that all the statements rated more than the average value; indicating that respondents agreed with all the challenges highlighted in the literature. Lack of confidence, socio-cultural barriers and lack of awareness were highlighted as the major challenges faced by rural Indian women while using mobile wallets. Respondents remained fearful while paying through wallets, and indicated towards probability of making mistakes while using mobile wallets. They also acknowledged existence of socio-cultural barriers wherein they remained confined to making utility payments whereas men in the family handled large transfers. Lastly, they also remained unaware of all the benefits of mobile wallets and being confused about different mobile wallets. The significance of the results was assessed with the help of one independent sample t-test at 5% level of significance. All the statements were found associated with .000 sig. value; indicating towards the significant results.

Lack of confidence was quite visible in the qualitative phase of the research wherein most of the respondents accepted not being completely confident with mobile wallets. They accepted being fearful while making payments. Probed specifically, they remained fearful while paying for more than 5000 Rs. Socio-cultural barriers were also highlighted in the qualitative phase wherein most of the respondents accepted non-handling of the major financial decisions. Most of the women except the unmarried ones, acknowledged handling budget of their houses; acting as major outlet of household's monthly financial outflow concerning with grocery, bills, tuition fees etc.; but denied playing any big role in making big payments to the outside parties either via cash or through mobile wallets. One of the respondents claimed, "How much money I can handle and how do I handle is already decided in my family. I only make payments for grocery and electricity bills. I used to do it physically……. But recently I have switched to online payments. These payments are not more than 2 or 3 thousand." Many respondents cited lack of financial resources also. They accepted being dependent upon their husbands for the money; hence not having enough money. Asking more about the challenges of using mobile wallet, one of the respondents cited problem with the language. She was not comfortable with the English language and wanted the language of the wallet to be in Hindi. She was surprised to know that the app she was using was available in Hindi language also. This instance clearly indicated the lack of awareness. Enquired about all the features of the mobile wallets, most of the respondents denied knowing all the features of the mobile wallets; validating the lack of knowledge about the mobile wallets.

Mobile wallets as means of women empowerment amongst rural women

The study wished to explore the probability of mobile wallets acting as a means of women empowerment amongst rural women. The association was less explored in the existing literature; hence few statements related to financial inclusion, facilitating coopetition with others, self-dependence and promoting self-employment and business, representing women empowerment through mobile wallet were formulated and responses of the respondents were recorded. The results have been explained in table 8.

Table 8: Descriptive and inferential statistics of mobile wallet as means of empowerment

Statements related to women empowerment	Cronbach's Alpha	Mean Value	t-value with sig.
I think mobile wallets can be extremely useful for fulfilling the banking needs of unbanked women.	.875	4.34	27.014
I can help other women financially with the help of mobile wallets.		4.02	36.153
Utility payments can be easily made with the help of mobile wallets and that makes me feel independent.		4.09	27.661
Mobile wallets can be especially helpful for self-employed and business women in rural settings.		3.87	34.559

(Source: Authors' Own)

Cronbach's Alpha value was found more than .7; indicating the reliability of the scale used to measure women empowerment through mobile wallets. This can be seen from table 8 that all the stated were assigned values of more than the average value, suggesting that respondents believed that mobile wallets have the capability to help them financially, fulfilling the banking needs of unbanked. Mobile wallets were also believed to ease the utility payments, thereby furthering the feeling of independence. Respondents also believed that mobile wallets could be especially helpful for self-employed and business women in rural settings. The significance of the results was assessed with the help of one independent sample t-test at 5% level of significance. All the statements were found associated with .000 sig. value; indicating towards the significant results.

Qualitative phase of the research also pointed towards the similar direction as out of 10 respondents in the qualitative sample, only 2 had the bank account; but all the respondents had mobile wallets; validating the proposition that mobile wallets can fulfill the banking needs of the unbanked. All the respondents felt independent while using mobile wallets as the latter furthered the convenient and quick payments and transfers without overt dependence on anyone. Respondents also accepted helping their friends in need through money transfers via mobile wallets and paying for shopping, bills, recharges etc. the

results indicated the gradually improving women's agency in financial decisions. However, respondents in the study also opined that financial independence is must to truly feel empowered. One respondent was employe with a government organization in the sample; still she accepted that her finances are also handled by her husband and she was not able to take financial decisions independently even after being financially independent.

Discussion and Implications

Paytm, Google Pay, and PhonePe were found the most used mobile wallets amongst Indian rural women. The fundings corroborate well with the latest Statista report wherein Paytm, Phonepe and Google Pay were the most used mobile wallets used by the Indians (Raynor de Best, 2023). Most common usage of mobile wallet by the Indian rural women included recharges and bill payments. The most common reason for increased usage of mobile wallets for Indian rural women was usage by the respondents' friend circle rather than the utility of the apps. These insights were not offered in the existing literature and hence these findings stayed unique to the study. The study identified that word of mouth acted as major source of information for rural Indian women about mobile wallets. The findings are in contrast with Parashar and Rasiwala (2017) wherein social media was highlighted as the major source of communication. The contrasting

finding could be attributed to the different sample composition of the researcher wherein Gen Y and Gen Z consumers including both men and women constitute the sample whereas in the present study only female respondents have been considered. The results imply that rural women trust more the informal and personal channel of communication rather than non-personal and formal channel of communication. This information might be used by the marketer to reach this market segment wherein they can identify the opinion leader in the women groups and try target the whole group through influencing the leader.

Results of the study identified five factors divided into drivers and constraints affecting the adoption of mobile wallet by rural Indian women. Three factors namely the "perceived ease of use" "perceived usefulness" and "social norms" were identified as the facilitators or drivers. "Self-efficacy" was found essential for effectively using the mobile wallets; however rural Indian women considered themselves less confident possessing limited knowledge about the mobile wallets. "Perceived risk" was also identified one of the most important factors affecting the adoption of mobile wallet wherein greater perceived risk was identified lowering the mobile wallet adoption intentions. The findings largely corroborate with previous findings highlighted by researchers like George and Sunny (2023), Kaur et al. (2020) Aydin and Burnaz,(2016) and Ahuja and Joshi (2018). The results imply that mobile wallet adoption among rural women can be enhanced not only by emphasizing upon the benefits and ease of mobile wallets; but also fostering confidence among women, facilitating knowledge and handling the privacy and security issues. Organizations can organize special training sessions for the rural women. Essential information must be shared with rural women in the vernacular language for easy understanding.

Lack of confidence, socio-cultural barriers, lack of financial resources and lack of awareness were highlighted as the major challenges faced by rural Indian women while using mobile wallets. These findings are not surprising at all as similar findings have also been reported by previous researchers like Obopay (2018), Puri (2019) and Joshi, Gupta and Rangaswamy (2023). Mobile apps need to build confidence among rural women by making their apps less intimidating, more accessible and friendly. They can also collaborate with Internet Saathi, a long-term initiative of Google and Tata group to facilitate digital literacy in rural areas.

The results indicated that mobile wallets have the possibility to act as a tool of women empowerment by facilitating banking needs of the unbanked, fostering cooperation, self-dependence and promoting self-employment and business amongst the rural Indian women. Association of digital wallets with women empowerment have been previously acknowledged by few existing studies such as Care (2020) Gupta and Chaudhary (2023) and Bhattacharjee (2023). The results imply that mobile wallets might work in collaboration with formal banking system to fulfil the needs of unbanked as formal banking system often find itself in fulfilling the needs of underprivileged segment and underserved communities including women. The results however, also imply that only facilitating access to banking services through mobile wallets to the unbanked is not enough; Formal needs of rural women must be understood formally. Similarly, it is easy to say that mere using and access to mobile wallets would further the independence feeling of the rural women. Indian culture's insistence on patriarchy must not be undermined and gender norms in the social setting must be appreciated and addressed. Indian rural women are not dependent upon their spouses while making financial decisions despite being financially independent; hence, training and education must be given to them in order to make them truly independent while making financial decisions. In order to facilitate the gender equality, government

and mobile wallet organizations might organize financial counselling sessions and gender dialogues programs.

Conclusion and limitation

The study intended to explore the mobile wallet adoption among Indian rural women along with understanding the factors affecting adoption, challenges and possibility of mobile wallet as a tool of women empowerment. The study concluded that Paytm Google Pay and PhonePe were the most used mobile wallets amongst Indian rural women. Most common usage of mobile wallet by the Indian rural women included recharges and bill payments. The most common reason for increased usage of mobile wallets for Indian rural women was usage by the respondents' friend circle rather than the utility of the apps. Word of mouth acted as major source of information for rural Indian women about mobile wallets. Three factors namely the "perceived ease of use" "perceived usefulness" and "social norms" were identified as the facilitators or drivers. "Self-efficacy" was found essential for effectively using the mobile wallets; however rural Indian women considered themselves less confident possessing limited knowledge about the mobile wallets. "Perceived risk" was also identified one of the most important factors affecting the adoption of mobile wallet. Lack of confidence, socio-cultural barriers, lack of financial resources and lack of awareness were highlighted as the major challenges faced by rural Indian women while using mobile wallets. Mobile wallets have the possibility to act as a tool of women empowerment by facilitating banking needs of the unbanked, fostering cooperation, self-dependence and promoting self-employment and business amongst the rural Indian women.

The study adopted the mixed methodology which is considered better than the sole qualitative or quantitative study; still the study was more focused on quantitative side. Qualitive results were embedded to further elaborate the quantitative results. Qualitative data was collected from only 10 respondents. Further researchers can balance both the aspects of the study. The study was confined to Delhi; which could restrict the generalization of the results. The various factors have been identified; but their quantitative effect on adoption intentions has not been identified.

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