

# “Understanding customer loyalty in mobile wallet apps: A post-pandemic analysis with customer involvement as moderator”

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# UNDERSTANDING CUSTOMER LOYALTY IN MOBILE WALLET APPS: A POST-PANDEMIC ANALYSIS WITH CUSTOMER INVOLVEMENT AS MODERATOR

## Abstract

The adoption of mobile-based payments, particularly mobile wallets, increased significantly during the pandemic, especially in cash-reliant low-income economies. In the post-pandemic era, customers have greater flexibility in choosing their preferred payment methods, making customer retention vital for businesses. Therefore, it is essential to identify the factors influencing customer loyalty to mobile wallet apps. This study, conducted in Pakistan, seeks to identify the factors influencing customer loyalty toward mobile wallet apps in the post-COVID-19 era. Using data from 298 customers, the study uses Smart PLS to examine the relationships within the proposed model. The outcomes revealed that perceived usefulness ( $\beta = 0.201$ ,  $p = 0.000$ ), perceived ease of use ( $\beta = 0.177$ ,  $p = 0.000$ ), information quality ( $\beta = -0.094$ ,  $p = 0.001$ ), user satisfaction ( $\beta = 0.367$ ,  $p = 0.000$ ), hedonic motivations ( $\beta = 0.168$ ,  $p = 0.000$ ), and customer involvement ( $\beta = 0.141$ ,  $p = 0.000$ ) are the primary factors that determine whether or not a customer becomes loyal to mobile wallets. Moreover, customer involvement moderates the association between perceived ease of use ( $\beta = -0.146$ ,  $p = 0.000$ ), information quality ( $\beta = 0.125$ ,  $p = 0.000$ ), user satisfaction ( $\beta = 0.195$ ,  $p = 0.000$ ), hedonic motivations ( $\beta = -0.151$ ,  $p = 0.000$ ) and customer loyalty. In conclusion, perceived usefulness, perceived ease of use, user satisfaction, hedonic motivations, customer involvement and information quality are key determinants of customer loyalty in the new normal.

## Keywords

hedonic motivations, perceived ease of use, perceived usefulness, Technology Acceptance Model, information quality, user satisfaction, new normal, Pakistan

## JEL Classification

D12, M31, N35, Z33

## INTRODUCTION

The COVID-19 pandemic accelerated a global shift from cash to digital transactions to minimize physical contact and reduce virus transmission risks (Aisjah, 2024). Many countries are promoting cashless strategies, increasing the use of digital payments, including mobile wallets, which offer pre-paid accounts for saving funds, linking debit and credit cards, and making various types of payments (Teng & Khong, 2021). Mobile wallets benefit businesses by providing additional revenue and opportunities to retain customers, which is crucial for long-term organizational growth (Mew & Millan, 2021).

In Pakistan, digital transactions, especially mobile and internet banking, have been surged significantly during the pandemic. However, despite this increase, the amount of cash in circulation remains high, highlighting a cultural tendency toward cash (Raza et al., 2023). As consumers are reverting to cash post-pandemic, it raises concerns about whether they will continue using mobile wallets in the "new normal." The shift back to cash poses urgent challenges for businesses



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### Conflict of interest statement:

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that rely on mobile wallets (Mehraj et al., 2024). Reduced transaction volumes threaten revenue streams, especially for financial institutions and companies that invested heavily in digital payment systems (George et al., 2024). Handling cash also incurs significant costs such as for secure storage, transportation, and management, which are less efficient than digital methods (Raza et al., 2023). Consequently, to retain mobile wallet users, businesses may need to increase spending on customer incentives and address technical issues or security concerns, adding financial strain (Au & Kauffman, 2008). This is particularly pressing for e-commerce and sectors depending on digital transactions, as declining mobile wallet usage may limit access to younger, tech-savvy demographics critical for growth. This study explores consumer behavior in Pakistan, highlighting the vital role of customer loyalty in shaping preferences for mobile wallets usage. It emphasizes the importance of understanding the factors driving loyalty in this rapidly growing market.

## 1. LITERATURE REVIEW

The literature on mobile wallets has predominantly examined adoption, security, and consumer behavior, with limited focus on customer loyalty, especially during the COVID-19 period (Ajina et al., 2023). The Technology Acceptance Model (TAM) is frequently used to analyze user adoption of technology such as mobile wallets and banking, focusing on perceived usefulness (PU) and perceived ease of use (PEOU) as primary influences on user behavior (Davis, 1989). Prior research has emphasized that while TAM emphasizes perceived usefulness (PU) and ease of use (PEOU) as key adoption drivers (Davis, 1989), its simplicity limits its ability to capture complex behaviors influenced by factors like user satisfaction, information quality, and hedonic motivations, which are critical in Pakistan's unique cultural and economic context (Almajali et al., 2022; Khan et al., 2022). Moreover, information quality, vital for trust and loyalty, along with user satisfaction and emotional factors, is often overlooked (Isaac et al., 2018). To address these gaps, researchers propose expanding TAM to include motivational factors, customer involvement, and evolving user needs, offering a more comprehensive framework for understanding loyalty in developing economies (Chi, 2018; Huang et al., 2017; Almajali et al., 2022; Wu & Chen, 2005).

Perceived ease of use (PEOU) significantly affects a user's intention to adopt technology, which subsequently drives actual usage and customer loyalty (Mokha & Kumar, 2021). It refers to the degree to which users feel that a system requires minimal effort to use. In mobile wallet applications, ease of use simplifies online transactions, reducing cognitive load and frustration, and creating positive user

experiences that enhance satisfaction and loyalty (Venkatesh & Davis, 2000). Gefen et al. (2003) noted that a seamless and intuitive interface promotes habit formation and long-term engagement, as users are less likely to switch to alternatives due to the effort required to learn new systems. This ease of use also fosters confidence and trust, solidifying customer relationships, increasing retention and loyalty over time (Maryanto & Kaihatu, 2021).

Perceived usefulness (PU) is a key factor influencing technology adoption and usage. It refers to the user's belief that a technology enhances their performance or productivity (Luo et al., 2011). Moreover, Chiu et al. (2009) noted that TAM posits PU strongly affects the intention to use a technology, leading to actual usage and, over time, fostering customer loyalty. When users find a technology useful, their satisfaction increases, driving continued usage and promoting loyalty (Maryanto & Kaihatu, 2021). The studies show that perceived usefulness contributes to positive behavioral intentions, supporting customer retention, and users are more likely to recommend technology they find useful, which further strengthens brand loyalty (Lim et al., 2023). Furthermore, consistent usefulness also encourages habitual use, reducing the likelihood of switching to alternatives and fostering an emotional connection that builds loyalty (Chiu et al., 2009). Prior research supports perceived usefulness significant role in driving loyalty in mobile wallet adoption, as it helps users achieve their goals effectively and meets their needs for productivity and convenience (Lim et al., 2023; Luo et al., 2011).

Information quality (IQ) refers to how well the information provided by a service meets customer needs, particularly in clarity, accuracy, and reli-

ability (Do et al., 2023). McKinney et al. (2002) noted that high-quality information enables customers to make quicker and more confident decisions by aligning product details with their requirements. This quality is essential in fostering customer loyalty, as it boosts user confidence and satisfaction (Delone & McLean, 2003). Moreover, for mobile wallets, reliable information such as accurate account balances and timely payment confirmations builds trust in the app's security, crucial in financial services. Clear and consistent information also enhances ease of use, which encourages habitual use and strengthens loyalty (Gefen et al., 2003). Therefore, mobile wallet providers should focus on continuously improving information quality to enhance user experience and retain customers.

User satisfaction (US) refers to the feeling of pleasure or disappointment resulting from comparing a product's perceived performance to expectations. It is often considered a holistic measure, encompassing a user's cumulative experience with a product or service over time (Fainusa et al., 2019). Bhattacharjee (2001) noted that in mobile wallet usage, satisfaction is directly linked to loyalty; satisfied users are more likely to continue using the wallet, creating long-term engagement and emotional attachment. Besides, elements like ease of use, security, and reliability enhance satisfaction, fostering customer loyalty (Gefen et al., 2003). Prior research emphasized that a positive user experience reduces the likelihood of switching to competitors, as high satisfaction promotes repeat purchases and commitment to the brand, while dissatisfaction often leads to abandonment and reduced loyalty (Fainusa et al., 2019; Gefen et al., 2003; Thakur, 2018).

Hedonic shopping motivations involve enjoyment, sensory pleasure, and entertainment in consumer behavior (Van der Heijden, 2004). In technology use, hedonic motivation refers to the pleasure derived from using a product, such as a mobile wallet, and are strong predictor of both customer satisfaction and loyalty (Venkatesh et al., 2012; Vieira et al., 2018). The research shows that hedonic benefits often have a greater influence on satisfaction and loyalty than utilitarian benefits, as positive emotional experiences build a lasting attachment to a platform (Lee & Kim, 2018; Jones et al., 2006).

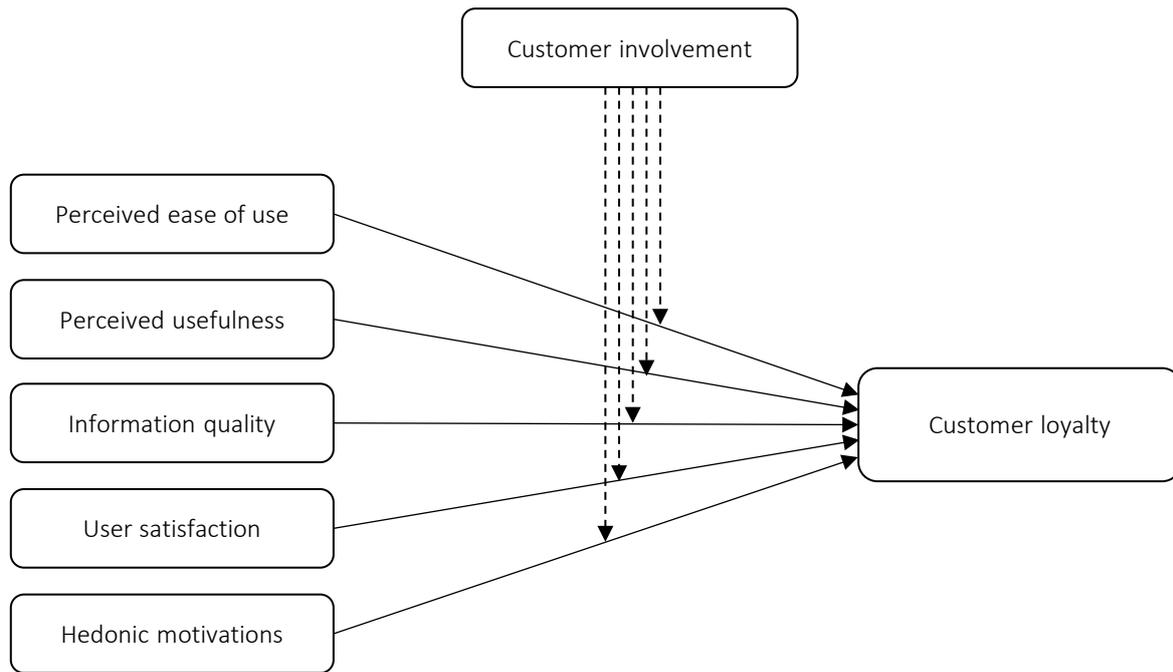
Moreover, Hamari et al. (2015) found that features like gamification and personalized offers enhance enjoyment and engagement, encouraging habitual use and reducing the desire to switch to alternatives. Consequently, hedonic motivations significantly drive users' intention to continue using mobile wallets, reinforcing long-term loyalty.

Customer involvement is defined as an individual's perceived importance of a product or service based on personal values and needs, customer involvement has been shown to strengthen trust, satisfaction, and loyalty (Zaichkowsky, 1985; Cheung & To, 2021). Research indicates that high customer involvement leads to deeper engagement, enhancing customer loyalty (Mittal & Lee, 1989). In mobile wallets, features such as rewards, personalized promotions, and gamification increase involvement, creating enjoyment and habit formation that reduce the likelihood of switching to other platforms (Hamari et al., 2015). The studies have shown that customer involvement not only predicts loyalty but may also moderate its relationship with other factors, such as in the adoption of mobile payment apps (Cheung & To, 2021). Furthermore, customer involvement can moderate the relationship between two variables, meaning it may influence the strength and sometimes even the direction of these relationships (Huang et al., 2017).

In essence, the literature on mobile wallets has largely focused on adoption, security, and consumer behavior, with limited exploration of customer loyalty, especially after the COVID-19 pandemic. While the Technology Acceptance Model (TAM) highlights perceived usefulness and perceived ease of use as key drivers of adoption, it fails to address complex factors like user satisfaction, information quality, hedonic motivations, and customer involvement, which are critical in developing economies like Pakistan.

## 2. AIM AND HYPOTHESES

This study aims to examine the factors influencing customer loyalty toward mobile wallets in Pakistan, specifically in post-COVID-19 context. Moreover, this study expands the Technology Acceptance Model (TAM) by incorporating ad-



**Figure 1.** Research model

ditional factors such as user satisfaction, information quality, hedonic motivations, and customer involvement. These elements are analyzed to understand their direct or mediated impact on customer loyalty, addressing critical gaps in existing literature. The proposed model is expected to provide a comprehensive framework for predicting customer loyalty in the unique cultural and economic context of Pakistan, offering valuable insights for both academia and industry. Building on findings from previous research and the development of the research model (Figure 1), the following hypotheses are proposed:

- H1: *Perceived ease of use significantly influences customer loyalty.*
- H2: *Perceived usefulness significantly influences customer loyalty.*
- H3: *Information quality significantly influences customer loyalty.*
- H4: *User satisfaction significantly influences customer loyalty.*
- H5: *Hedonic motivations significantly influence customer loyalty.*

- H6: *Customer involvement significantly influences customer loyalty.*
- H7: *There is a significant moderation impact of customer involvement on the relationship between perceived ease of use and customer loyalty.*
- H8: *There is a significant moderation impact of customer involvement on the relationship between perceived usefulness and customer loyalty.*
- H9: *There is a significant moderation impact of customer involvement on the relationship between information quality and customer loyalty.*
- H10: *There is a significant moderation impact of customer involvement on the relationship between user satisfaction and customer loyalty.*
- H11: *There is a significant moderation impact of customer involvement on the relationship between hedonic motivations and customer loyalty.*

The study employs multiple hypotheses to explore the complex relationships between constructs in-

fluencing customer loyalty in the mobile wallet industry. Grounded in the Technology Acceptance Model (TAM), the research incorporates multiple factors and a moderating variable, increasing the number of hypotheses to 11. Each hypothesis is carefully designed to address specific relationships, ensuring scientific rigor and relevance while capturing the intricate dynamics of the model to provide meaningful insights.

### 3. METHODOLOGY

This study used a quantitative approach with a closed questionnaire on a seven-point Likert scale. The survey covered independent variables (perceived ease of use, perceived usefulness, information quality, user satisfaction, and hedonic motivations), the moderator (customer involvement), and the dependent variable (customer loyalty), drawing indicators from prior well-established research (e.g., Davis, 1989; Delone & Mclean, 2003; Bhattacharjee, 2001; Van der Heijden, 2004; Zaichkowsky, 1985; Zeithaml et al., 1996). Moreover, demographic and usage frequency data were also collected.

Purposive sampling was used to select mobile wallet users, specifically university students in Lahore, Multan, Islamabad, and Karachi. Although non-random, this method allows targeted insights from experienced users, though it limits broader generalization (Sharma, 2017). The survey, distributed on platforms like Messenger and WhatsApp, received 305 responses, with 298 deemed valid. This sample size meets the requirements for Partial

Least Squares Structural Equation Modeling (PLS-SEM) (Henseler et al., 2016).

The demographic distribution of the final sample (298 responses) is presented in Table 1. Males accounted for 88.9%, while females comprised 11.1%. The majority fell within the age range of 31-40 years (81.2%). Bachelor’s degree holders constituted the largest segment of the sample, comprising 67.1%.

Furthermore, the study used Partial Least Squares Structural Equation Modeling (PLS-SEM) to analyze the data, selected for its suitability in testing complex models and exploring relationships between multiple constructs (Henseler et al., 2016). This analysis assessed both measurement and structural models to confirm the validity and reliability of the constructs.

### 4. RESULTS

The analysis using Smart PLS 4 was conducted in two stages: the measurement model and the structural model. To ensure the reliability of the measurement model, the study examined both item reliability and construct reliability. Initially, to confirm the reliability of items used to evaluate a specific construct, it is anticipated that the loading of each item with its corresponding latent construct should be equal to or greater than 0.7 (Hair et al., 2019). The model successfully meets this criterion, as all items have loadings that exceed the threshold limit. Second, we assessed the reliability of the structure by examining the values of Cronbach’s

**Table 1.** Demographic characteristics of the respondents (N = 298)

Demographic variables	Category	Frequency	Percent (%)
Gender	Male	265	88.9
	Female	33	11.1
Age	20-30 years	49	16.4
	31-40 years	242	81.2
	41-50 years	7	2.3
Educational level	High school	2	0.7
	Bachelor’s degree	200	67.1
	Master’s degree or higher	96	32.2
Frequency of mobile app use	Daily several times	9	3.0
	Daily once	135	45.3
	Weekly once	64	21.5
	Monthly once	90	30.2

Alpha (CA) and composite reliability (CR). Tables 2 and 3 illustrate the results of the measurement stage, which are presented in terms of “factor loadings, Cronbach’s Alpha (CA), Composite Reliability (CR), and Average Variance Extracted (AVE).” The extracted factors were analyzed for reliability, indicated by Cronbach’s Alpha (CA), which significantly surpassed the recommended cutoff score of 0.70 (Hair et al., 2017) as shown in Table 2.

Composite Reliability (CR) values reflect the degree to which the items of each variable effectively represent their respective latent constructs. A CR value  $\geq 0.70$  is considered acceptable (Hair et al.,

2021). Table 2 shows that CR scores ranged from 0.909 to 0.973. Validity is assessed in two forms: convergent and discriminant validity. Convergent validity was measured using the Average Variance Extracted (AVE), with values ranging from 0.667 to 0.924, as shown in Table 3, meeting the AVE criterion with the proposed minimum of 0.50 (Fornell & Larcker, 1981). Discriminant validity can be assessed by comparing the square root of AVE ( $\sqrt{AVE}$ ) with the cross-correlations (Fornell & Larcker, 1981). This condition was satisfied, as indicated in Table 3 (e.g., CI:  $\sqrt{0.796} = 0.892$ ). This indicates that the constructs in the model are not highly correlated with each other.

**Table 2.** Reliability analysis

Variables	Items	PE	PU	IQ	US	HM	CI	CL	CA	rho_A	CR
PE	PE1	0.865							0.894	0.895	0.926
	PE2	0.876									
	PE3	0.872									
	PE4	0.870									
PU	PU1		0.916						0.930	0.931	0.950
	PU2		0.888								
	PU3		0.905								
	PU4		0.928								
IQ	IQ1			0.938					0.946	0.947	0.961
	IQ2			0.917							
	IQ3			0.923							
	IQ4			0.932							
US	US1				0.782				0.874	0.881	0.909
	US2				0.928						
	US3				0.783						
	US4				0.786						
	US5				0.793						
HM	HM1					0.959			0.959	0.959	0.973
	HM2					0.965					
	HM3					0.958					
CI	CI1						0.949		0.870	0.876	0.921
	CI2						0.885				
	CI3						0.839				
CL	CL1							0.793	0.867	0.871	0.910
	CL2							0.835			
	CL3							0.825			
	CL4							0.929			

**Table 3.** Validity analysis

Variables	CI	CL	HM	IQ	PE	PU	US	AVE
CI	0.892							0.796
CL	0.659	0.847						0.717
HM	0.644	0.701	0.961					0.924
IQ	-0.159	-0.392	-0.187	0.927				0.860
PE	0.478	0.670	0.451	-0.240	0.871			0.758
PU	0.569	0.689	0.582	-0.242	0.441	0.909		0.827
US	0.471	0.720	0.512	-0.420	0.555	0.560	0.817	0.667

Once the requirements for the measurement phase are met, the fit indicators of the model and the hypothesized relationships in the structural model can be evaluated. However, it is essential to first examine potential issues of multicollinearity and common method bias (CMB), as their presence is undesirable in any research (Hair et al., 2017). In PLS-SEM, multicollinearity is typically assessed using the Variance Inflation Factor (VIF), with acceptable values being below 5 (Hair et al., 2017). As shown in Table 4, the highest VIF value in this study is 4.699, indicating that multicollinearity is not an issue. To evaluate CMB, the Harman single-factor test is commonly used. The measurement approach employed might induce a phenomenon called common method bias. Nevertheless, a model is considered free from CMB if the variance is below 50% (Kock, 2015). In this study, the variance is 42.86, suggesting that CMB is not an issue.

To evaluate the model's fit, three commonly used metrics include the  $R^2$  value, the standardized root mean square residual (SRMR), and the Stone-Geisser test ( $Q^2$ ). The  $R^2$  value provides insight into the proportion of variance explained in the dependent variable. In consumer behavior research,  $R^2$  value exceeding 0.20 (> 0.20) is considered significant, as indicated by Hair et al. (2011). In current study, the research model accounts for 81.7% of the variance in customer loyalty, indicating a satisfactory level of explanation. The SRMR evaluates the difference between the model's implied correlation matrix and the observed correlations (Hair et al., 2021). In this study, the SRMR value was 0.043, which is below the recommended maximum threshold of 0.080 set by Hu and Bentler (1999). Additionally, the  $Q^2$  value, calculated us-

ing the blindfolding technique, serves as an indicator of predictive relevance. According to Hair et al. (2011), a  $Q^2$  value greater than zero is considered acceptable. As shown in Table 4, the  $Q^2$  value exceeded zero, confirming the model's strong predictive relevance in accordance with Hair et al. (2019). Therefore, based on the three metrics discussed, it can be concluded that the model is well-suited for hypothesis testing.

## 5. DISCUSSION

This study examines the factors that influence customer loyalty toward mobile wallet apps, with a focus on the moderating role of customer involvement. Therefore, this study takes a holistic approach by integrating multiple factors such as perceived ease of use, perceived usefulness, user satisfaction, hedonic motivations, customer involvement, and information quality to assess their combined impact on customer loyalty in the mobile wallet sector. The model explains 81.7% of the variation in customer loyalty, a high level of explanatory power, suggesting a more robust understanding of the factors influencing loyalty compared to previous studies that explored these factors individually. To achieve this, the study put forward a research model comprising eleven hypotheses. As exhibited in the prior section, Hypothesis 1, Hypothesis 2, Hypothesis 3, Hypothesis 4, Hypothesis 5, Hypothesis 6, Hypothesis 7, Hypothesis 9, Hypothesis 10, and Hypothesis 11 were supported, while Hypothesis 8 was not supported.

The hypotheses were divided into two groups. The first group focused on the direct effects on cus-

**Table 4.** PLS bootstrapping results

	Hypothesis	Std. Beta	Std. Dev.	t-values	p-values	Decision	VIF	SRMR	$Q^2$
H1	PE → CL	0.177	0.034	5.188	p<0.001 (0.000)	Accepted	2.055		
H2	PU → CL	0.201	0.054	3.714	p<0.001 (0.000)	Accepted	4.699		
H3	IQ → CL	-0.094	0.029	3.219	p<0.001 (0.001)	Accepted	1.271		
H4	US → CL	0.367	0.053	6.952	p<0.001 (0.000)	Accepted	4.264		
H5	HM → CL	0.168	0.035	4.795	p<0.001 (0.000)	Accepted	2.306		
H6	CI → CL	0.141	0.039	3.588	p<0.001 (0.000)	Accepted	2.353	0.043	0.798
H7	CI x PE → CL	-0.146	0.042	3.496	p<0.001 (0.000)	Accepted			
H8	CI x PU → CL	0.079	0.056	1.405	p>0.05 (0.160)	Rejected			
H9	CI x IQ → CL	0.125	0.035	3.565	P<0.001 (0.000)	Accepted			
H10	CI x US → CL	0.195	0.052	3.777	p<0.001 (0.000)	Accepted			
H11	CI x HM → CL	-0.151	0.039	3.920	p<0.001 (0.000)	Accepted			

customer loyalty. The empirical findings revealed that perceived ease of use, perceived usefulness, user satisfaction, hedonic motivation, and consumer involvement all positively influence customer loyalty while information quality negatively affects it. The findings provide compelling evidence that perceived ease of use positively affects customer loyalty toward mobile wallet apps. This outcome is consistent with previous research across various contexts, particularly in the realm of mobile internet banking (e.g., Lim et al., 2023). Therefore, by offering user-friendly applications, businesses can foster long-term customer loyalty towards mobile wallets. Moreover, perceived usefulness has a positive influence on customer loyalty. This finding aligns with previous studies in the literature (e.g., Lim et al., 2023). Therefore, the perceived usefulness of mobile wallet apps plays a significant role in influencing customer loyalty. This outcome implies that sustaining the perceived usefulness of mobile wallet apps can enhance long-term customer retention, ultimately leading to loyalty.

Furthermore, the negative impact of information quality on customer loyalty suggests that customers are more likely to use a mobile wallet app if it provides concise information to meet their needs. Conversely, information overload may discourage consumers from using the app. This finding is contradictory with prior research (e.g., Yoo et al., 2023), who found a positive connection amid this association. Besides, user satisfaction has a favourable effect on customer loyalty towards mobile wallet apps, implying that customers are more inclined to reuse the mobile wallet app if it efficiently meets their needs. This finding aligns with previous studies (e.g., Yoo et al., 2023). Furthermore, hedonic motivation positively affects customer loyalty, aligning with prior research findings (e.g., Nguyen et al., 2007). Customers are drawn to technology that offers entertainment and enjoyment (Mir, 2023). Therefore, businesses can enhance customer loyalty to their mobile wallet apps by incorporating entertaining features such as gamification. The findings also suggested that customer involvement positively impacts customer loyalty directly, consistent with previous research (e.g., Huang et al., 2017; Olk et al., 2021), which emphasized that customer involvement not only drives customers to adopt or persist in using mobile wallet services but also plays a pivotal role in enhancing customer loyalty in the long term.

It is noteworthy to mention that user satisfaction emerges as a significant predictor of customer loyalty towards mobile wallet apps ( $\beta = 0.367$ ), followed by perceived usefulness ( $\beta = 0.201$ ), perceived ease of use ( $\beta = 0.177$ ), hedonic motivation ( $\beta = 0.168$ ), customer involvement ( $\beta = 0.141$ ), and information quality ( $\beta = -0.094$ ). This means satisfaction plays a critical role in driving loyalty, making it the most influential factor in this model. Users who find the app useful are more likely to be loyal, but this influence is not as strong as user satisfaction. Furthermore, concise information has a noticeable, albeit weaker, influence on loyalty compared to other factors. While enjoyment matters, it is less important than factors like satisfaction and usefulness. Customer involvement in app development or decision-making influences loyalty, but it is not a major driver. Simplifying the app's interface and making it easier to use helps drive loyalty, but its impact is secondary to user satisfaction and usefulness. This model suggests that functional aspects like satisfaction, usefulness, and ease of use matter more in building customer loyalty than entertainment or engagement features.

The second group focused on how customer involvement moderates outcomes. Four of the five hypotheses that were put forth were supported by the results in this group. The findings revealed that customer involvement indeed plays a significant moderating role in four specific relationships: between perceived ease of use and customer loyalty, between information quality and customer loyalty, between user satisfaction and customer loyalty, and between hedonic motivation and customer loyalty. This indicates that customer involvement is a vital factor in shaping customer loyalty, particularly in the contexts of perceived ease of use, information quality, user satisfaction, and hedonic motivations. Unlike previous research, which viewed customer involvement as a direct predictor of loyalty (e.g., Punniyamoorthy & Prasanna, 2007). This study shows that higher engagement enhances the impact of these factors on loyalty. This insight suggests that businesses can boost loyalty by not only improving ease of use and satisfaction but also actively involving users in app development and improvement. However, the study did not find significant evidence to support the moderating role of customer involvement in the relationships between perceived usefulness and customer loyalty.

The reason behind insignificant findings may be once customers perceive the usefulness of a mobile wallet; their loyalty tends to be based on its functional utility, making further customer involvement less significant. For users focused on practical features like ease of transactions or bill payments, additional engagement strategies such as feedback loops or gamification may be unnecessary or even distracting. These customers view mobile wallets as tools for specific tasks, and involvement initiatives could create cognitive overload, reducing engagement. Therefore, companies should prioritize enhancing core functionalities over relying on customer involvement to drive loyalty.

The study highlights the functional nature of mobile wallet apps, where user satisfaction from efficient and reliable performance is more important for driving loyalty than purely entertaining features. This finding challenges the common belief that hedonic motivations are the key factor in customer loyalty. In fintech environments, where utility and functionality often take priority, the practical value of the app such as seamless transactions and ease of use proves to be more influential in building loyalty than entertainment. This shift in importance suggests a contextual difference in fintech adoption, especially in developing economies like Pakistan, where utility and practical use tend to take precedence over entertainment or enjoyment. Moreover, the study provides new insights into customer loyalty within the context of Pakistan, a developing economy with expanding digital financial services. It finds that the factors influencing loyalty in such markets may differ from those in more developed economies, where hedonic motivations or novelty might play a larger role. In Pakistan, user satisfaction and practical benefits are the primary drivers of loyalty, as mobile wallets are viewed mainly as tools for convenience rather than for entertainment. These findings offer valuable lessons for other developing economies with similar patterns of mobile wallet adoption, emphasizing the importance of functionality over entertainment.

The study found no significant evidence that customer involvement moderates the relationships between perceived usefulness and customer loyalty. The lack of a moderating effect from customer involvement is a novel finding. This challenges

previous assumptions that involvement always enhances user experience. A possible explanation is that, for mobile wallets, once users find the app useful and the information reliable, their loyalty remains stable, with less reliance on external engagement efforts. This insight suggests loyalty may be more intrinsic for certain factors. It highlights that usefulness is internalized early in the user experience and becomes less influenced by the level of customer involvement over time.

These findings hold broader relevance beyond Pakistan, especially for developing economies with large unbanked populations. The emphasis on user-friendly mobile wallet designs that prioritize ease of use and user satisfaction offers practical insights for enhancing financial inclusion and customer loyalty. Mobile wallet providers can improve adoption and long-term loyalty by focusing on practical solutions for daily transactions. However, the study's demographic skew (primarily male, aged 31-40, and well-educated) raises concerns about its generalizability, as it underrepresents women and younger users. This suggests a gap in understanding the motivations and needs of a more diverse demographic base for future studies.

To extend these findings, future research should target younger, less-educated users and explore cultural factors that influence mobile wallet use. The study's focus on customer involvement as a moderator opens new directions, such as engaging users through feedback loops and gamification. However, further exploration is needed to determine if these strategies are equally effective across different demographic groups or cultural settings. Future research could also examine how younger users (aged 18-30) prioritize hedonic motivations and explore gender-specific preferences to design more inclusive loyalty strategies. Additionally, studying the impact of customer loyalty programs in volatile economic environments could provide insights for developing countries. Overall, the study highlights the importance of more diverse and context-specific research to create effective and inclusive mobile wallet services.

This study identifies few limitations and directions for future research. Its focus on Pakistan limits generalizability, suggesting a need for cross-cul-

tural studies in diverse contexts. Demographic constraints also call for broader sampling, including younger, female, and less-educated users, to improve understanding across different groups. Future research should consider additional constructs, such as product involvement and emotional ambivalence, and explore other modera-

tors (e.g., demographics, habits, social influence) to enrich the model. Examining different forms of customer involvement and expanding research beyond the mobile wallet sector may offer further insights. Additionally, mixed method approaches and larger sample sizes could uncover deeper nuances in customer loyalty dynamics.

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## CONCLUSION

This study examined factors influencing customer loyalty toward mobile wallet apps in Pakistan post-COVID-19. Using PLS-SEM analysis, the findings confirmed that perceived ease of use, perceived usefulness, information quality, user satisfaction, and hedonic motivation significantly impact loyalty, with user satisfaction being the strongest predictor. However, customer involvement did not moderate the effect of perceived usefulness. These results highlight the importance of a seamless user experience, high-quality information, and engaging features in fostering long-term customer commitment. The model explains 81.7% of loyalty variance, highlighting the importance of user-friendly, high-quality experiences in retaining customers. Demographic insights suggest tailoring strategies to different groups, as males and those aged 31-40 prioritize practical features, while younger and older users may value enjoyment and security. From these findings, businesses should prioritize enhancing app usability, optimizing information quality, and leveraging customer engagement strategies to improve loyalty. Policymakers should address adoption barriers and ensure regulatory support for digital payment growth. Future research should explore additional moderating factors like trust and perceived risk to refine understanding of consumer behavior in mobile financial services, ultimately driving higher retention in an increasingly digital economy.

## AUTHOR CONTRIBUTIONS

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