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Factors Influencing Consumer's Attitude Toward Adopting e-wallets in Purchase Transactions

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Abstract

This research paper explores the factors influencing consumer attitudes toward adopting e-wallets in purchase transactions in Saudi Arabia. The study integrates the Technology Acceptance Model (TAM) with consumers' mindfulness and self-efficacy to comprehensively understand e-wallet adoption. The study highlights the growing importance of electronic money services and the need to promote e-wallet adoption in Saudi Arabia. The research examines the impact of mindfulness, self-efficacy, perceived usefulness, ease of use, and new technology anxiety on consumer attitudes toward e-wallet adoption. The sampling method is snowball sampling, through which 273 complete responses were collected. Structural Equation Modeling was employed to test the study hypotheses. The study found a positive relationship between mindfulness, perceived usefulness, and perceived ease of use. Furthermore, the study found a strong positive relationship between perceived usefulness and consumer attitude and a positive relationship between self-efficacy and perceived ease of use. Similarly, the study found a strong positive relationship between perceived ease of use and attitude. Lastly, the study revealed no significant moderating influence of technological anxiety on the association between perceived usefulness and consumer attitude.

Keywords: e-wallets, purchase transactions, TAM, self-efficacy, and mindfulness

1. Introduction:

The advent of the new century introduces revolutionary technologies that profoundly transform our way of life. The Internet, mobile phones, and social media enable the widespread integration of mobile devices into our daily routines (Karjaluoto et al., 2019). Enhancements in reliability and advancements in mobile services enable mobile users to constantly utilize mobile services, access the internet, and engage in various activities such as shopping, money transfers, and entertainment (Karim et al., 2020). Electronic money (E-money) services enable users to easily and quickly carry out secure financial transactions (Karjaluoto et al., 2019). Users are becoming more willing to use e-money for online transactions or routine financial operations. E-money functions as a virtual wallet, facilitating various financial transactions without requiring physical currency (Seetharaman et al., 2017).

The e-payment system enables transactions totaling USD 2 billion and serves a global consumer base 1 billion (GSMA, 2021). Around 300 mobile payment service providers operate in 95 countries, and projections suggest that the daily transaction volume could reach USD 5 billion by 2025 (GSMA, 2021). Simultaneously, the Kingdom of Saudi Arabia (KSA) is actively striving to transition into a society that relies predominantly on electronic transactions to achieve the goals outlined in Saudi Vision 2030. Recently, there has been a considerable decrease in the total cash transactions. However, 60% of the monetary transactions in Saudi Arabia were still conducted using cash, so the Saudi Central Bank (SAMA) supports the acceptance and adoption of e-money in the KSA (Fintech Saudi, 2021). Currently, three prominent entities are operating in the electronic money industry in the KSA: STC Pay, Hala, and Bayan Pay (Fintech Saudi, 2021).
Over the last ten years, researchers have conducted extensive studies on mobile payments. However, the study of technology adoption has been ongoing for a long time. Marketing studies have exclusively emphasized the determinants that influence the adoption of mobile payments in purchase transactions. Various disciplines have utilized theories and models to offer additional insights, such as the Technology Acceptance Model (TAM), the Unified Theories of Acceptance and Use of Technology (UTAUT), the Diffusion of Trust and Innovation theory, and the Mental Accounting theory. These four models are the most widely embraced (Humayrah, 2023) to analyze the adoption of new technologies (Dahlberg et al., 2015).

Although the contributions made towards the acceptance and utilization of sustainable technologies are encouraging, they need to encompass the rational aspects of technology adoption fully. Consumers frequently judge without considering realistic and mature technological factors (Chen & Sintov, 2016). For this reason, some researchers have acknowledged the necessity of integrating psychological research into their investigations of technology adoption (Raman & McClelland, 2016). Integrating concepts like mindfulness, self-efficacy, and technology anxiety can help address the current limitations in the literature. First, according to Oredo and Njihia (2014), mindfulness is deeply linked to innovative conduct since an individual's capacity to attain consistent performance relies on their cognitive processes and contemplation of dynamic circumstances. Researchers have found that mindfulness influences technology adoption in the context of rapidly changing technologies, mainly through users' perceptions of their adoption decisions (Sun & Fang, 2010). Second, according to Sánchez & Hueros (2010), self-efficacy refers to an individual's belief in their ability to perform things in a given manner. Self-efficacy plays a crucial role in shaping individuals' opinions of their ability to accept and effectively use technology (Reychav et al., 2019). Individuals with a high level of self-efficacy in utilizing Netflix or any other new technology believe that they can do so without encountering any difficulties (Cebeci et al., 2019). Third, technology anxiety refers to the uncertainty or concern about potential negative consequences associated with the use of technology (Sam et al., 2005). Therefore, those who experience high levels of technology anxiety may struggle to adopt a positive mindset towards technology while being aware of its advantages (Cebeci et al., 2019).

Under the Technology Acceptance Model (TAM), it is essential to understand the factors shaping an individual's attitude toward technology adoption. Cognition (thoughts), values

(beliefs), and attachment (emotions) shape an individual's attitude toward a specific object (Svenningsson et al., 2021). According to TAM, perceived ease of use and perceived usability are antecedents of the attitude toward a specific technology (Davis, 1989). In addition, TAM regards attitude as a significant factor influencing users' intentions or behaviors while adopting a specific technology. Sangadji and Sopiah (2013) claimed that attitude refers to an individual's affective reaction to their preferences or aversions towards specific objects. In this line, this research studies the consumer attitude towards adopting e-wallets as a new technology used in purchase transactions.

Thus, the primary objective of this research paper is to examine the factors influencing attitudes toward the adoption of e-wallets among consumers in Saudi Arabia. Specifically, this study answers how the relationships among mindfulness, self-efficacy, perceived usefulness, ease of use, and new technology anxiety can influence the consumer's attitude toward adopting e-wallets in purchase transactions. By investigating these factors, the research aims to contribute to the existing body of knowledge in the field of technology acceptance, specifically in the context of digital payment systems. By utilizing the technology acceptance model (TAM) with the addition of mindfulness and self-efficacy, the research seeks to understand how these factors play a role in shaping consumers' attitudes toward adopting e-wallets in purchase transactions.

The findings of this study can provide practitioners with valuable insights into the factors that affect customer attitudes toward adopting e-wallets in purchase transactions, which is used to develop effective marketing strategies that form a positive attitude toward adopting e-wallets to facilitate purchase transactions. It also contributes to the academic research on technology acceptance and digital payment systems by examining mindfulness, self-efficacy, and new technology anxiety at the sight of the TAM model in the Saudi Arabian context.

2. Literature Review:

2.1 The Technology Acceptance Model (TAM):

The Technology Acceptance Model (TAM) is based on the social-psychology theory of reasoned action (Fishbein & Ajzen, 1975) and planned behavior (Ajzen, 1991). In the model, the four primary constructs are perceived ease of use (PEOU), perceived usefulness (PU), attitude, and intention to use (Davis, 1989). According to TAM, a user's behavioral intention to use technology is influenced by two beliefs: PU and PEOU (Davis, 1989). Perceived usefulness (PU) refers to the degree to which an individual believes utilizing a particular technology will improve productivity and performance. On the other hand, perceived ease of use (PEOU) is the perception that using the technology will require minimal effort (Venkatesh & Davis, 2000). Surendran (2012) employs the Technology Acceptance Model (TAM) to analyze the variables that influence a user's willingness to adopt and utilize a new technology. The model has been utilized in various studies, such as the examination of technology-based self-service adoption (Dabholkar & Bagozzi, 2002), mobile commerce (Wu & Wang, 2005), e-business (Parker & Castleman, 2009), mobile marketing (Sultan et al., 2009), and customer acceptance of cashless payment systems (Ozturk, 2016).

According to TAM, certain external variables can also have an impact on these primary structures (Davis et al., 1989). We can enhance TAM by incorporating additional external variables to explain user technology adoption more deeply. This method is the extended TAM (Cebeci et al., 2019).

2.2 Mindfulness:

Mindfulness is a meditative method to improve an individual's concentration and consciousness. Buddhism (Gethin, 2011) and Hinduism (Bhatia et al., 2013) are the origins of mindfulness. According to Hạnh (1976), mindfulness is 'keeping one's consciousness alive to the present reality' (Brown & Ryan, 2003). Additionally, mindfulness is "awareness that emerges by giving attention on purpose, in the present moment, and non-judgmentally to the unfolding of experience moment by moment" (Kabat-Zinn, 2003). Socio-psychologically, we can view mindfulness as a mental state that actively creates new distinctions, enabling full awareness of the current situation, responsiveness to context and diverse viewpoints, and influence from norms and routines without total control (Langer, 2014). According to Keane (2015), when we practice mindfulness, we refrain from making judgments or comparisons and instead focus solely on noticing the multitude of thoughts, emotions, and sensations that arise during our daily activities. Mindfulness refers to being fully present and actively involved in an individual's everyday encounters (Feruglio et al., 2021).

For several decades, the disciplines of psychology, sociology, and education have examined the notion of mindfulness, but empirical studies on its application in management and marketing have only recently begun (Ndubisi, 2012a, 2012b). Ndubisi (2012c) conducted a literature review in 2012 and found a need for more empirical research on mindfulness within the marketing and management disciplines. However, Ndubisi (2012a, 2012c) highlighted the need for more knowledge regarding how mindfulness influences consumer decision-making processes and its impact on marketing practice and theory development. Studying consumer mindfulness has only recently emerged in marketing research (Daniel et al., 2022; Flavian et al., 2020; My-Quyen et al., 2020). However, our understanding of how mindfulness affects an individual's decision-making process regarding technology adoption is limited (Sun et al., 2016).

Individuals who are mindfully and actively involved in a task are motivated and capable of examining a broader range of views. Additionally, they can make more accurate and specific distinctions concerning phenomena in the environment, which allows them to adapt to changes in those environments (Fiol & O'Connor, 2003). According to Ndubisi (2014), consumers with a high level of mindfulness will exhibit stronger drive and engagement in their decision-making process. They will also demonstrate increased attentiveness towards product characteristics and subtle cues compared to consumers with low mindfulness. Moreover, a deficiency in mindfulness can arise from an individual's incapacity to take action on what they perceive (Langer, 1989). Briefly, mindful individuals indicate a higher perception of the environment, careful attention to observing details, and an enhanced ability to consider multiple viewpoints while resolving problems (Langer, 1989). They possess a greater interest in current occurrences, realities, and personal experiences (Brown et al., 2007) and a more vital ability to adapt flexibly to contextual cues (Argote, 2006). Based on these characteristics, compared to those who are less

mindful, it is reasonable to infer that mindful consumers will demonstrate a higher level of perception toward adopting new technology, specifically in terms of perceived usefulness and perceived ease of use.

2.3 Mindfulness, Perceived Usefulness, and Perceived Ease of Use:

Perceived usefulness is the extent to which an individual believes utilizing a specific technology will improve their performance (Sun et al., 2016). Thompson et al. (1991) indicate that individuals will utilize information technology if they are aware of the beneficial advantages or usefulness it provides. Perceived advantages of mobile payments can persuade consumers that making payments using mobile devices can benefit purchases (Liébana-Cabanillas et al., 2017).

On the other hand, perceived ease of use is the level of a person's confidence that employing technology will minimize redundant effort (Indarsin & Ali, 2017). As examined in several studies, perceived ease of use is a variable that impacts perceived usefulness (Wu & Wang, 2005). According to Suki (2011), users see a system that is easier to use as more practical, which enables them to do a more significant number of activities compared to systems that are more challenging to use. Hence, perceived ease of use refers to using technology straightforwardly and uncomplicatedly (Davis, 1989).

Many studies have explored the relationship between mindfulness, perceived usefulness, and perceived ease of use. A mindful consumer assessment of technology's usefulness and usability is critical in technology adoption and continued use (Sun et al., 2016). According to Humayrah (2023), mindfulness helps users assess technology's usability, allowing them to be more conscious of their needs. Additionally, Humayrah (2023) states that individuals who engage in mindful behavior possess a greater level of awareness that enables them to exhibit a unique and precise presence and respond more effectively and flexibly to changes in the environment. Therefore, mindfulness positively and substantially influences the perceived usefulness and ease of embracing mobile payments. Sun et al. (2016) and Sun & Fang (2010) support this by indicating that mindfulness encourages a thorough investigation of technology's supplementary functionalities, expanding an individual's range of actions and enhancing perceived usefulness. Hence, these two studies highlighted the significance of mindfulness in influencing these two factors. In other words, mindful individuals are more inclined to perceive technology as useful and easy to use. Venkatesh et al. (2003) state that usability is the primary foundation of technological development. The results of a study by Sun et al. (2009), which revealed that individuals exhibit mindfulness while considering whether to embrace or reject technology, align with this statement. Sun et al. (2009) highlight that mindful individuals carefully evaluate the technology in question, considering their criteria, and actively seek information about it before deciding. In addition, mindfulness had a direct impact on perceived ease of use and perceived usefulness and also had an indirect effect on purchase intention by utilizing the mediating role of perceived usefulness (Hoang et al., 2023). According to Langer & Imber (1980)., individuals who practice mindfulness tend to exhibit greater self-assurance in their beliefs. Hence, having a solid sense of confidence will lead individuals to place greater importance on their beliefs regarding a useful and easy technology when deciding whether to adopt it (Anderson, 1971). Moreover, a study exploring the influence of mindfulness on IT usage behavior found that

mindfulness has a beneficial influence on perceived usefulness and ease of use (Kim & Pang, 2019). The influence of mindfulness on perceived usefulness and ease of use was further supported by Purbondaru et al. (2023). In the context of adopting e-wallets, mindfulness significantly increases perceived usefulness and ease of use (Purbondaru et al., 2023). Based on the above body of literature, a positive relationship is expected. It is thus hypothesized;

H1a: Mindfulness has a positive effect on the Perceived Usefulness of e-wallets.
H1b: Mindfulness has a positive effect on the Perceived Ease of Use of e-wallets.

2.4 Self-Efficacy and Perceived Ease of Use:
Self-efficacy refers to an individual's belief in their ability to perform things in a given manner (Sánchez & Hueros, 2010). To clarify, individuals with computer self-efficacy believe in their ability to navigate and use computer systems effectively. In contrast, individuals lacking self-efficacy in computer usage perceive it to be complex and challenging (Cebeci et al., 2019). Furthermore, self-efficacy plays a crucial role in shaping individuals' beliefs and attitudes toward their ability to accept and effectively utilize technology (Reychav et al., 2019).

Research persistently demonstrates that self-efficacy substantially impacts how individuals perceive the ease of use and utility of technology. These views, in turn, influence their adoption and utilization of different technologies. According to Cebeci et al. (2019), individuals with high self-efficacy in utilizing Netflix or any other new technology believe that they can do so without encountering any difficulties. This is supported by another study emphasizing tap-and-go payments in stores. Results show that self-efficacy significantly influences how individuals perceive the ease of using mobile payments (Bailey et al., 2017). Marakas et al. (1998) indicate that those with a strong sense of self-efficacy in technology were more inclined to report greater perceptions of ease of use. Agarwal et al. (2000) discovered that technological self-efficacy increased the perceived ease of use of new systems. This is supported by Lee and Mendlinger (2011) in the context of online learning systems; having a comfortable understanding of the technology is crucial when enrolling in an online course. Once students acquire expertise in technology, they are likely to develop a greater preference for online learning. Therefore, students who utilize technology in their personal and professional lives should possess greater ease and familiarity with online learning platforms. Moreover, in mobile health (mHealth) services, a study shows that self-efficacy is positively correlated with perceived ease of use (Zhang et al., 2016). This is also true in computer usage; Igbaria (1995) finds that self-efficacy significantly impacts perceived ease of use. However, based on its direct impact, self-efficacy also indirectly impacts perceived ease of use. According to Jashapara & Tai (2011), the self-efficacy of e-learning systems mediates the impacts of individual propensity for IT innovation on perceived ease of use.

In the study of adopting an e-wallet, it can be assumed that when an individual has high self-efficacy, they are more likely to anticipate easy use of an e-wallet. It is thus hypothesized;

H2: Self-efficacy has a positive effect on the Perceived Ease of Use of e-wallets.

2.5 Attitude, Perceived Usefulness, and Perceived Ease of Use:

According to Fishbein & Ajzen (1975), an individual's evaluation of behavior, whether positive or negative, reflects his attitude toward that behavior. Attitude is a psychological concept that arises from an individual's cognition (thought), values (beliefs), and attachment (emotions) regarding a specific matter (Svenningsson et al., 2021). Furthermore, attitude is divided into two parts: behavioral and cognitive. The behavioral part relates to the individual's intention to participate in a specific behavior, such as buying a product or recommending it to others. On the other hand, the cognitive part relates to the thoughts, beliefs, and opinions that individuals hold about a product or service (Liébana-Cabanillas et al., 2017).

According to Chau (1996), TAM considers perceived usefulness and ease of use as causal factors of attitude towards the technology in adopting new technology. Hence, according to studies on TAM concerning technology, there is a significant relationship between perceived usefulness and attitude and between perceived ease of use and attitude (Ha & Stoel, 2009; Shin, 2009; Schierz et al., 2010; Yang, 2012). Furthermore, the assessment of mobile payment adoption considers perceived ease of use as the most critical factor (Humayrah, 2023). Gan et al. (2016) conducted a study that revealed why mobile payments have gained widespread acceptance in China. Chinese customers prioritize convenience and find credit cards inconvenient and challenging to use. The findings are consistent with another US study that looked into the adoption of mobile payments. Bailey et al. (2017) discovered that two crucial TAM variables—perceived usefulness and ease of use—significantly influence attitudes toward mobile payments—additionally, two studies examining attitudes toward a new technology among the elderly support this finding. First, Song et al. (2022) conducted a research study to explore the factors influencing the acceptance of a voice user interface in smart home systems among elderly individuals in China. According to the findings, Perceived usefulness and ease of use determined the participants' acceptance of a voice-user interface. Second, a research study that assesses the determinants of telecare program utilization among the elderly found that elderly individuals who perceived telecare to be useful in managing health concerns were more inclined to embrace it and continue using it (Chou et al., 2013). However, in another study examining Netflix adoption, Cebeci et al. (2019) found no relationship between perceived ease of use and attitude toward Netflix because the perception that Netflix is not challenging may not influence an individual's attitude toward the service. On the other hand, the study found that there is a significant relationship between perceived usefulness and attitude, as users find Netflix to be useful to them, resulting in a positive attitude toward Netflix. Lastly, Indarsin and Ali (2017) researched Indonesia to explore the attitude toward mobile apps for commercial transactions. They found that the users' expectations of the app's usefulness and ease of use influence their attitude toward it. Thus, it can be hypothesized:

H3: Perceived Usefulness has a positive effect on the attitude toward adopting e-wallets.
H4: Perceived Ease of Use has a positive effect on the attitude towards adopting e-wallets.

2.6 The Moderating Role of New Technology Anxiety:

According to Sam et al. (2005), technology anxiety refers to the apprehension or concern about potential negative consequences that may arise from the use of technology. Hence, individuals with a high degree of technological anxiety experience feelings of stress and dissatisfaction when

they are required to utilize technology, even when they consider the potential necessity of doing so. Additionally, they have the propensity to hold a negative opinion about technology and actively resist utilizing it. This feeling of nervousness or fear towards technology significantly impacts individual behaviors (Park et al., 2019). Hence, due to their persistent concern about potential unfavorable outcomes, individuals with high technology anxiety may find it challenging to have a positive attitude, even if they know the benefits of technology for them. When individuals experience significant anxiety related to technology, the relationship between perceived usefulness and attitude becomes less strong (Cebeci et al., 2019).

Many studies have shown the negative impact of technology anxiety on perceived usefulness and attitude toward technology. According to a study conducted in Kuala Lumpur, which investigates the correlation between individuals' attitudes toward computers and their level of computer anxiety, Shah et al. (2012) found evidence that suggests a negative correlation between computer abilities, acceptance of technology, and computer anxiety. George Saadé and Kira (2009) conducted a study that explored the connection between technology anxiety and perceived usefulness. George Saadé and Kira conducted the research with university students in an online undergraduate course environment, using a learning management system (LMS) as the focal system. Research has discovered that anxiety has a significant impact on the perception of usefulness, which eventually affects their attitude. Therefore, students who see the system as user-friendly tend to develop more positive attitudes towards the Learning Management System (LMS). Another study supported the result, which found that application anxiety directly impacts perceived usefulness in opposite directions (Hasan & Ahmed, 2010). This finding also applies to elderly individuals. A study aims to investigate a smart clothing system designed for elderly patients at a greater risk of medical issues. The goal is to gain insight into how these individuals perceive the use of wearable healthcare technologies. The findings revealed that technology anxiety detrimentally impacted the perceived usefulness of technology among older people (Tsai et al., 2020).

No literature study has examined the moderating role of technology anxiety on the relationship between perceived usefulness and attitude (Cebeci et al., 2019). Therefore, Cebeci et al. (2019) conducted a study to explore this role. According to the study results, technology anxiety weakens the relationship between perceived usefulness and attitudes toward Netflix.

Based on the above body of literature, this study, which aims to explore the factors that impact the adoption of e-wallets, can assume that when an individual has a high level of technology anxiety, they are more likely to have negative attitudes toward the adoption of e-wallets. At the same time, they are aware of their usefulness. It is thus hypothesized.

H5: New technology anxiety negatively moderates the relationship between Perceived Usefulness and the attitude toward adopting e-wallets.

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3. Conceptual model:

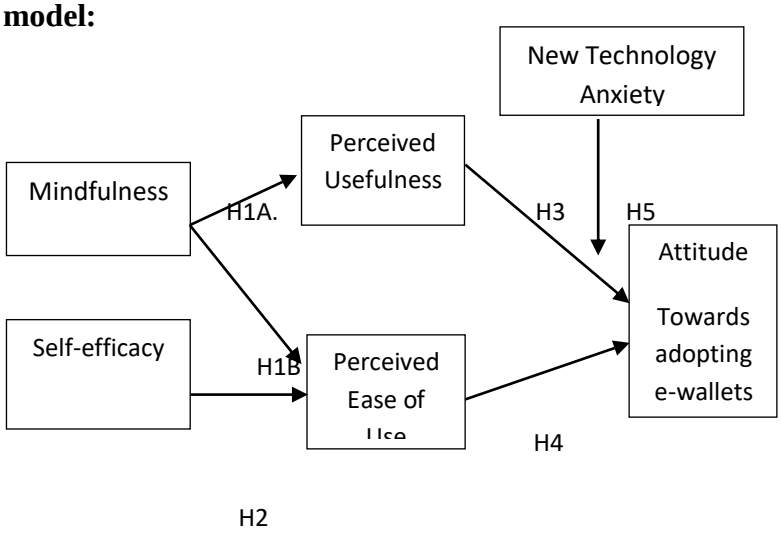

Figure 1. Conceptual Representation of The Research Model

4. Research methodology:

4.1 Measures:

The research questionnaire begins with a filter question asking whether the respondent uses an e-wallet for purchase transactions. The respondent is allowed to proceed if he has used an e-wallet before. The questionnaire consisted of two parts. The first part included the 27 items for the six constructs, measured on a 5-point Likert scale ranging from strongly disagree to strongly agree. The second section requested respondents' demographic information. All the measures for the constructs are adopted from prior studies and adapted to the study context. The scale for mindfulness is adopted from two studies: Brown and Ryan (2003) and My-Quyen et al. (2020). The scale for self-efficacy is adopted from Bailey et al. (2017) and Schwarzer and Jerusalem (1995), based on a short form of general self-efficacy adopted for mobile payment. The scales for perceived usefulness, perceived ease of use, and new technology anxiety are adopted from Bailey et al. (2017) based on Chen (2008), Schierz et al. (2010), Reid and Levy (2008), and Meuter et al. (2003), respectively. Lastly, the scale for attitude is adopted from Bailey et al. (2017), based on MacKenzie and Lutz (1989), Yi (1990), and Lafferty et al. (2002).

4.2 Sampling method:

The population for this study comprises all e-wallet users in the Kingdom of Saudi Arabia. The sample is taken from individuals who use e-wallets for purchase transactions in Saudi Arabia. This study employs the snowball sampling method. We recorded the responses from the respondents using online questionnaires. After giving their responses, the respondents were encouraged to forward the link to the questionnaire to other e-wallet users. A total of 273 complete responses were collected.

4.3 Statistical analysis:

This study used SPSS and SmartPLS software to analyze the collected data statistically. The statistical analysis began with reporting sample characteristics and descriptive statistics using SPSS statistical software. To assess the study's measurement model, the reliability and validity of the constructs were thoroughly investigated. Cronbach's alpha and Composite Reliability (CR) were used to test reliability. Convergent Validity was tested by the Average Variance Extraction (AVE). Discriminant validity was tested by cross-loading using the Fornell and Larker criteria.
Using SmartPLS software, Structural Equation Modeling (SEM) was performed to test the study's hypotheses, including the moderating hypothesis.

5. Findings:

5.1 Sample Characteristics:

The study sample comprises 273 respondents from different regions of Saudi Arabia. All of the 273 respondents were e-wallet users. Table 1 reports the study's complete sample characteristics. The respondents' genders were almost equal; males comprised 46.2% of the sample, and females comprised 53.8%. The respondents' ages ranged from 18 to more than 48 years old. Table 1 reports that more than 40% of the respondents were from two age groups: 28–32 (19.4%) and 33–37 (27.8%). The percentages of 18–22, 23–27, and 38–42 age groups were 11.4%, 13.2%, and 13.2%, respectively. The lowest percentages were for the oldest two age groups, 43–47 (9.5%) and 48 and older (5.5%). For the education level of the respondents, most of them held a bachelor's degree (57.1%), and 28.9% had high school. The lowest percentages were for diplomas, master's, and Ph.D., with (8.4%), (5.1%), and (0.4%), respectively.

Table1. Sample Characteristics

	Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Gender				
Male	126	46.2	46.2	46.2
Female	147	53.8	53.8	100.0
Age				
18-22	31	11.4	11.4	11.4
23-27	36	13.2	13.2	24.5
28-32	53	19.4	19.4	44.0
33-37	76	27.8	27.8	71.8
38-42	36	13.2	13.2	85.0
43-47	26	9.5	9.5	94.5
48 and more	15	5.5	5.5	100.0
Education level				
High school	79	28.9	28.9	28.9
diploma	23	8.4	8.4	37.4
Bachelor's	156	57.1	57.1	94.5
Master's	14	5.1	5.1	99.6
Ph.D.	1	.4	.4	100.0

5.2 Reliability and Validity:

Variables' reliability was tested using Cronbach's alpha and composite reliability (CR). Initially, some items with factor loadings smaller than 0.60 were discarded. Table 2 presents the results for reliability and validity, along with the factor loadings for the remaining items. All the Alpha values and CRs were higher than the recommended value of 0.6. An item is considered reliable if its Cronbach's alpha score is greater than 0.60 (Raharjanti et al., 2022). All the average variance extracted (AVE) scores exceeded 0.50, indicating convergent validity. Discriminant validity was assessed through cross-loadings. We also assessed multi-collinearity, ensuring that each indicator's variance inflation factor (VIF) value was less than 5.

Table 3 reports the cross-factor loadings of all the items. All the factor loadings surpass their cross-loadings, indicating discriminant validity. Discriminant validity was also tested using the criterion proposed by Fornell and Larcker. This criterion requires the construct's square root of the average variance extracted to exceed the correlation with any other construct revealed for all constructs, as shown in Table 4.

Table 2. Item loadings, reliability, and validity.

Item	Loadings	Alpha	CR (rho_a)	CR (rho_c)	AVE	VIF
ATT1	0.710	0.766	0.768	0.842	0.515	1.305
ATT2	0.690					1.434
ATT3	0.727					1.443
ATT4	0.713					1.46
ATT6	0.748					1.596
MD1	0.768	0.622	0.645	0.795	0.566	1.319
MD2	0.811					1.225
MD4	0.671					1.191
PEU1	0.814	0.626	0.642	0.801	0.576	1.382
PEU2	0.640					1.119
PEU3	0.809					1.439
PU1	0.740	0.678	0.681	0.806	0.510	1.307
PU5	0.771					1.442
PU6	0.671					1.216
PU7	0.669					1.228
SF1	0.840	0.611	0.636	0.795	0.567	1.397
SF2	0.633					1.121
SF3	0.771					1.322
TA1	0.816	0.866	0.915	0.904	0.703	2.402
TA2	0.820					2.372
TA3	0.855					1.816
TA4	0.862					1.944

Source: Outputs of statistical analysis using Smart PLS software. Note that some items were excluded from the scales because they did not meet the required standards.

Table 3. Discriminant validity – cross-loadings

Item	ATT	MD	PEU	PU	SF	TA
ATT1	0.71	0.182	0.447	0.452	0.344	-0.242
ATT2	0.69	0.093	0.329	0.388	0.256	-0.124
ATT3	0.727	0.128	0.369	0.404	0.25	-0.174
ATT4	0.713	0.112	0.303	0.393	0.223	-0.157
ATT6	0.748	0.1	0.343	0.396	0.309	-0.183
MD1	0.078	0.768	0.21	0.167	0.237	-0.132
MD2	0.121	0.811	0.275	0.227	0.275	-0.054
MD4	0.213	0.671	0.191	0.146	0.17	-0.096
PEU1	0.416	0.303	0.814	0.563	0.488	-0.113
PEU2	0.323	0.185	0.64	0.42	0.391	-0.11
PEU3	0.404	0.193	0.809	0.495	0.404	-0.208
PU1	0.455	0.16	0.446	0.74	0.446	-0.158
PU5	0.395	0.201	0.458	0.771	0.367	-0.102
PU6	0.379	0.179	0.485	0.671	0.324	0.036
PU7	0.392	0.161	0.488	0.669	0.304	-0.135
SF1	0.373	0.265	0.488	0.506	0.84	-0.177
SF2	0.23	0.171	0.359	0.27	0.633	0.004
SF3	0.261	0.252	0.424	0.344	0.771	-0.068
TA1	-0.127	-0.163	-0.143	-0.085	-0.084	0.816
TA2	-0.146	-0.07	-0.123	-0.067	-0.084	0.82
TA3	-0.255	-0.11	-0.208	-0.159	-0.143	0.855
TA4	-0.247	-0.075	-0.137	-0.095	-0.073	0.862

Source: Outputs of statistical analysis using Smart PLS software

Table 4. Fornell & Larker Criterion

	ATT	MD	PEU	PU	SF	TA
ATT	0.718					
MD	0.175	0.752				
PEU	0.506	0.305	0.759			
PU	0.569	0.245	0.655	0.714		
SF	0.39	0.309	0.567	0.508	0.753	
TA	-0.25	-0.119	-0.188	-0.129	-0.118	0.838

Source: Outputs of statistical analysis using Smart PLS software

5.3 Structural model:

The next step in the analysis was to assess the hypothesized relationships. First, direct relationships were tested. The study's structural model displays path coefficient values such as beta, t-value, p-value, standard error, ULCI, and LICI. Bootstrapping offers the significance level of p-value, which states acceptance or rejection of the hypothesis. Based on these study criteria, all hypotheses were accepted and supported as p-values are significant and t-values are greater than 1.96. Table 5 show that MD -> PU (β = 0. 245 t = 3.489, p = 0.000) and MD -> PEU (β = 0.144 t = 2.418, p = 0.016). Therefore, mindfulness and perceived usefulness have a statistically significant positive relationship. Also, MD -> PEU (β = 0.144, t = 2.418, p = 0.016) means a statistically significant positive relationship exists between mindfulness and perceived ease of use. Thus, hypotheses **H1a and H1b are supported.** Similarly, a statistically significant positive relationship exists between self-efficacy and perceived ease of use for SF -> PEU (β = 0.523, t = 9.047, p = 0.000). Therefore, **H2 is supported.** From Table 5, it can also be seen that there is a statistically significant positive relationship between perceived usefulness and attitude. PU -> ATT (β = 0.404, t = 6.903, p = 0.000), indicating that **H3 is supported.** Lastly, PEU -> ATT (β = 0.185, t = 2.541, p = 0.011) shows a statistically significant positive relationship between perceived ease of use and attitude. Thus, hypothesis **H4 is supported.**

Table 5. Direct relationships (Hypotheses H1 to H4)

Hypo	**Relationship**	**Std.Beta**	**Std.Error**	**T**	**P**	**Decision**	**ULCI**	**LICI**
H1A	MD -> PU	0.245	0.07	3.489	0.000	Supported	0.127	0.399
H1B	MD -> PEU	0.144	0.059	2.418	0.016	Supported	0.035	0.266
H2	SF -> PEU	0.523	0.058	9.047	0.000	Supported	0.403	0.63
H3	PU -> ATT	0.404	0.059	6.903	0.000	Supported	0.294	0.525
H4	PEU -> ATT	0.185	0.073	2.541	0.011	Supported	0.037	0.328

Significant at p = <0.05. Source: Outputs of statistical analysis using Smart PLS software.

5.4 Moderation analysis:

Table 6 presents the results of the moderation analysis of technology anxiety on the relationship between perceived usefulness and consumer attitude towards the adoption of e-wallets in purchase transactions. The results revealed that the moderating role of technology anxiety was TA x PU -> ATT (β = 0.074, t = 1.148, p = 0.251). In addition, the confidence interval contains zero, which indicates the relationship is insignificant. Therefore, technology anxiety is not statistically significant in moderating the relationship between perceived usefulness and attitude. Thus, **H5 is rejected.**

Table 6. Moderation analysis (Hypothesis H5).

Hypo	Relationship	Std.Beta	Std.Error	T	P	Decision	ULCI	LICI
H5	TA x PU -> ATT	0.074	0.065	1.148	0.251	Not Supported	-0.057	0.2

Significant at p = <0.05. Source: Outputs of statistical analysis using Smart PLS software.

6. Discussion and Conclusion:

This study investigated the variables affecting customers' attitudes toward using e-wallets in purchase transactions. The results shed light on the complex mechanisms involved in consumer behavior regarding e-wallet utilization by revealing several significant connections between the variables under study. First, the findings showed a positive, statistically significant relationship between mindfulness (MD) and perceived usefulness (PU). The findings imply that people with higher mindfulness levels, defined as being fully present and actively involved in everyday encounters (Hạnh, 1976), are more inclined to consider e-wallets as helpful tools while making purchases. Similarly, the study discovered a positive relationship between mindfulness and perceived ease of use (PEU), suggesting that those with higher levels of mindfulness also tend to assume that e-wallets are simpler to use. These results underlined the significance of mindfulness in influencing consumers' opinions of e-wallets and support hypotheses H1a and H1b. The result aligns with pervasive studies; a mindful consumer assessment of technology's usefulness and usability is critical to technology adoption and continued use (Sun et al., 2016). Also, usability is the primary foundation of technological development (Venkatesh et al., 2003). Individuals who practice mindfulness tend to be more confident in their beliefs, according to Langer & Imber (1980). Hence, having a strong sense of confidence will lead individuals to place greater importance on their beliefs regarding a useful and easy technology when deciding whether to adopt it (Anderson, 1971). Additionally, the study examined the connection between self-efficacy (SF) and perceived ease of use (PEU). The findings showed a statistically significant positive relationship between these two variables, indicating that those who believe in their abilities are likelier to think that e-wallets are simple. This result supports hypothesis H2, highlighting the impact of self-efficacy on consumers' opinions regarding the usability of e-wallets. This aligns with the findings of Cebeci et al. (2019), Bailey et al. (2017), Agarwal et al. (2000), and Lee & Mendlinger (2011), which suggest that the level of self-efficacy significantly influences individuals' perceptions of the usability and convenience of technology. Moreover, the study examined the connection between perceived usefulness (PU) and attitude (ATT) toward adopting e-wallets. The findings showed a statistically significant positive relationship between these variables, suggesting that those who perceive e-wallets as useful are more likely to think favorably of utilizing them for purchases. This result confirms hypothesis H3 and emphasizes how important perceived utility influences consumer attitudes toward adopting e-wallets. Likewise, the study examined the relationship between perceived ease of use (PEU) and attitude toward adopting e-wallets (ATT). The results showed a statistically significant positive relationship between these variables, indicating that people are more likely to have positive

attitudes toward using e-wallets if they are simple. This finding validates hypothesis H4. The Technology Acceptance Model (TAM) supports this, considering perceived usefulness and ease of use as causal factors of attitude toward new technology adoption (Chau, 1996). According to several TAM studies, there is a significant relationship between perceived usefulness and attitude and between perceived ease of use and attitude (Ha & Stoel, 2009; Shin, 2009; Schierz et al., 2010; Yang, 2012). Lastly, the study investigated how technological anxiety (TA) can act as a moderator in the relationship between perceived usefulness (PU) and attitude (ATT). The findings, however, showed no statistically significant moderating effect of technology anxiety on this relationship. The analysis showed that people's degrees of technological anxiety unaffected the association between attitude and perceived usefulness. Therefore, hypothesis H5 was rejected, which proposed no moderating role of technological anxiety. The findings differ from previous studies; technology anxiety weakens the relationship between perceived usefulness and attitudes (Tsai et al., 2020; Cebeci et al., 2019). The difference in results from previous studies may be due to several reasons. The study sample primarily consists of young individuals with bachelor's degrees who may have less fear and anxiety about technology due to their familiarity with its use. Additionally, during the 2020 Corona pandemic, the government was compelled to switch from using paper currencies to electronic payment methods to prevent the spread of infection. This enforcement forced people to adopt and become accustomed to these electronic payment methods. Finally, the Kingdom of Saudi Arabia (KSA), represented by the Saudi Central Bank (SAMA), is supporting the acceptance and use of e-money to help the country transition to a society that primarily relies on electronic transactions as part of its efforts to meet the objectives defined in Saudi Vision 2030. The government supports individuals and businesses in converting and adopting e-wallets and moving its services to e-government services. Hence, individuals in Saudi Arabia have become more comfortable using new technology.

7. Managerial Implications:

The study has several implications for practitioners and businesses in the digital payment sector. First, the findings highlight the need to enhance the perceived usefulness and ease of use of e-wallets. Businesses should work to provide users with smooth, compelling user experiences that highlight the usefulness and ease of utilizing e-wallets for transactions. Second, the study also emphasizes the importance of individuals trusting their own technological abilities. Companies could fund user education and training initiatives to raise users' self-efficacy in using e-wallets and give them the confidence to adopt the technology. Third, the study highlights the importance of increasing users' self-efficacy in new technology. Regarding e-wallets, businesses should offer clear communication, user-friendly interfaces, and efficient customer service. Overall, the research findings can guide marketing strategies, user experience designs, and customer support programs that encourage e-wallet usage and promote the growth of digital payment systems across various industries.

8. Limitations and future research:

Despite the valuable insights provided by the study, certain limitations should be acknowledged. These limitations create opportunities for further research to expand and improve our understanding of e-wallet adoption. First, the study specifically focuses on the context of Saudi Arabia. Although this offers insightful information about the elements driving e-wallet acceptance in that specific environment, it may limit the generalizability of the findings to other cultural and geographic contexts. Future studies may examine various countries and regions to investigate how economic and cultural variables affect consumer attitudes toward e-wallet adoption. Second, the study used a snowball sampling method as a non-probability sample, which introduces a potential bias since respondents are selected conveniently. This also limits the generalizability of the study findings, as the sample might not be representative of the entire population. Third, the study used surveys to collect data. This method introduces potential biases and limitations to this method, such as social desirability bias and memory recall issues. Later research may use different techniques, such as interviews, to gain a more comprehensive understanding of the factors that influence consumer attitudes and behaviors toward e-wallets. Fourth, the study focuses on mindfulness, self-efficacy, perceived usefulness, ease of use, and new technology anxiety. Although these variables offer valuable insights, other factors, such as trust, security, and privacy concerns, might also impact consumer attitudes toward e-wallet adoption. Future studies could investigate the significance of these variables to give a more complete picture of e-wallet acceptance. In conclusion, future research should address the current study's limitations, even if it offers insightful information on the factors impacting consumer attitudes about e-wallet adoption. By exploring different contexts, employing diverse research methods, and exploring different variables, future studies can further improve our understanding of e-wallet acceptance and contribute to the development of effective strategies for promoting digital payment systems.

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