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A Study on Factors Influencing the Use of Digital Wallet and Customer Loyalty in E-Payment System: Assessing the Mediating Role of Customer Satisfaction

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ABSTRACT

Aim of the study: The aims of the study was to find factors influencing the use of Digital Wallet and customer loyalty in e-payment system and assessing the mediating role of Customer Satisfaction
Design/Methodology: 600 digital wallet users filled questionnaire online. Purposive sampling is the method used in this study to collect data and 526 questionnaires were found duly filled and were use in data analysis. Data analysis techniques included such as validity and reliability testing; testing multiple linear regression; and testing the hypothesis, which includes the t-test, F-test, and coefficient of determination tests.
Findings: The study's findings show a strong correlation between variables that affect customer satisfaction and those that also affect customer loyalty in digital wallet systems.
Practical Implications: This study finds new security variables that affect users' satisfaction with digital wallet payment systems. Previous studies have not examined the factors. As such, this study makes a significant theoretical contribution to the field of digital wallet payments.
Originality/value: The findings of this study can help digital wallet providers improve customer satisfaction with their products by strengthening system security and concentrating on important security aspects.
Keywords: Consumer Satisfaction (CS), Digital Wallet (DW), Consumer Loyalty (CL)

1. INTRODUCTION

According to (Ford et al. 2017), the digital revolution, also referred to as the fourth industrial revolution, is the most potent transformative force to have struck in recent decades. A significant transition from the offline to the online period characterizes the digital revolution (Wijayanti, et al. 2019). The financial sector has been significantly impacted by the digital revolution. Enterprise offerings, procedures, and services provided by financial industry players have included digital technologies, like digital wallets. According to (Phophalia et al. 2018), a digital wallet is a modern payment method that describes the use of any gadget or internet resource that counts users to categorize digital exchanges. Digital wallets are similar to physical wallets in that they provide quick and safe electronic commerce transactions. Because they are kept in the software within the mobile application, digital wallets are always on the user's end and are compatible. Digital wallet development is growing quickly, matching the rate at which internet users are expanding. The enormous number of people using the internet, particularly those with smartphones, is contributing to the growth of a variety of applications, including start-up companies' digital wallets. Given how commonplace digital wallets are in society, it is imperative to measure consumer loyalty and satisfaction with regard to digital wallet use based on the variables that influence it.

2. LITERATURE REVIEW

2.1 Digital Wallet: According to (Habinsaran et al. 2015), a payment is generally understood to be a transfer of monies intended to cover the cost of products and services. Cash's function in payment systems has evolved due to technological advancements, and non-cash forms of payment are now more effective and affordable (Tarantang, et al. 2019). With a user name and password, users of a digital wallet can conduct a variety of financial activities (Jose, 2019). It's online payment software (Jose, 2019). E-wallet is another name for a digital wallet. (Balan et al. 2009) suggest that it can be useful to conceptualize Using a "digital wallet" device, an application as well as a system. Bank accounts are connected to digital wallets. There may be ID documents on the PC, such as health records, loyalty cards, driver's licenses, and others. People are identified using RFID tags. Qualifications may be wirelessly transmitted to the terminal of a merchant via an RF Module (Illie et al., 2004). Customers can hold money on their phones using Digital Wallets without having a bank account (Shrestha et al., 2020).

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2.2 Consumer Loyalty: Instead of recurring business dealings, Customer allegiance is the attachment a person has to a commodity (Abu-alhaija, et al. 2018). Three dimensions make up the consumer loyalty scale (Bobâlca, et al. 2012). Emotional loyalty in general is referred to as affective loyalty. Conative loyalty is the desire to keep using a specific product, whereas action loyalty describes the readiness to offer a favorable recommendation for a specific product. Numerous studies have been published on the subject of consumer loyalty, particularly as it relates to the use of digital wallets. One such study found that consumer pleasure and trust had an impact on consumer loyalty, which in this case was expressed as the intention to reuse. Meanwhile, perceived security and trust had an impact on consumer loyalty, which was also shown by the intention to reuse (Nelloh, et al. 2019).

2.3 Consumer Satisfaction: As stated by (Fatihudin et al. 2019), consumer satisfaction is calculated by comparing perceived experiences with expectations. Kotler and Keller describe satisfaction in their book Marketing Management as a person's emotion of happiness or disillusionment due to evaluating A product's functionality (result) in comparison to their anticipations (Kotler et al, 2006). Numerous studies have been published on customer satisfaction, particularly as it relates to the usage of digital wallets. Businesses who strive for a high level of client satisfaction are more likely to see greater economic benefits, according to Anderson, (Fornell, and Lehmann 1994). They understand that these financial gains take time to materialize as well. According to (Katzler et al. 1996), a happy customer is more inclined to stick with the business, which suggests steady cash flow in the future. As such, customer satisfaction may serve as a predictor of future business opportunities. According to (Batra et al. 2016), security and privacy were positively important factors toward digital wallet uptake and contentment. This implies that inasmuch as security is strengthened, so will the plan of use and level of satisfaction with digital wallets. According to (Kabir et al. 2017), service quality was employed as an independent variable in their investigation and it was discovered that level of service quality a substantial influence on client contentment.

2.4 Perceived Usefulness: As stated by (Chen et al. 2010), thought to be beneficial refers to the consumers' overall assessment of the usefulness of a product based on their impressions of what they get and what is offered. Perceived usefulness was described by (Davis 1989) as the conviction that one's performance will be improved by employing a distinctive system. Numerous studies have been published on the significance of perceived usefulness on client loyalty and satisfaction. According to (Roy et al. 2014), a user's degree of customer satisfaction is significantly impacted by perceived usefulness. Compared to other pertinent factors revealed in previous studies, the association the relationship between perceived utility and client pleasure is significantly stronger and more stable. People assessed the perceived utility of the outcomes of their actions and made decisions based on how desirable the usefulness was. People should find a digital payment system beneficial even if it is time and location independent.

H1: Perceived Usefulness (PU) of e-payment through digital wallet has a positive influence on Consumer Satisfaction (CS).

2.5 Ease of Use: According to (Kuo et al. 2009), In terms of ease of use, how much An individual thinks utilizing a product will be effortless. Usability is among the things that influences new users' decisions whether to embrace or disregard information technology, according to (Rozi et al. 2019). User-friendliness significantly and favorably impacted how satisfied customers were with using digital wallets. Similar to this, using a digital wallet is positively and significantly impacted by simplicity of use.

H2: Ease of Use (EU) of e-payment through digital wallet has a positive influence on Consumer Satisfaction (CS).

2.6 Transaction Speed : The speed at which information is transferred transferring information between records is sometimes referred to as transaction speed. Should a transaction not be able to finished in the allotted time, the transfer speed is regarded as excessive. One real-world scenario where transaction speed can be taken into account is the wait period following customers' successful online order payments. One element that can make customers more worried is the payment application's transaction speed (R. Anjali et al. 2019). Any digital wallet used by banking development and user experience is affected by the speed of its transactions. According to several earlier studies, Transaction velocity significantly affects how satisfied customers are with digital wallets (N. Jahan et al. 2020). As a thus, the subsequent theory is put forth:

H3: Transaction Speed (TS) of e-payment through digital wallet has a positive influence on Consumer Satisfaction (CS).

2.7 Authentication: Verifying a user's identification in order to make sure that the action being performed is being carried out by a trustworthy and real person is known as authentication. It functions as a disincentive to decrease the probability of identity theft. The OTP code validation required of clients perform provides as a means for them to complete their payment operations excellent example of this. The experience of the customer is greatly Effects of Authentication, and this influences their decision to embrace a digital wallet (C. S. Weir et al. 2009). Given that confidence is a powerful motivator, digital wallet providers need to make sure that pertinent elements like authentication are sufficiently controlled in order to foster consumer trust. As a result, the following theory is put forth:

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H4: Authentication (AT) of e-payment through digital wallet has a positive influence on Consumer Satisfaction (CS).

2.8 Encryption Mechanisms : Data is encrypted become a type of nonsense that cannot be cracked without a special key or system that corresponds in relation to the encryption method. This ensures that hackers or other third parties cannot access the critical information Encryption techniques are frequently unique and specific steps and techniques carried out in turn to encrypt information. Hackers are prevented from accessing. The server system of a financial institution use encryption methods. Therefore, consumers are more confident while making electronic payments thanks to encryption mechanisms (S. Phophalia et al. 2019). Consequently, the theory that follows is put forth:
H5: Encryption Mechanisms (EM) of e-payment through digital wallet has a positive influence on Consumer Satisfaction (CS).

2.9 Security and Privacy : According to (Ennew et al. 2007), perceived security is the capacity to fend off threats that pose a risk of financial harm access information, data, or resources on networks through the devastation, revelation, or data alteration and denial of service, fraud, waste, or misuse. Users, servers, or communication networks may pose such a threat. The data that digital services collect from users is called privacy details. Often included are private details needed for identification and registration processes. In this sense, The ability of users to protect their privacy with digital wallets has a substantial impact on their level of happiness (P. Sarika 2018).

According to (Fatihudin et al. 2019), in the instance of e-commerce, security had a favorable impact on customer satisfaction. Prior research has indicated that consumers' decision to adopt a digital wallet is influenced by the security features of the wallet. As stated by (Batra et al. 2016), Privacy and security were major pluses factors in the adoption of digital wallets and customer satisfaction with them. This implies because as security gets better, so is the plan to make advantage of and the degree of contentment with digital wallets. (Batra et al. 2016) state that respondents' top The safety of financial transactions was a worry. According to (Sardar 2016), the majority among responders said that safety measure was a crucial consideration while completing an internet transaction. This demonstrated that a key element affecting consumer satisfaction with digital wallets was security.

H6: Security and Privacy (SP) of e-payment through digital wallet has a positive influence on Consumer Satisfaction (CS).

2.10 Self-efficacy: Self-efficacy is the conviction that one can complete a task (Chen, et al. 2010). One of the key elements influencing customers' adoption of mobile banking services is their level of self-assurance. Self-assurance is correlated with one's capacity to perform specific tasks and indicates one's degree of assurance in overcoming obstacles, such as utilizing digital wallets for financial transactions (Ford et al., 2017). Numerous Research has been released regarding the effects of self-efficacy on customer satisfaction. Job satisfaction was positively impacted by self-efficacy (Thakur, et al. 2018).
H7: Self Efficacy (SE) of using digital wallet for e-payment has a positive influence on Consumer Satisfaction (CS).

2.11: Service quality: According to (Fogli 2006), The general impression that a consumer has of a business and its offerings is known as service quality superiority or inferiority, as well as their global assessment or attitude toward a specific service. According to (E. E. Izogo et al. 2015), quality is the extent to which an entity meets the needs of its customers. Accordingly, fulfilling client expectations and providing a well-executed assessment that satisfies them constitutes achieving service quality. Superior caliber of goods or services in comparison is the single most significant element influencing customer happiness and competitiveness the business's profitability (Otim 2004). It has also been determined that Customer satisfaction is significantly impacted by service quality.
H8: Service Quality (SQ) of e-payment through digital wallet has a positive influence on Consumer Satisfaction (CS).

2.12: Trust: In a scenario marked by interdependence trust is characterized as an individual's willingness to accept vulnerability based on favorable expectations about the intentions or acts of another (Hatta, et al. 2018). According to (M. Ahmed 2019), trust is a collection of assumptions that consumers have about a good or service according to their past purchases and experiences. A collection of values is connected to the business's and its clients' capacity to rely on one another because of integrity and dependability. Customer trust is also influenced by a company's outward look and the way customers interact with their purchases. Numerous Research has been published regarding the effects of trust on client satisfaction. Trust significantly and favorably impacted how satisfied customers were with using digital wallets. Customers gain confidence in a company's competence and credibility to meet their specifications as well as requests when they trust it (H. Dinçer 2019). Getting the trust of customers results in their contentment, which is advantageous to a firm.

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In summary, earning the trust of customers requires more than just providing goods or services that meet their needs and wants; it also requires a dedication to conducting business in an ethical and consistent manner on their behalf. Through the reciprocal ties that exist in between the organization and its consumers, trust may result in business pleasure. Credibility possesses a major positive impact on client contentment, which increases revenue for the business through recurring business and improves customer-business interaction (A. Pooya 2020).

H9: Trust (TR) in using digital wallet for e-payment has a positive influence on Consumer Satisfaction (CS)

It is evident that customer happiness can be influenced by service quality, since it might encourage customers to make repeat purchases or use the same service. Customer loyalty is a result of recurring purchases (H. Han 2018). A company can build strong client relationships and continuously provide high-quality services. Customer feedback can help businesses enhance any aspect of their services that they may be lacking. In order to compete with its rivals and survive in the market, a company must thus continue to provide high-quality services. Businesses would then be able to guarantee consumer happiness and foster customer loyalty (A. H. Ahmad 2020).

H10: Consumer Satisfaction (CS) from supporting facilities for e-payment system has a positive influence on using Digital Wallet (DW).

H11: Consumer Satisfaction (CS) from supporting facilities for e-payment system has a positive influence on Consumer Loyalty (CL)

H12: User friendly and secure e-payment through Digital Wallet (DW) has a positive influence on Consumer Loyalty (CL)

3. CONCEPTUAL FRAMEWORK

The dependent and independent variables' relationships have been envisioned in the study framework. Figure 1 shows the conceptual framework for the study. Perceived usefulness (PU), ease of use (EU), transaction speed (TS), authentication (AT), encryption mechanisms (EM), security and privacy (SP), self-efficacy (SE), service quality (SQ), trust (TR), consumer satisfaction (CS), digital wallet (DW), and consumer loyalty (CL) are among the influencing and dependent factors that are included in the proposed model (Figure 1). For the purposes of this study, we measured each factor according to the parameters that were considered. Although it makes sense to presume that there is a relationship between all the variables, this study also examines that relationship.

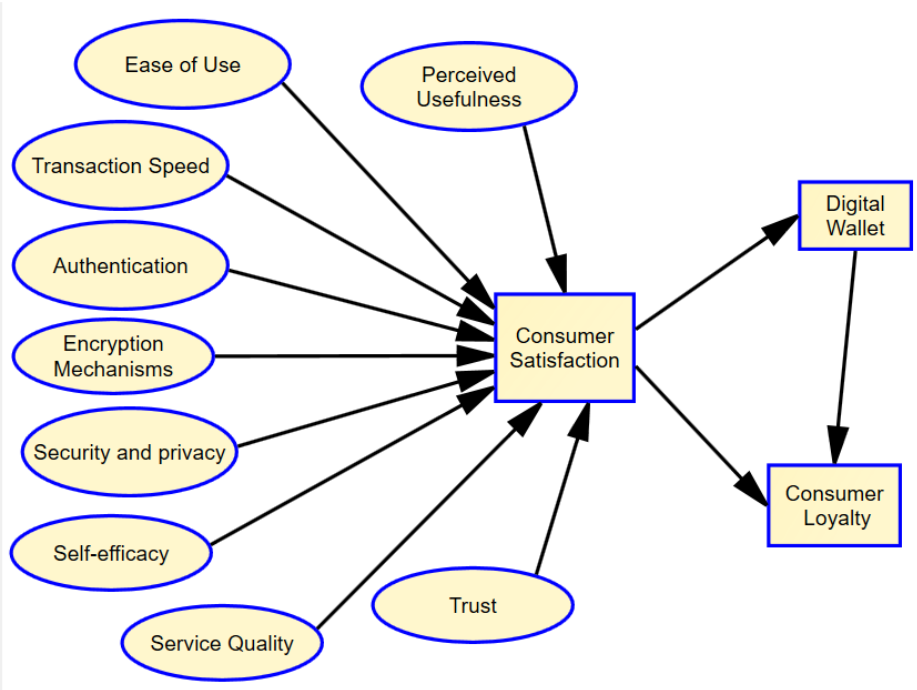

Figure 1: Proposed model showing the relationship between influencing and dependent factors

4. RESEARCH METHODOLOGY

In order to investigate the relationship between independent and dependent variables, this study is explanatory research that uses the quantitative research method to collect data in the appropriate format. Purposive sampling is the sampling

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strategy employed in this study in order to generate a sample that is reasonably presumed to be representative of the population. People with prior e-wallet experience make up the study's sample. There are roughly 600 respondents in total for the representative samples. Data for this study were gathered via an online survey. The questionnaire's list of questions addresses topics including digital wallets, customer loyalty, and satisfaction. A questionnaire with a Likert index scale of 1 to 5 was used in this study. We used IBM SPSS Statistics v.20 for our analyses. Factor analysis, regression analysis, test hypotheses, and Cronbach's alpha were used to assess the reliability of the suggested model and to ascertain the validity of the construct statements.

5. RESULTS AND ANALYSIS

5.1. Demographic Profile

Descriptive demographic statistics, represented as a percentage, proportion, and frequency of occurrence, were used to assess the respondent's demographic characteristics. A methodical questionnaire was used to collect data between April 2022 and May 2023. 526 of the 600 surveys that were given to respondents were found to be completed and error-free in the end. Upon closer examination, 87.67% of responses are considered high quality. The socio demographic data for each person is displayed in Table 1. Out of 526 responders, there were considerably more men (444, 84.4%) than women (82, 15.6%); most men (152, 28.9%) were between the ages of 30 and 39; 220 (41.8%) had a professional degree and earned more than 30,000 rupees (190, 36.1%).

Table 1. Descriptive Statistics of Demographic Profile

		Frequency	Valid %
Gender profile	Male	444	84.4
	Female	82	15.6
Age profile	20-29 years	71	13.5
	30-39 years	152	28.9
	40-49 years	98	18.6
	50-59 years	126	24.0
	60 years and above	79	15.0
Highest education level	Bachelor Degree	65	12.4
	Masters Degree	137	26.0
	Professional Education	220	41.8
	Other	104	19.8
Income	10,000- 20,000	116	22.1
	20,001- 30,000	184	35.0
	30,001- 40,000	190	36.1
	More than 40,000	36	6.8

5.2. Exploratory Factor Analysis

The exploratory factor analysis (EFA) for conforming constructs was carried out using the PCA method. The current study has established a cutoff point of 0.50 for factor loading. Table 2 shows the results of the factor analysis. Values in the range of 0.5 to 1.0 generally indicate the KMO significance of the factor analysis for the data. The Bartlett sphericity test shows how well the variable's items are correlated. The significance level shows the results of the test. The variables most likely have significant relationships with one another when the values are very small (less than 0.05). If the value is more than approximately 0.10, it can mean that the data are not suitable for factor analysis. The results of these two tests point to the suitability of factor analysis given the data collected. Six items with loadings less than 0.5 were finally removed, validating the remaining items for the final analysis.

Table 2. Results of Exploratory Factor Analysis

Variable	Statement	Factor loadings	KMO Measure of Sample Adequacy (>0.5)	Bartlett's Test of Sphericity		Items confirmed	Items dropped	Cum % of loading
				Chi Square	Sig. (<.10)			
Perceived	PU-1	0.901	0.744	970.725	0.000	4	1	55.538
	PU-2	0.730						
	PU-3	0.683						

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Usefulness (PU)	PU-4	0.12						
	PU-5	0.852						
Ease of Use (EU)	EU-1	0.764	0.724	389.276	0.000	4	1	43.145
	EU-2	0.790						
	EU-3	0.27						
	EU-4	0.701						
	EU-5	0.665						
Transaction Speed (TS)	TS-1	0.35	0.856	2282.452	0.000	4	1	70.813
	TS-2	0.924						
	TS-3	0.944						
	TS-4	0.952						
	TS-5	0.924						
Authentication (AT)	AT-1	0.855	0.731	549.004	0.000	4	0	57.550
	AT-2	0.809						
	AT-3	0.529						
	AT-4	0.798						
Encryption Mechanisms (EM)	EM-1	0.949	0.703	6366.571	0.000	5	0	90.240
	EM-2	0.949						
	EM-3	0.950						
	EM-4	0.958						
	EM-5	0.944						
Security and Privacy (SP)	SP-1	0.880	0.830	1707.0860	0.000	5	0	70.695
	SP-2	0.903						
	SP-3	0.883						
	SP-4	0.811						
	SP-5	0.712						
Self Efficacy (SE)	SE-1	0.626	0.670	1205.064	0.000	4	0	67.225
	SE-2	0.863						
	SE-3	0.936						
	SE-4	0.823						
Service Quality (SQ)	SQ-1	0.841	0.771	463.345	0.000	4	1	52.921
	SQ-2	0.731						
	SQ-3	0.36						
	SQ-4	0.675						
	SQ-5	0.859						
Trust (TR)	TR-1	0.665	0.698	1297.300	0.000	4	0	69.908
	TR-2	0.883						
	TR-3	0.941						
	TR-4	0.829						
Consumer Satisfaction (CS)	CS-1	0.894	0.847	1863.375	0.000	5	0	73.031
	CS-2	0.911						
	CS-3	0.894						
	CS-4	0.825						
	CS-5	0.737						
Digital Wallet (DW)	DW-1	0.32	0.857	2289.133	0.000	4	1	71.228
	DW-2	0.931						
	DW-3	0.943						
	DW-4	0.948						
	DW-5	0.922						
Consumer Loyalty (CL)	CL-1	0.774	0.731	406.536	0.000	4	1	43.742
	CL-2	0.797						
	CL-3	0.21						
	CL-4	0.686						
	CL-5	0.676						

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5.3. Reliability Analysis

The reliability of the questionnaire has been determined through the application of Chronbach Alpha to calculate internal consistency. (Nunally et. al.1994) state that new scales should use an alpha value of at least 0.60. If not, an internally consistent established scale is generally considered to have an alpha value of 0.70. Cronbach's alpha was determined to be within an acceptable range, so the study's cutoff value of more than 0.7 was selected. According to Table 3, the overall Cronbach's alpha value of the questionnaire is 0.981, indicating a high degree of reliability for the research tool.

Table 3 : Results of Reliability test

Variable	Cronbach alpha	Variable	Cronbach alpha
Perceived Usefulness (PU)	0.813	Self Efficacy (SE)	0.836
Ease of Use (EU)	0.712	Service Quality (SQ)	0.795
Transaction Speed (TS)	0.954	Trust (TR)	0.855
Authentication (AT)	0.733	Consumer Satisfaction (CS)	0.907
Encryption Mechanisms (EM)	0.973	Digital Wallet (DW)	0.954
Security and Privacy (SP)	0.896	Consumer Loyalty (CL)	0.719
Overall Reliability of the Questionnaire		0.981	

5.4. Correlatıon Analysis

All of the variables appear to have a significant correlation, according to the results of the correlation analysis of independent variables. Based on all the factors considered, there is a significant relationship between the independent and dependent variables (Table 4). CL and PU had the least significant relationship (0.719), while the CL and EU variables had the highest level of correlation (0.985).

Table 4: Correlations

	PU	EU	TS	AT	EM	SP	SE	SQ	TR	CS	DW	CL
PU	1											
EU	.733**	1										
TS	.909**	.821**	1									
AT	.861**	.782**	.897**	1								
EM	.875**	.796**	.914**	.826**	1							
SP	.863**	.805**	.928**	.836**	.946**	1						
SE	.879**	.743**	.918**	.859**	.881**	.889**	1					
SQ	.843**	.813**	.898**	.924**	.863**	.873**	.845**	1				
TR	.861**	.728**	.892**	.828**	.862**	.862**	.961**	.818**	1			
CS	.842**	.785**	.903**	.808**	.913**	.962**	.857**	.847**	.894**	1		
DW	.895**	.809**	.981**	.875**	.903**	.914**	.898**	.883**	.917**	.934**	1	
CL	.719**	.985**	.806**	.769**	.780**	.786**	.731**	.803**	.735**	.798**	.813**	1

**. Correlation is significant at the 0.01 level (2-tailed).

5.5 Regression Analysis

Using stepwise regression analysis, the predictor-criterion relationship between the independent and dependent variables was ascertained. By employing step-wise regression analysis, Tables 5 and 6 demonstrated that the factors under consideration are significant predictors of CS, DW, and CL. Table 5 demonstrates that, with a R square of 0.988, these variables explain 98.80% of the CS. The regression model's ANOVA values are shown in Table 6, and they show validation with a 95% confidence level. The coefficient summary in Table 7 shows the beta values of all factors to be 0.934, 0.798, and 0.813, which is a reasonable representation of their influence on DW and CL.

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Table 5 : Regression analysis

Model	Predictors	Dependent variable	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	PU, EU, TR, AT,SP,SQ, EM,TS,SE	CS	0.988	0.977	0.976	0.13727
2	CS	DW	0.934	0.873	0.872	0.34896
3	CS	CL	0.798	0.637	0.636	0.44084
4	DW	CL	0.813	0.661	0.661	0.42571

Table 6 : ANOVA analysis

Model	Predictors	Dependent variable		Sum of Squares	df	Mean Square	F	Sig.
1	PU, EU, TR, AT,SP,SQ ,EM,TS,S E	CS	Regression Residual Total	405.525 9.723 415.247	9 516 525	45.058 0.019	2391.350	0.000
2	CS	DW	Regression Residual Total	437.569 63.809 501.378	1 524 525	437.569 0.122	3593.294	0.000
3	CS	CL	Regression Residual Total	178.540 101.832 280.372	1 524 525	178.540 0.194	918.715	0.000
4	DW	CL	Regression Residual Total	185.407 94.966 280.372	1 524 525	185.407 0.181	1023.032	0.000

Table 7: Regression coefficients table for dependent variables

Model		Dependent variable	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
			B	Std. Error	Beta		
1	PU	CS	0.011	0.019	0.010	0.586	0.008
2	EU	CS	0.008	0.016	0.006	0.480	0.001
3	TS	CS	0.044	0.025	0.047	1.788	0.004
4	AT	CS	0.020	0.023	0.018	0.865	0.007
5	EM	CS	0.054	0.021	0.059	2.562	0.001
6	SP	CS	0.962	0.025	0.930	38.037	0.000

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7	SE	CS	0.801	0.031	0.754	26.247	0.000
8	SQ	CS	0.032	0.023	0.029	1.381	0.008
9	TR	CS	0.845	0.025	0.821	33.295	0.000
10	CS	DW	1.027	0.017	0.934	59.944	0.000
11	CS	CL	0.656	0.022	0.798	30.310	0.000
12	DW	CL	0.608	0.019	0.813	31.985	0.000

5.6. Results of Hypotheses Testing

In the conceptual research framework, 12 hypotheses were initially proposed and out of them, as shown in table 8, all have been accepted.

Table 8: Summary of Hypotheses Testing

Hy. No.	Independent Variables	Dependent Variables	R-Square	Beta Coefficient	t-value	Sig Value	Status of Hypotheses
H1	PU	CS	0.977	0.010	0.586	0.008	Accepted
H2	EU	CS	0.977	0.006	0.480	0.001	Accepted
H3	TS	CS	0.977	0.047	1.788	0.004	Accepted
H4	AT	CS	0.977	0.018	0.865	0.007	Accepted
H5	EM	CS	0.977	0.059	2.562	0.001	Accepted
H6	SP	CS	0.977	0.930	38.037	0.000	Accepted
H7	SE	CS	0.977	0.754	26.247	0.000	Accepted
H8	SQ	CS	0.977	0.029	1.381	0.008	Accepted
H9	TR	CS	0.977	0.821	33.295	0.000	Accepted
H10	CS	DW	0.873	0.934	59.944	0.000	Accepted
H11	CS	CL	0.637	0.798	30.310	0.000	Accepted
H12	DW	CL	0.661	0.813	31.985	0.000	Accepted

7. DISCUSSION

The study found that **perceived usefulness** of digital wallet has significant positive relationship with customer satisfaction, according to research findings (H1; R-square = 0.977; beta coefficient = 0.010; t-value = 0.586). This outcome aligns with the research conducted by (Vinitha et al 2018), who discovered a noteworthy correlation between customer satisfaction and the perceived usefulness of digital wallets. According to (Mun et al. 2017), consumers' behavioral intention to use digital wallets was primarily influenced by perceived usefulness. The intention to use an e-wallet was found to be significantly influenced by perceived usefulness and attitude, as reported by (Kumar et, al. 2021).

The empirical investigation of hypothesis 2 revealed a significant positive correlation (R-square = 0.977; Beta coefficient = 0.006; t-value = 0.480) between **Ease of Use (EU)** and Consumer Satisfaction (CS). According to (Putri et al. 2018), ease of use had a positive and significant impact on consumer satisfaction towards the use of the Go-Pay digital wallet. Research on the relationship between ease of use and customer satisfaction as well as customer loyalty has been widely published. According to numerous studies (de Luna et al., 2019); (Madan et, al. 2018), consumers' convenience with digital wallets has been extensively examined, and the findings have shown how user-friendliness dictates continued usage. Easy to use products have been shown to improve customers' long-term satisfaction (Singh et al., 2020).

Independent analysis of the relationship between **Transaction Speed (TS)** and Consumer Satisfaction (CS) revealed a significant positive relationship between the two constructs. This result (R-square = 0.977; beta coefficient = 0.047; t-value = 1.788) is consistent with Hypothesis 3. (Anjali and Suresh 2019) posit that the transaction speed of a

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payment application can heighten consumer apprehensions and impact the advancement and contentment of digital wallet technology in banking. It has been discovered by numerous researchers that transaction speed has a significant impact on how satisfied customers are with digital wallets (Ling et al. 2016; (Ahmadinejad, 2019)The results imply that if a digital wallet system has a high transaction speed, academics and students are more likely to use it. Additionally, a faster transaction speed will allay users' concerns about security. Fast online money transfers, according to users, increase the security of digital e-wallet platforms.

Most notably, R square = 0.977, beta coefficient = 0.018, t-value = 0.865, and results (hypotheses 4) show that **Authentication (AT)** has a significant positive impact on Consumer Satisfaction (CS). Consumer experience is greatly impacted by authentication, and this influences their decision to adopt a digital wallet (Duy Phuong et al., 2020); (Cheah et al., 2021). Since customer confidence is a major determining factor, digital wallet providers need to ensure that pertinent elements like authentication are sufficiently regulated (Bhatt, 2020). This result demonstrates how the user's digital wallet account authentication procedure affects how satisfied customers are with the digital wallet system. Users of digital wallets think that user authentication improves security and deters scammers.

A significant positive correlation (R-square = 0.977; Beta coefficient = 0.059; t-value = 2.562) was found between **Encryption Mechanisms (EM)** and Consumer Satisfaction (CS) in the empirical investigation of hypothesis 5. Encryption techniques stop hackers from accessing a financial institution's server system, claim (Duy Phuong et al. 2020). Encryption techniques so boost customer confidence when making electronic payments. Customers are worried about accepting or rejecting digital wallet services with encryption mechanisms, according to (Phophalia et al. 2018). This is because they think that a robust encryption mechanism will prevent user information from being hacked or misused while using a digital wallet.

The independent study shows that the two constructs of **Security and Privacy (SP)** and Consumer Satisfaction (CS) have a positive correlation (R-square = 0.977; beta coefficient= 0.930; t-value= 38.037). This result corroborates Hypothesis 6. The outcome agrees with Malkani et. al. 2019) (Subaramaniam et al.'s 2020) conclusions that security and privacy have the greatest impact on customer satisfaction. According to (Fatihudin et.al. 2019), when it comes to e-commerce use in Indonesia, security has a favorable impact on customer satisfaction. In the meantime, (Nelloh et al. 2019) claimed that security, specifically for Indian users of digital wallets, had a major impact on consumer loyalty as indicated by intention to reuse.

Self-Efficacy (SE) have a significant positive relationship with Consumer Satisfaction (CS), according to research findings (H7; R-square = 0.977; beta coefficient = 0.754; t-value = 26.247). (Rozi et al. 2019) found that while self-efficacy did not have a positive impact on loyalty, it did have a positive effect on customer satisfaction. According to (Thakur 2018), self-efficacy significantly impacted customer loyalty as indicated by recommendations and intention to reuse, particularly when it came to using online shopping apps.

The empirical investigation of hypothesis 8 revealed a significant positive correlation (R-square = 0.977; Beta coefficient = 0.029; t-value = 1.381) between **Service Quality (SQ)** and Consumer Satisfaction (CS). The outcome supports the conclusions of (Otim 2004) (Fainusa et al. (2019), who found a positive correlation between customer satisfaction and service quality. It is evident that customer satisfaction can be influenced by service quality, as it can encourage customers to make repeat purchases or use the same service. Customer loyalty is a result of recurring purchases (Han et al., 2018). Great relationships with customers can be built and high service quality can be consistently implemented in a business, claim. Customer feedback can help businesses improve any aspect of their services that they may be lacking. In order to compete with its rivals and survive in the market, a company must thus continue to provide high-quality services. Businesses would be able to guarantee customer satisfaction, foster customer loyalty, and retain customers with that.

Independent analysis of the relationship between **Trust (TR)** and Consumer Satisfaction (CS) revealed a significant positive relationship between the two constructs. This result (R-square = 0.977; beta coefficient = 0.821; t-value = 33.295) is consistent with Hypothesis 9. According to (Al-Momani 2010), in the context of digital wallets and e-commerce, trust had a favorable and significant impact on customer loyalty. Gaining the trust of customers requires more than just providing goods and services that meet their needs and wants, according to (Hassan et al. 2020). It also requires a commitment to conducting business in an ethical and consistent manner on behalf of the clientele. Through the mutually beneficial relationships between the business and its customers, trust can result in satisfied customers. Trust has a major positive impact on customer satisfaction, which increases revenue for the business through recurring business and improves customer engagement (Pooya et al., 2020).

Most notably, R square = 0.873, 0.637 and0.661; beta coefficient = 0.934, 0.798 and 0.813; t-value = 59.944, 30.310 and 31.985 and results (hypotheses 10, 11 and 12) show that **Consumer Satisfaction (CS)** has a significant impact on **Digital Wallet (DW) and Consumer Loyalty (CL).** It is evident that trust, security, and privacy rank highest among the nine factors that have an impact on customer satisfaction. Therefore, in order to boost customer satisfaction without burdening the business further, digital wallet development companies must devise an ideal strategy (cost). There has been a lot of research published on customer loyalty, particularly as it relates to the use of digital wallets (Javed and

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Cheema, 2017;) Hatta et al., 2018). According to (Dlodlo 2014), consumer trust and satisfaction, as well as security and privacy, all have an impact on consumer loyalty.

Customer satisfaction has the highest level of significance among the factors that affect customer loyalty (t-values = 59.944). In general, consumer satisfaction is measured by physical factors, assurance, responsiveness, consistency, and empathy. It is defined as the difference between the experiences that the customers had and their expectations. Thus, in order to boost customer loyalty, digital wallet development companies must continuously enhance the quality of their goods and services (Abu-alhaija et al., 2018; Bobâlcłа et al., 2012). Enhancing the quality of the product or service in question can take many different forms, such as having an eye-catching user interface, services that meet customer needs, consistent transaction speeds, accessibility from anywhere at any time, and features that allow customers to leave feedback.

8. CONCLUSION

This study has suggested a nine-factor security framework that affects digital wallet user satisfaction. All of the research's suggested factors, in the end, significantly improve customer satisfaction. The information offered has the greatest impact on user satisfaction with digital wallets, according to the analysis; trust, security and privacy, authentication, transaction speed, and encryption technologies are the next most important factors. For this reason, the development of the digital wallet market depends on modified information security management concepts. Since they enable convenient and cashless daily transactions, digital wallets have become more and more popular in recent years. Digital wallets handle payments and transactions, but there hasn't been much research on how to build digital wallet payment systems that take security considerations into account. If security aspects are not fully understood, the digital wallet market's advancement could be hindered. The specific security elements required by financial technology companies are better understood thanks to this research. In terms of digital wallet payment methods, this study finds new security factors that impact customer happiness. The elements have not been examined in earlier studies. The theoretical literature on digital wallet payments has thus benefited greatly from this study.

For the rapidly expanding digital wallet market, customer satisfaction is critical to its future. Security for digital wallets needs to be improved to combat new scammers and hackers. The findings of this study can help digital wallet providers improve customer satisfaction with their products by strengthening system security and concentrating on important security aspects. Furthermore, by taking into account the variables suggested in this study, future researchers wishing to investigate this field can benefit from this work. This suggests that users actually desire an e-wallet application that opens and operates immediately, that does not crash, that does not freeze pages after order information is entered, and that allows them to access e-wallet services from anywhere at any time.

9. RECOMMENDATION

To satisfy their consumers, digital service providers should place a high priority on the speed and customer security & privacy at which users can complete tasks, the variety of payment options available, and the increased control over payment tasks. It should take into account creating an intuitive platform to uphold customer satisfaction and preserve consumer data, keep login credentials for monetary exchanges, and put in place a safe system to ward against fraud and other financial hazards. In order to keep consumers happy, digital wallet service providers must maintain and improve system availability, allowing users to access the program at all times and from any location. When conducting transactions, they ought to uphold user trust in order to keep consumers' perceptions of risk low.

10. SUGGESTIONS FOR FURTHER RESEARCH

Demographic variables that serve as moderators in further study may include age, place of residence, occupation, and educational attainment. Qualitative research methods can be applied in future studies by conducting in-depth interviews with specific respondents. It is anticipated that the application of qualitative approaches will be able to determine whether the findings of this study differ or whether they will be corroborated by future empirical research. With the variables this study has looked at, more research can be done in other areas or nations.

11. LIMITATIONS

There are numerous other factors that influence customer satisfaction, but the variables that impact it in this study are limited to a small number of variables. There are no direct surveys or offline questionnaires used in the data collection process for this study. The only way to obtain data sources is by means of an online questionnaire.

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