International Journal of Applied Science and Engineering

Trust-integrated technology acceptance model for enhancing eHealth adoption: Insights from Indonesia

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ABSTRACT

eHealth, a product of the advancement of information and communication technology (ICT), cannot be disregarded in the era of Industry 4.0, especially during and after the COVID-19 pandemic. However, eHealth adoption highly depends on trust, specifically the acceptance of eHealth technologies. This study aims to build and validate a trust-integrated technology acceptance model for eHealth in Indonesia. Data were collected using an online questionnaire, resulting in 552 responses from the three largest cities in Indonesia: Yogyakarta, Bandung, and Surabaya. Structural equation modeling (SEM) was used to test the model. This study found that reliability was the most significant factor in gaining users' trust in eHealth services. Additionally, trust, perceived usefulness, perceived ease of use, resistance to change, and purchase intention significantly influenced the intention to use eHealth services. These insights can contribute to the design of strategies and policies for improving the eHealth system in Indonesia.

Keywords: eHealth, Structural equation modeling, Technology acceptance, Trust.

OPEN ACCESS

Received: June 21, 2023
Revised: January 27, 2024
Accepted: February 26, 2024

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Publisher:
Chaoyang University of Technology
ISSN: 1727-2394 (Print)
ISSN: 1727-7841 (Online)

1. INTRODUCTION

The recent COVID-19 pandemic has brought about a transformative shift in healthcare delivery, moving away from traditional face-to-face visits towards utilizing electronic health (eHealth) resources, which leverage Internet-based technologies. eHealth facilitates communication between patients and healthcare professionals without the need for physical in-person consultations within a medical facility. This shift towards eHealth is applicable across various levels of healthcare, ranging from individual patient interactions to hospital settings. It encompasses various applications, including healthcare services, health monitoring, and education (Zayyad and Toycan, 2018). Moreover, eHealth plays a pivotal role in achieving global health objectives, as outlined by the World Health Organization (WHO, 2016). It contributes to the promotion of healthy lives and the advancement of well-being across all age groups. This is realized through convenient access to health information, e-consultations, real-time monitoring of health parameters, e-prescriptions, and efficient sharing of clinical data to enhance the quality of health services. The surge in virtual interactions during the COVID-19 pandemic underscores the significance of eHealth in achieving these goals, particularly with the growing adoption of health information exchanges. Consequently, the study of trust and acceptability of eHealth applications has garnered substantial attention in recent years (Hutchings et al., 2020; Buhr et al., 2022). This heightened interest is predominantly fueled by the expanding reliance on Health Information Exchanges and

increased reliance on virtual interactions necessitated by the COVID-19 pandemic.

Although eHealth offers numerous advantages, including its potential to improve the quality of healthcare services (Wernhart et al., 2019; Yaacob et al., 2019), its utilization is currently limited, particularly in developing countries such as Indonesia. One of the reasons for the limited adoption of eHealth in Indonesia is user trust (Alviani et al., 2023). One study found that people still trust their general practitioners and prefer direct consultations to online methods (Kim, 2016). The internet's risk issue, particularly regarding the possible exploitation of confidential health data, is why some people prefer face-to-face consultations (Li et al., 2016).

Trust is a crucial factor that contributes to the success of eHealth implementation. It reflects an individual's cognitive state and is influenced by various factors, such as the credibility of the health content generated by users and the source of information (Tlach et al., 2016). Li et al. (2016) conducted a comprehensive analysis of the factors that influence trust in health information websites. Their findings revealed that the most frequently studied factors in prior research were socio-demographics, information quality, perceived popularity, and website design. Another study focused on the factors affecting the development of trust in eHealth, specifically security and interoperability. Zayyad and Toycan (2018) found that perceived usefulness, willingness, attitude, literacy, and policies significantly impacted trust in and intention to adopt eHealth. Despite the many studies conducted on eHealth, there is still a need for a consensus regarding the factors that affect the development of trust in eHealth.

One reason for the different factors identified in developing trust in eHealth is that existing studies have been conducted in different cultural backgrounds. This aligns with the cultural theory of Douglas (2002), who states that trust is highly influenced by individual risk perception, where an individual's risk perception depends on their cultural background. For example, Tlach et al. (2016) conducted a study about the acceptance of e-mental health in Germany. They found that it was affected by perceived ease of use, perceived usefulness, attitude toward using, and perceived trust. Another study in Italy found that age, education, and level of satisfaction with eHealth significantly affect people's trust in eHealth (De Rosis and Barsanti, 2016). Paige et al. (2017) conducted a study in the US and reported a different result, finding that trust in eHealth is significantly affected by the level of individual eHealth literacy.

While numerous studies have examined the trust construct in eHealth, most have focused on identifying factors that negatively and positively influence trust in eHealth. Kim (2016) is perhaps the most comprehensive study on the antecedents of trust in eHealth, but it only considered health information websites, which are just one type of eHealth. It did not evaluate the effect of the antecedents or the magnitude of their effects. Furthermore, the study did not relate trust antecedents to the technology acceptance model.

The technology acceptance model (TAM) is widely used in technology adoption models, particularly in the healthcare domain, by various stakeholders, including healthcare customers and providers (van Velsen et al., 2018). Traditional TAM comprises two main elements: perceived ease of use and perceived usefulness (Tavares and Oliveira, 2016). Hoque et al. (2017) stated that these two main aspects simultaneously affect behavioral intention to use technology. Despite the significant advantages of utilizing the conventional TAM method to assess an individual's "attitude toward using," it is not designed to consider trust as a crucial construct that influences use. The two primary components of TAM cannot capture the complexities of trust-related factors. Therefore, exploring alternative approaches that can effectively incorporate trust as a critical component in assessing user behavior is essential. Therefore, it is important to conduct a study to develop a new model that considers trust in eHealth to develop a better model that can depict users' trust in and acceptance of the newly introduced eHealth technology.

A previous study by Trapsilawati et al. (2019) attempted to develop a trust-integrated technology acceptance model for eHealth (Fig. 1). In their study, authors presented a systematic literature analysis examining trust factors in eHealth implementation. A meta-analysis found that personal, system, and interaction factors can affect eHealth trust. However, the authors only used a meta-analysis method to develop the model in this study. Therefore, to validate the initial model developed by Trapsilawati et al. (2019), this study aimed to develop an empirically supported trust model for eHealth systems.

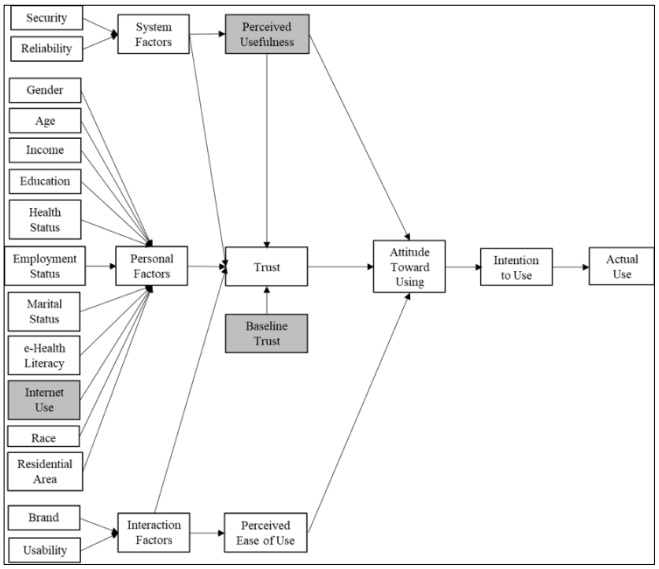


Fig. 1. The trust-integrated technology acceptance model adopted by Trapsilawati et al. (2019)

2. MATERIALS AND METHODS

2.1 Questionnaire Development

A questionnaire was developed to measure respondents' trust in eHealth to achieve the study objectives. The questionnaire items were constructed using 20 variables and 60 items, as presented in Table 1, along with existing references utilized in their development. Each item in the questionnaire was answered using a 5-point Likert scale, ranging from "strongly disagree" to "strongly agree." The questionnaire was delivered in Indonesian.

The conceptual model proposed in this study was adapted from the trust-integrated technology acceptance model (TAM) suggested by Trapsilawati et al. (2019), with some modifications of the perceived ease of use, perceived usefulness, and trust constructs based on the recommendations of Dou et al. (2017) and Zheng et al. (2017). Modifications based on Dou et al. (2017) included considering the patient's relationship with their doctor, resistance to change, and previous user experience. These factors may be related to one another, as well as to perceived ease of use and perceived usefulness. Modifications based on Zheng et al. (2017) further explored trust as a construct.

Table 1. The variables of trust-integrated technology acceptance for eHealth

Variable	Adopted from
Health status	Ye (2011)
eHealth literacy	Hove et al. (2011)
Security	Hoque et al. (2017); Zayyad and Toycan (2018)
Perceive usefulness	
Perceive of ease of use	Dou et al. (2017); Hoque et al. (2017)
Brand awareness	Zheng et al. (2017)
Interpersonal trust	
Organizational trust	
Purchase intention	
Price sensitivity	
Behavioral control	Hoque et al. (2017)
Intention to use	
Actual use	
Reliability and availability	Parasuraman and Riley (1997)
Baseline trust in a commercial website	Hove et al. (2011)
Social influence	Dou et al. (2017)
Usage experience	
Resistance to change	
Relationship with doctor	

2.2 Hypothesis Development

Patients who have a strong bond with their healthcare provider, such as a doctor, are more inclined to regularly assess their health status (Dou et al., 2017). It has been determined that such patients are more likely to recognize the benefits and practicality of utilizing eHealth for communication and less inclined to be resistant to using eHealth. Thus, previous usage experience is a precursor to perceived ease of use. Furthermore, Dou et al. (2017) considered how previous usage experience might affect one's perspective of new technology. Therefore, we hypothesized as follows:

H1: Relationship with a doctor (RWD) is negatively correlated with resistance to change (RTC)
H2: A positive correlation between relationship with a doctor (RWD) and perceived ease of use (PEU)
H3: A positive correlation between the relationship with a doctor (RWD) and perceived usefulness (PU)
H4: Usage experience (UE) is positively correlated with perceived ease of use (PEU)

The contribution of security to trust in and use of eHealth has varied in previous studies, leaving room for future research. The present study agrees with Prgomet et al. (2009) that security should be considered an important issue in increasing trust in eHealth. Wilkowska and Ziefle (2011) reported predictive security and privacy attributes for the perceived usefulness of eHealth, acknowledging that security affects trust. Guo et al. (2013) found that resistance to change significantly and negatively influenced perceived usefulness. This study also considered the link between the TAM model's two primary constructs: perceived ease of use and perceived usefulness. Patients who feel that eHealth technology is easy to use are more likely to find it helpful (Dou et al. 2017). Thus, we proposed the following hypothesis:

H5: The relationship between security (SE) and perceived usefulness (PU) is positive
H6: Reliability (RA) positively correlates with perceived usefulness (PU)

H7: Resistance to change (RTC) negatively correlates with perceived usefulness (PU)
H8: Perceived ease of use (PEU) positively correlates with perceived usefulness (PU)

As well as an original TAM, in this study, we attempted to develop the trust construct, particularly in an eHealth context, by examining its possible antecedents. Those antecedents are health status, eHealth literacy, behavioral control, baseline trust, social influence, organizational trust, brand awareness, and perceived usefulness. Health status is considered an antecedent of trust in eHealth because empirical evidence has shown that people who perceive an excellent health status tend to trust health websites. In contrast, people who are not in good health tend to rely on their healthcare professionals (Bansal et al., 2010). On the other hand, according to previous research by Paige et al. (2017), eHealth literacy was also positively associated with perceived trust in eHealth. Zheng et al. (2017) suggested that perceived behavioral control is essential to trust between patients and doctors. This is because the 'buying' decision ultimately lies with the patients. For example, they can trust the doctor if they know they have control over the prescription purchase decision, yet they still choose to follow their doctor's prescription. Another proposed antecedent of trust in this study is baseline trust in other commercial websites, which was among the factors with the highest effect in a meta-analysis by Trapsilawati et al. (2019). Organizational reputation in a healthcare setting, which in this study is specific to eHealth, leads customers to perceive the organization as trustworthy (Barney and Hansen, 1994; Rindova et al., 2005). Zheng et al. (2017) also proposed brand awareness as an antecedent to trust, as specific attributes associated with a brand from the user's perspective may lead them to trust the brand. Moreover, Zheng et al. (2017) suggested that brand awareness and trust will lead to purchase intention. In a meta-analysis study, Trapsilawati et al. (2019) found that perceived usefulness has a more significant effect than other factors, further emphasizing the need for eHealth technology to be helpful to gain users' trust.

H9: Health status (HS) is positively associated with trust (IT)
H10: eHealth literacy (EHL) is positively associated with trust (IT)
H11: Behavioral control (BC) is positively associated with trust (IT)
H12: Baseline trust (BT) is positively associated with trust (IT)
H13: Social influence (SI) is positively associated with trust (IT)
H14: Organizational trust (OT) is positively associated with trust (IT)
H15: Brand awareness (BA) is positively associated with trust (IT)
H16: Perceived usefulness (PU) is positively associated with trust (IT)
H17: Trust (IT) is positively associated with purchase intention (PI)
H18: Brand awareness (BA) is positively associated with purchase intention (PI)

Previous research has established that trust can impact customer behavior, including the willingness to purchase a company's goods or services (Chaudhuri and Holbrook, 2001). Accordingly, trust in the eHealth provider, defined in this study as the patient's trust in the organization, is expected to motivate patients to follow treatment recommendations. Typically, the intensity of a consumer's response to a price change can determine their price sensitivity. In healthcare contexts, several studies have demonstrated that price sensitivity does influence the consumer's decision to purchase healthcare services (Magno and Guzman, 2019; Mannan et al., 2019). Hence, we hypothesize the following:

H19: Organizational trust (OT) is positively associated with purchase intention (PI)
H20: Price sensitivity (PS) is negatively associated with purchase intention (PI)

A study by Bhattacherjee and Hikmet (2007) found that resistance to change negatively influences behavioral intention. As people attempt to maintain their current behavior, there is a lower chance that they will be motivated to use eHealth. Therefore, we hypothesize that:

H21: Resistance to change (RTC) is negatively associated with the intention to use (ITU)
H22: Perceived ease of use (PEU) is positively associated with the intention to use (ITU)
H23: Perceived usefulness (PU) is positively associated with the intention to use (ITU)
H24: Trust (IT) is positively associated with the intention to use (ITU)
H25: Purchase intention (PI) is positively associated with the intention to use (ITU)
H26: The intention to use (ITU) is positively associated with actual use (AU)

Before distributing the questionnaire, a pilot study was administered to assess the face and content validity of the instrument. Two pilot respondents evaluated the instrument's appearance and layout, logical flow, and terminology to identify any possible typographical and grammatical errors from a layperson's perspective, which tested the face validity. Four pilot respondents, including two cognitive ergonomics lecturers/researchers and two medical practitioners, assessed the instrument's content validity. The feedback provided by the respondents in both assessments was reviewed, and revisions were made to the instrument. In addition to qualitative feedback, validity, and reliability tests were also conducted to ensure the quantitative validity of the questionnaire.

2.3 Data Collection

After the questionnaire had been validated both qualitatively and quantitatively using purposive sampling, it was distributed online to 552 participants in three different regions in Indonesia, namely Yogyakarta, Bandung, and Surabaya. These cities were selected based on their

economic, educational, cultural, and technological significance, providing a rich context for understanding eHealth in major urban centers on Java Island.

2.4 Statistical Data Analysis

Validity and reliability tests were conducted before the main statistical data analysis to ensure that each questionnaire item accurately measured the designated constructs from the proposed conceptual model. Based on the validity test, three items measuring behavioral control (BC3), social influence (SI3), and relationship with doctor (RWD3) were found to be invalid. The reliability test was conducted to determine the internal consistency of the questionnaire. The 0.7 Cronbach's Alpha cut-off value was used to determine a construct's reliability; however, for constructs with fewer than ten items, achieving 0.7 may be difficult, and suggested 0.5 as the cut-off value for such constructs. Since the questionnaire used in this study consists of only 3–5 items per construct, 0.5 was used as the cut-off value for the reliability test. However, these values could be improved by removing the items that limit the reliability of their respective constructs (RA3, BT2, SI3, and RWD3). Thus, five items were removed from the measurement model to obtain a higher reliability test. The final data were analyzed using structural equation modeling (SEM) and maximum likelihood estimate (MLE). Before calculating the coefficient value, the measurement model was first examined to ensure that the empirical data and hypotheses were acceptable by calculating the Chi-square degree, the root mean square error of approximation (RMSEA), and the standardized root mean square residual (SRMR) were employed to examine the measurement model. All statistical analyses were performed using free analysis software named JASP (JASP-Team, 2018) to develop and validate a model of trust-integrated technology acceptance for eHealth, as was initially created by Trapsilawati et al. (2019).

Table 2. Respondents' descriptive statistics

Variables	N	%	Variables	N	%
City			Monthly income (in IDR)		
Bandung	184	33.3	< 1,500,000	208	37.7
Surabaya	177	32.1	1,500,000 – 2,500,000	115	20.8
Yogyakarta	191	34.6	2,500,000 – 3,500,000	68	12.3
Gender			> 3,500,000	161	29.2
Male	222	40.2	Marital status		
Female	330	59.8	Single	398	72.1
Age (years)			Married	154	27.9
17–25	340	61.6	Internet user		
25–35	151	27.4	Yes	551	99.8
36–45	11	2.0	No	1	0.2
46–55	50	9.1	Daily internet usage		
Job status			< 30 minutes	11	2.0
Working	251	45.5	30 minutes – 1 hour	36	6.5
Housewife	30	5.4	1 – 3 hours	84	15.2
Student	265	48.0	3 – 5 hours	117	21.2
Unemployed	6	1.1	5 –7 hours	114	20.7
Ethnic group			7 – 9 hours	63	11.4
Javanese	372	67.4	> 9 hours	127	23.0
Sundanese	73	13.2	Devices used for Internet purposes		
Mining	37	6.7	Computer	134	24.3
Melayu	3	0.5	Laptop	403	73.0
Others	67	12.1	Handphone	544	98.6
Education			Tablet	52	9.4
Elementary school	2	0.4	Purpose of using the Internet		
Junior High school	2	0.4	Communication platform	516	93.5
Senior High school	317	57.4	Daily information source	473	85.7
Undergraduate/Bachelor	198	35.9	Entertainment	470	85.1
Graduate/Master	33	6.0	Education	350	63.4
			Job	269	48.7

3. RESULTS AND DISCUSSION

3.1 Profile of Respondents

The data of this study were collected using an online survey completed by citizens of the three main cities in Indonesia: Bandung, Surabaya, and Yogyakarta. A total of 552 respondents completed the survey. The descriptive statistics of respondents' profiles are depicted in Table 2. Most respondents were female (59.8%), aged between 17–25 years (61.6%), students (48.0%), Javanese (67.4%), with a senior high school diploma (57.4%), a monthly income of fewer than 1,500,000 Rupiahs (37.7%), and single (72.1%). The respondent profiles observed in this survey results can be attributed to the nature of online platforms used in this study and the inherent biases of online research methods. Almost all of the respondents (99.8%) were internet users who use the internet for purposes such as communication (93.5%), a daily information source (85.7%), entertainment (85.1%), education (63.4%), and work (48.7%). Their total daily internet usage (in hours) varied, but 23% used the internet for more than 9 hours a day. Although only 44% of the respondents had used some eHealth application on the previous occasion, 73% of them were aware of eHealth.

3.2 Measurement Model

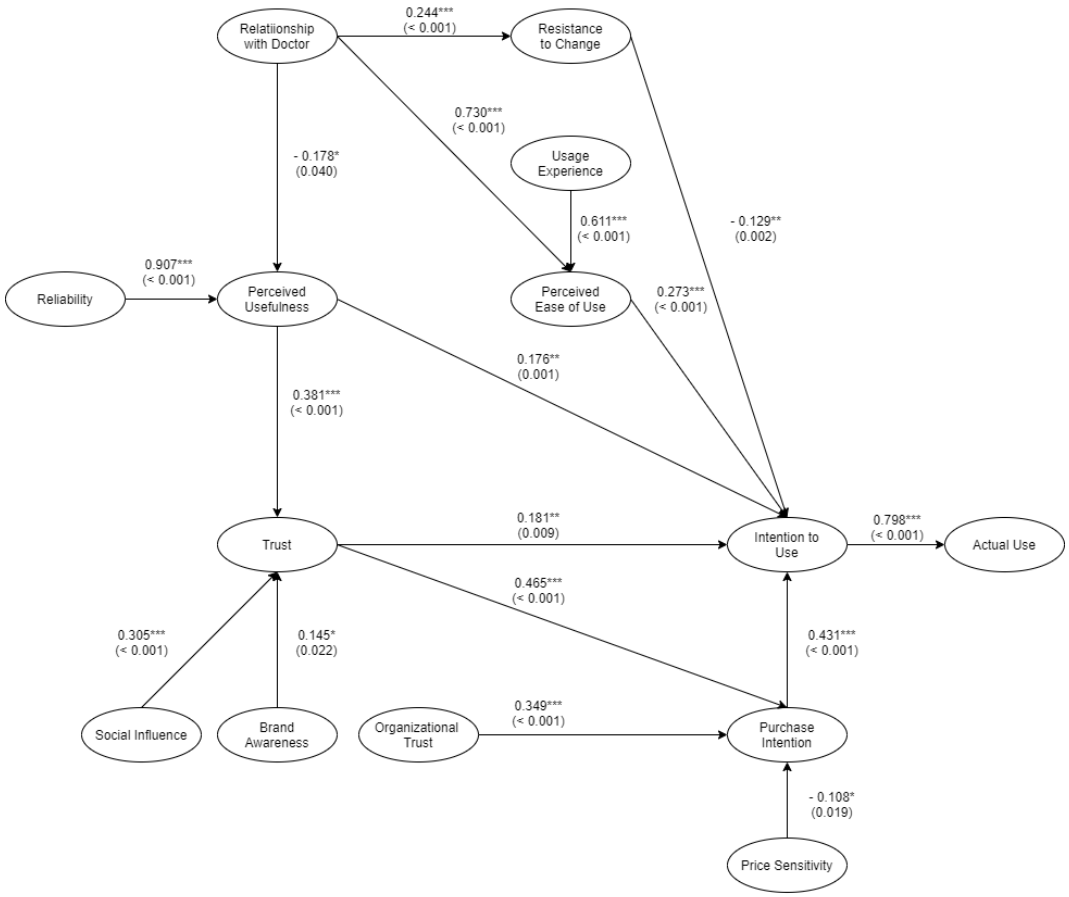
Before calculating the coefficient value, the measurement model was first examined to ensure that the empirical data and hypotheses were acceptable by calculating the Chi-square degree, the RMSEA, and the SRMR. The results were a Chi-square degree of 2.43 and RMSEA and SRMR values of 0.051 and 0.056, respectively; these values indicate that the model is sufficiently fit (Hair et al., 2014). The overall model fit criteria are given in Table 3.

Table 3. Measurement model

Fit indices	Specification	Result
χ^2/df	≤ 3	2.43
RMSEA	≤ 0.07	0.051
SRMR	≤ 0.08	0.056

3.3 Structural Model and Hypothesis Testing

Fig. 2 presents the SEM result and the standardized regression weights obtained from JASP. The goodness-of-fit indices in Table 4 show that the structural model sufficiently fits the data.



Note: ** p < 0.01 * p < 0.05

Fig. 2. Trust-integrated TAM model to predict trust towards eHealth system in Indonesia

Table 4. Regression model

Fit indices	Specification	Result
χ^2/df	≤ 3	2.69
RMSEA	≤ 0.07	0.056
SRMR	≤ 0.08	0.069

Table 5 shows that most of the paths between the constructs are statistically significant, as their *p*-values are < 0.05. However, that is not the case with H5, H7, H8, H9, H10, H11, H12, H14, and H18, as their *p*-values are higher than the significance level of 0.05. Thus, 17 out of 26 initial hypotheses are confirmed, while the remaining nine are rejected.

Table 5. Hypothesis result summary

Path	p-value	Std (all)	Hypothesis result
RTC – RWD	< 0.001	0.244	Supported
PEU – RWD	< 0.001	0.730	Supported
PU – RWD	0.040	-0.178	Supported
PEU – UE	< 0.001	0.611	Supported
PU – SE	0.985	-0.002	Rejected
PU – RA	< 0.001	0.907	Supported
PU – RTC	0.183	0.056	Rejected
PU – PEU	0.144	-0.165	Rejected
IT – HS	0.105	0.067	Rejected
IT – EHL	0.781	-0.016	Rejected
IT – BC	0.086	-0.080	Rejected
IT – BT	0.095	0.082	Rejected
IT – SI	< 0.001	0.305	Supported
IT – OT	0.128	0.097	Rejected
IT – BA	0.022	0.145	Supported
IT – PU	< 0.001	0.381	Supported
PI – IT	< 0.001	0.465	Supported
PI – BA	0.649	-0.025	Rejected
PI – OT	< 0.001	0.349	Supported
PI – PS	0.019	-0.108	Supported
ITU – RTC	0.002	-0.129	Supported
ITU – PEU	< 0.001	0.273	Supported
ITU – PU	0.001	0.176	Supported
ITU – IT	0.009	0.181	Supported
ITU – PI	< 0.001	0.431	Supported
AU – ITU	< 0.001	0.798	Supported

First, we hypothesized that the relationship with the doctor was positively associated with resistance to change. However, our model indicated that the individual's relationship with their doctor is negatively associated with resistance to change (r = -0.244, p < 0.001). Second, we observed that perceived ease of use was predicted to be influenced by the relationship with the doctor (r = 0.730, p < 0.001) and usage experience (r = 0.611, p < 0.001). It can be inferred from the data used in this study that it is possible to predict the value of perceived ease of use based on the relationship with the doctor and previous usage experience as antecedents.

This study also predicts five constructs to be the antecedents of perceived usefulness. Two factors that influence perceived usefulness are reliability and relationship with a doctor. The reliability positively influences perceived usefulness (r = 0.907, p < 0.001). On the other hand, the relationship with the doctor shows a negative correlation (r = -0.178). Contrary to the hypothesis, the results indicated an increased relationship with the doctor would decrease perceived usefulness. The remaining constructs (security, relationship with doctor, resistance to change, and perceived ease of use) had *p*-values higher than 0.05. Thus, they could not be considered antecedents of perceived usefulness.

The following construct, trust, is the proposed extension to the original TAM. Various studies have been conducted to predict trust in eHealth, but a common agreement has yet to be reached. This study examined eight constructs as possible antecedents of trust and found three of them to be significant: social influence (r = 0.305, p < 0.05), brand awareness (r = 0.145, p < 0.05), and perceived usefulness (r = 0.381, p < 0.05). Meanwhile, five other constructs predicted to be antecedents of trust (health status, eHealth literacy, behavioral control, baseline trust, and organizational trust) all failed to achieve *p*-values lower than 0.05. Therefore, from the empirical data presented in this study, trust in the eHealth system can be predicted based

on these three constructs.

This study also proposed four antecedents of purchase intention, yet only three were found to be empirically significant. Organizational trust (r = 0.465, p < 0.05), trust (r = 0.349, p < 0.05), and price sensitivity (r = -0.108, p < 0.05) were shown to influence purchase intention significantly. Meanwhile, only brand awareness had a p-value higher than 0.05. In other words, the value of purchase intention can be predicted by organizational trust, trust, and price sensitivity.

Five constructs were proposed in this study to be antecedents of intention to use eHealth. The results show that all of them had p-values lower than 0.05. This means that the intention to use eHealth can be predicted by resistance to change, perceived ease of use, perceived usefulness, trust, and price sensitivity.

Lastly, intention to use positively influenced actual use the (r = 0.798, p < 0.001). While the intention to use itself cannot be seen as a behavior, the results of this study suggest that it can be used to predict the value of actual use.

3.4 Discussion

This study aims to build and validate a trust-integrated technology acceptance model for eHealth in Indonesia. We found that the actual use of eHealth is positively associated with the intention to use, aligning with the findings from Dou et al. (2017) and Hoque et al. (2017), which discussed the translation of intention to actual behavior in technological acceptance. Additionally, we identified five key antecedents - trust, resistance to change, perceived ease of use, perceived usefulness, and purchase intention - as predictors of the intention to use eHealth. This supports earlier studies highlighting the significance of trust in the adoption of the eHealth system (Mou and Cohen, 2014a, 2014b; Chen et al., 2017), with Kumar and Natarajan (2019) noting that perceived trust is one of the significant factors leading hospital consumers' continued usage of eHealth service. Consistent with previous studies (Hendrikx et al., 2013; Mou and Cohen, 2014b), perceived usefulness and ease of use directly influence usage intention. Furthermore, our results agree with Dou et al. (2017) and Bhattacherjee and Hikmet (2007) in finding a negative association between resistance to change and intention to use eHealth, indicating that a preference for existing behaviors can reduce the motivation to adopt eHealth. These findings can guide eHealth developers, healthcare providers, and policymakers in creating more effective, user-friendly, and trust-inspiring eHealth solutions, potentially leading to higher adoption rates and better health outcomes in the digital age.

Four antecedents were proposed to predict purchase intention, yet only three were empirically significant based on the data used in this study: organizational trust, trust, and price sensitivity. This result is in line with the suggestion by Zheng et al. (2017), in which organizational trust, referring to the patient's trust in the eHealth provider, was expected to influence a patient's behavior, including following the doctor's treatment recommendation, especially through the eHealth systems. Further, Klein (2007) also suggested that trust in the technology vendor and healthcare provider shaped patients' intentions and use of Internet-based patient-physician communication applications. Moreover, this study supports our hypothesis that price sensitivity is negatively associated with purchase intention. Tung et al. (2008) suggested that monetary expense linked to using electronic information systems in healthcare negatively affects its adoption. Similarly, Xiong et al. (2023) found that one of the primary barriers to purchasing eHealth services is price sensitivity, with patients anticipating costs comparable to or lower than traditional care methods.

In terms of factors affecting trust towards eHealth, three of the eight proposed antecedents were found to have a significant positive influence on trust: perceived usefulness, social influence, and brand awareness. This finding confirms that trust is influenced by perceived usefulness (Trapsilawati et al., 2019), social influence, and brand awareness (Zheng et al., 2017). Specifically, as perceived by the user, brand awareness may lead to trust in the brand and repeated purchasing behavior in the future.

Perceived usefulness was predicted to be influenced by several factors, including security, reliability, relationship with a doctor, resistance to change, and perceived ease of use. However, the data collected in this study showed that only reliability and relationship with the doctor significantly influenced perceived usefulness. In other words, reliability positively impacted perceived usefulness, while a relationship with the doctor had a negative impact. This finding aligns with the findings of earlier studies (Dou et al., 2017; Trapsilawati et al., 2019). As for security, the results of this study support most previous research (Wilkowska and Ziefle, 2012; Hoque et al., 2017; Zayyad and Toycan, 2018) in stating that security has not yet been found to have a significant effect on perceived usefulness.

The other main construct of TAM, perceived ease of use, was predicted to be influenced by the relationship between the doctor and usage experience. The empirical findings support both these hypotheses and are thus in line with the findings from the previous study (Dou et al., 2017). Dou et al. (2017) found that patients who trusted their doctor's expertise tended to communicate with them more often; hence, they were more likely to have a favorable opinion regarding the ease of using eHealth to communicate with their doctor. Furthermore, Dou et al. (2017) have shown that prior usage experience influences perceived ease of use because a previous positive experience of using eHealth may help the user feel more confident that they will be able to repeat the same performance in the future.

This study also found that the individual's relationship with their doctor is positively associated with perceived ease of use. Essentially, those who intensively communicate with their doctor can more readily adapt to eHealth and perceive it as ease of use as the consultation process is similar to what they usually do with their doctor. In addition, Mirzaei and Kashian (2020) also noted that the communication process with the doctor through eHealth is comparable with the face-to-face interaction, except for the

communication mode. However, contrary to our hypothesis, a positive relationship between doctor-patient relationship and resistance to change was observed. Mendoza et al. (2011) highlighted the doctor-patient relationship role in patient satisfaction; a good relationship will increase satisfaction. Consequently, satisfied patients often prefer direct communication with their doctor over eHealth (Mirzaei and Kashian, 2020). In addition, text-based communication between patients and doctors through eHealth can impact response times and overall patient (Yang et al., 2015). Thus, it is understandable that patients with strong doctor relationships might resist transitioning to eHealth

This study has two limitations that may affect its interpretative scope: the respondents' demographic composition and the data collection's geographic concentration. First, the respondents' profile is skewed towards younger individuals. While Taşkın et al. (2018) found that younger users are more likely to perceive e-health apps as useful, Jung et al. (2022) reported increased interest in e-health among older adults with high e-health literacy. This suggests that e-health literacy and usage intentions could vary across different age groups, potentially limiting the study's applicability to a wider demographic. Second, this study is limited to three major urban cities in Indonesia: Yogyakarta, Bandung, and Surabaya, which may not represent the experiences of rural or less technologically developed areas. Bervell and Al-Samarraie (2019) highlight that internet infrastructure and technological development differ between urban and rural areas, affecting the adoption and application of eHealth services. Thus, the study's findings may have limited generalizability to the Indonesian population, particularly those in less urbanized or technologically advanced regions.

4. CONCLUSION

This study developed a trust-integrated technology acceptance model (TAM) to predict trust toward and acceptance of the eHealth system in Indonesia. This study found that patient relationships with their doctor and the perceived reliability of eHealth technology influenced the perceived usefulness of eHealth. Meanwhile, their perceived ease of use was positively influenced by their previous user experience and relationship with doctors. Contrary to our hypothesis, the relationship with the doctor was positively linked to resistance to change. Among the trust factors in eHealth, only perceived usefulness, social influence, and brand awareness were significant. Purchase intention was positively associated with trust and organizational trust and negatively associated with price sensitivity. In order of significance, intention to use eHealth was positively influenced by perceived ease of use, purchase intention, perceived usefulness, and trust. However, it was negatively associated with resistance to change and had a significant and strong relationship with actual use.

The findings from this study offer significant insights for developing and implementing eHealth in developing countries such as Indonesia. Given the strong influence of doctor-patient relationships on patients' perceptions of eHealth's usefulness, Indonesian health authorities and eHealth developers need to prioritize and facilitate this bond within the platform. Moreover, as ease of use is heavily influenced by previous user experience, offering training or user-friendly tutorials might encourage broader adoption. The noted resistance to change linked with a solid doctor relationship underscores the need for a gradual, consultative approach in transitioning patients to digital platforms. Trust factors, including perceived usefulness, social influence, and brand awareness, emerge as key focus areas, suggesting that marketing and outreach campaigns should emphasize these elements.

ACKNOWLEDGMENTS

This work is supported by the Grant of Indonesian Research Collaboration Program from the Directorate of Research, Universitas Gadjah Mada, Indonesia.

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