

DETERMINANTS OF BEHAVIORAL INTENTION TOWARD TELEMEDICINE SERVICES IN INDONESIA POST-PANDEMIC COVID-19**Desi S.W. Utami, Fajri Satria Wika, Hertinur Betty S., Oscar**

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Abstract

The COVID-19 pandemic has significantly disrupted daily life & accelerated the adoption of digital technologies across various sectors, including healthcare. In Indonesia, this shift has prompted the rapid development and implementation of Telemedicine services by both start-ups and established healthcare institutions. This study aims to identify the factors that influence customer intention to use Telemedicine services in the post-pandemic period, using the Unified Theory of Acceptance and Use of Technology (UTAUT2) model. The research focuses on five key variables: Price Value, Effort Expectancy, Geographical Location, Performance Expectancy, and Social Influence. Data collected from 507 respondents across Indonesia through an online questionnaire reveals that user satisfaction is critical for further use of Telemedicine services. The findings indicate that improvements in the affordability, user-friendliness, accessibility, effectiveness, and social endorsement of Telemedicine services significantly enhance user satisfaction. The study provides practical recommendations for Telemedicine providers to improve these factors, thereby increasing customer retention and adoption rates. This research contributes to the understanding and offers insights for optimizing telemedicine services in Indonesia in relation to evolving post-pandemic behaviors.

Keywords: Telemedicine Services, Digital Application, User Satisfaction, Customer Intention, Post-pandemic COVID-19.

INTRODUCTION

The COVID-19 pandemic has fundamentally altered the way people live, work, and interact, driving an unprecedented shift towards digital solutions in various sectors. Healthcare is one of the sectors that transformed during the COVID-19 pandemic. To minimize the spread of the virus, governments worldwide implemented social distancing & lockdown measures (Srisathan & Naruetharadhol, 2022). These policies significantly reduced in-person interactions and accelerated the adoption of digital technologies for everyday activities such as working, shopping, learning, and seeking medical advice.

In Indonesia, the healthcare sector has witnessed a rapid transformation, with digital health services becoming increasingly important. The need for maintaining social distance while providing essential healthcare services led to the massive adoption of Telemedicine. Defined by the National Library of Medicine as the use of electronic information and communication technologies to provide and support healthcare when distance separates the participants, Telemedicine became a crucial tool during the pandemic. It facilitated remote

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consultations, reducing the need for physical visits to healthcare facilities and thereby minimizing the risk of virus transmission (Tandon et al., 2018).

The pandemic urged necessity for Telemedicine has proved the important for innovation and growth within the digital health ecosystem. According to (Richards, 2023), technologies advancements and the growing number of internet users in Asia are reshaping the healthcare landscape, making it more digitally oriented. Indonesia, with its large population and limited access to healthcare services in rural areas, has emerged as one of the top countries utilizing online health applications. (Vivi Silvia, 2020) reported that 57% of survey respondents in Indonesia used online health applications, reflecting a significant demand for remote healthcare services (Zobair et al., 2019).

As the pandemic subsides and social distancing measures are relaxed, it becomes crucial to understand the factors that will continue to drive the adoption of Telemedicine. This study aims to identify the determinants of customer intention to use Telemedicine services in the post-pandemic era. Using the Unified Theory of Acceptance and Use of Technology (UTAUT2) model, this research examines five key variables: Price Value, Effort Expectancy, Geographical Location, Performance Expectancy, and Social Influence. By analyzing data from 507 respondents across Indonesia, this study tested the factors that influence user satisfaction and future use intentions of Telemedicine services.

Understanding these factors is essential for healthcare providers and policy makers to enhance the effectiveness and adoption of Telemedicine. By addressing the critical determinants of user satisfaction, Telemedicine providers can better meet the needs of their customers, ensuring the sustainability and growth of digital healthcare services in Indonesia's evolving post-pandemic landscape. Moreover, Indonesia's large population and geographical challenges give opportunities for innovating Telemedicine services.

RESEARCH METHOD

The online questionnaire was created using Google Forms. Then it was distributed using social media platforms in Indonesia such as WhatsApp, Facebook, and Instagram. Some of the eligibility criteria for filler participants are: (1) have used telemedicine applications (Halodoc, Alodokter, Fit Aja, GoodDoctor, Yakes, etc.). The exclusion criteria were those who did not complete the questionnaire in its entirety.

A total of 877 people participated in this study. From this data, 507 respondents who were users of telemedicine applications in the last year will be analyzed. This sample size meets the minimum criteria for analysis using Statistical Product and Service Science. Table 1 shows the demographic characteristics of respondents.

The questionnaire includes the following sections: (1) demographic information including gender, age, marital status, employment status, education level, province, and monthly income, (2) performance expectancy, (3) effort expectancy, (4) social influence, (5) Price value, (6) geographical location, (7) user satisfaction, (8) Behavioral intention. Each indicator construct is measured using a five-point Likert scale starting from strongly disagree (1) to strongly agree (5). Seen in Table 2 are the indicators used to measure various factors that influence the intention to use telemedicine services in Indonesia. Specifically, SEM is carried out using SPSS to find out the cause of different latent variable relationships (SPSS, 2015).

SPSS is one of the most widely used application programs for the analysis of statistics in social sciences. It is used by market researchers, survey companies, health researchers, government, educational researchers, marketing organizations, and others. SPSS can read various types of data or enter data directly into its SPSS Data Editor. Whatever the structure of the raw data file, the data in Data The SPSS editor must be formed in the form of rows (cases) and columns (variables). Case contains information for one unit of analysis, while variables are collected information of each case.

In research that uses quantitative methods, the quality of data collection is largely determined by the quality of the instruments or data collection tools used. Research instruments are said to be of good quality and can be accounted for if they are proven valid and reliable. Testing the validity and reliability of the instrument, of course, must be adapted to the form of the instrument that will be used in the research. Testing the validity and reliability of the questionnaire is needed to ensure that the questionnaire used in research can measure research variables well. validity shows the extent to which the measuring instrument can measure what it wants to measure. testing Cronbach's alpha statistics, an instrument is said to be reliable for measuring variables if it has an alpha value greater than 0.60. Looking at Cronbach's alpha value and each variable, the level of reliability is generally acceptable at a value of 0.60. Test that reliability below 0.60 is considered unreliable..

RESULT AND DISCUSSION

The R-Square values for Behavioral Intention and User Satisfaction are 0.456 and 0.657, respectively, indicating that 45.6% of the variance in behavioral intention can be explained by user satisfaction, while 65.7% of the variance in user satisfaction can be explained by performance expectancy, effort expectancy, social influence, price value, and geographical location. This indicates that both models have moderate strength of predictive accuracy.

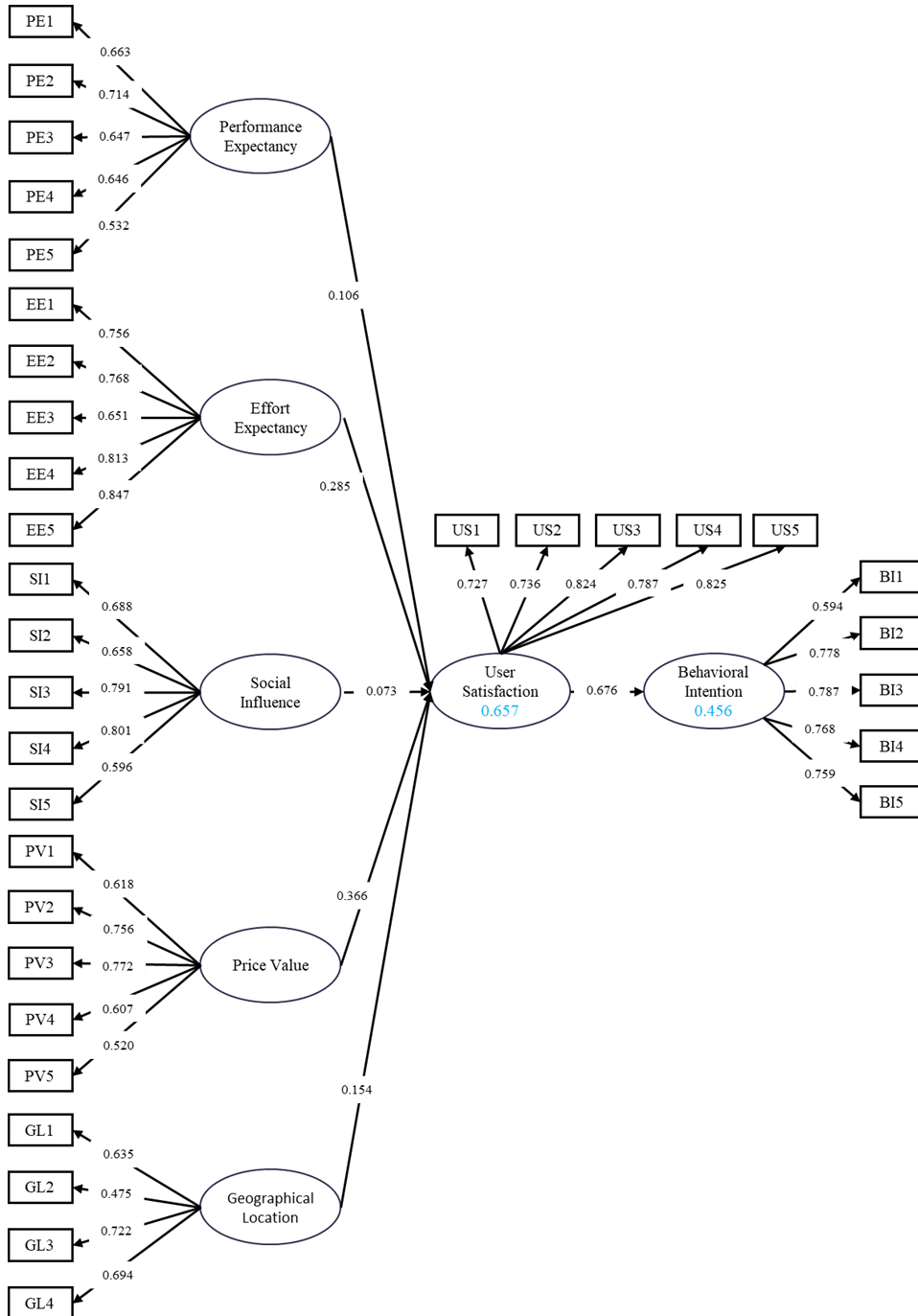
Reliability testing is conducted through Cronbach's Alpha and composite reliability values. These values need to be evaluated if they are above 0.70 or not. The upper limit commonly used as a criterion is composite reliability, while the lower limit is Cronbach's Alpha. If both have values > 0.70 , it can be said that the variables in this study are reliable with the assumption that the model is correct. However, it should be noted that the values should not exceed 0.95 as it may cause redundancy. Table 3 enlists reliability and convergent validity analysis are presented.

Communality is the proportion of variance for each observed variable that can be explained by the factors. Communalities between 0.25 and 4.0 are acceptable, with values above 0.6 considered ideal.

The Kaiser-Meyer-Olkin (KMO) Test is a measure of how suited the data is for Factor Analysis. The test measures sampling adequacy for each variable in the model and for the complete model. The statistic is a measure of the proportion of variance among variables that might be common variance. The lower the proportion, the more suited your data is to Factor Analysis.

For reference, Kaiser put the following values on the results:

1. 0.00 to 0.49 unacceptable.
2. 0.50 to 0.59 miserable.
3. 0.60 to 0.69 mediocre.
4. 0.70 to 0.79 middling.
5. 0.80 to 0.89 meritorious.
6. 0.90 to 1.00 marvelous.



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	Communalities	KMO	Bartlett's Test of Sphericity			Cronbach's Alpha
			Approx. Chi-Square	df	Sig.	
Performance Expectancy 1	0.663	0.762	1353.453	10	0.000	0.855
Performance Expectancy 2	0.714					
Performance Expectancy 3	0.647					
Performance Expectancy 4	0.646					
Performance Expectancy 5	0.532					
Effort Expectancy 1	0.756	0.837	2130.515	10	0.000	0.922
Effort Expectancy 2	0.768					
Effort Expectancy 3	0.651					
Effort Expectancy 4	0.813					
Effort Expectancy 5	0.847					
Social Influence 1	0.688	0.870	1503.776	10	0.000	0.894
Social Influence 2	0.658					
Social Influence 3	0.791					
Social Influence 4	0.801					
Social Influence 5	0.596					
Price Value 1	0.618	0.845	1223.097	10	0.000	0.866
Price Value 2	0.756					
Price Value 3	0.772					
Price Value 4	0.607					
Price Value 5	0.520					
Geographical Location 1	0.635	0.757	681.758	6	0.000	0.797
Geographical Location 2	0.475					
Geographical Location 3	0.722					
Geographical Location 4	0.694					
User Satisfaction 1	0.727	0.897	1974.589	10	0.000	0.929
User Satisfaction 2	0.736					
User Satisfaction 3	0.824					
User Satisfaction 4	0.787					
User Satisfaction 5	0.825					
Behavioral Intention 1	0.594	0.886	1674.186	10	0.000	0.911
Behavioral Intention 2	0.778					
Behavioral Intention 3	0.787					
Behavioral Intention 4	0.768					
Behavioral Intention 5	0.759					

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.811 ^a	0.657	0.654	0.37355

a. Predictors: (Constant), Performance Expectancy, Effort Expectancy, Social Influence, Price Value, Geographical Location

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	133.879	5	26.776	191.882	<.001b
	Residual	69.911	501	0.140		
	Total	203.790	506			

a. Dependent Variable: User Satisfaction

b. Predictors: (Constant), Performance Expectancy, Effort Expectancy, Social Influence, Price Value, Geographical Location

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	-0.056	0.133		-0.423	0.672
Perf_exp	0.105	0.037	0.106	2.828	0.005
Eff_exp	0.307	0.040	0.285	7.771	0.000
Soc_Inf	0.056	0.025	0.073	2.257	0.024
Pri_Val	0.375	0.040	0.366	9.427	0.000
Geo_Loc	0.169	0.043	0.154	3.956	0.000

a. Dependent Variable: User Satisfaction

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.676 ^a	0.456	0.455	0.57529

a. Predictors: (Constant), User Satisfaction

ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	140.281	1	140.281	423.863	<.001 ^b
Residual	167.134	505	0.331		
Total	307.414	506			

a. Dependent Variable: Behavioral Intention

b. Predictors: (Constant), User Satisfaction

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	0.371	0.159		2.331	0.020
User_sat	0.830	0.040	0.676	20.588	0.000

a. Dependent Variable: Behavioral Intention

Discussion

The purpose of this study is to verify independent factors that influence the satisfaction of telemedicine customers that will affect the intention to use telemedicine applications in Indonesia using the UTAUT2 model. Several independent factors such as performance expectancy, effort expectancy, social influence, price value, and geographical location were analyzed together to determine the significance of each independent factor to user satisfaction with telemedicine to behavior intention to use telemedicine. Based on the demographic collected during the survey, we found out that the Halodoc application which was selected by 64% of the participants as the only telemedicine application they have used. At the same time, Halodoc is also chosen by 25% of participants who select more than two telemedicine applications they have used in the past.

Performance expectancy measures the degree to which a user believes that using technology will help them achieve better productivity or outcomes. In our study, we focused

on the impact of performance expectancy from a telemedicine application on user satisfaction which eventually will increase the behavior intention to use the telemedicine application. From this study, we found that most participants expect that by using telemedicine applications they can get useful healthcare services that can be delivered faster and time efficiently which can help them to be able to improve and manage their day-to-day health better. Participants will use the telemedicine application more often should they believe the benefits of using telemedicine are better compared to visiting healthcare facilities. This study confirms that performance expectancy has a direct positive contribution to user satisfaction that will lead to an increase in participants' behavioral intention to use telemedicine applications. The positive influence of performance expectancy on user satisfaction has also been mentioned in several previous studies (Lisana, 2024; Pramudita et al., 2023; Rahi, 2022).

Effort expectancy can be described as the level of ease of use of a technology which has an impact on user eagerness to use the technology. From our study, we found that most of the survey participants believe it is easy for them to use telemedicine applications even when the participants come from various backgrounds with different levels of information technology literacy. Most of the participants believed most of the telemedicine applications are easy to use and easy to learn for first-time or less frequent users. There is no significant difficulty or obstacle to operating the application, and they believe they can master the use of telemedicine applications. The more user-friendly the application will increase the possibility that an application will be used more often. This study found effort expectancy is the second most important factor that gives a positive contribution to user satisfaction. The positive influence of effort expectancy on user satisfaction has also been mentioned in several previous studies (Chen & Ong, 2022; Esawe, 2022; Lisana, 2024; Pramudita et al., 2023).

Social influence measures the degree to which an individual perceives that other people, who are important and have a significant influence on telemedicine applications, believe they should use the new technology. Through this study, we found that social influence has the lowest positive contribution to user satisfaction in using telemedicine applications. Even though social influence is the least significant influence on user satisfaction with telemedicine applications, most of the respondents believe people close to them, such as family and colleagues at work, should use telemedicine applications. The respondents also believe that using telemedicine applications makes them look more prestigious or better compared to those who do not use telemedicine. In some previous studies (Chetioui et al., 2023; K. Gupta & Arora, 2020; Lisana, 2024) social influence was also noted to have a positive influence on user satisfaction with mobile or internet-based applications (such as telemedicine and mobile banking).

Price value is defined as consumers' cognitive trade-off between the perceived benefits of the applications and the cost of using them. In this study, we found that price value is the most significant factor that has a positive influence on user satisfaction compared to the other factors. This finding is consistent with previous studies (K. P. Gupta et al., 2019; Kalinić et al., 2019; Pramudita et al., 2023). This finding confirmed that most of the users of telemedicine believe they can get greater benefits compared to the cost they pay. They also

believe that telemedicine costs are within their budget. This finding might be attributed to the fact that 58% of the users of telemedicine are coming from high-income users.

Geographical location was the last variable tested in this study that has a positive influence on the user satisfaction of telemedicine users. Geographical location is related to how the location of a user has an impact on the user's intention to use a telemedicine application. Indonesia's population which is spreading across the entire archipelago with different levels of healthcare facility conditions between provinces may cause some problems for people of Indonesia to access healthcare services. This study confirms that geographical location has a positive influence on user satisfaction among telemedicine users. Most of the users believe they can access telemedicine applications easily from their current location. This study also confirms that the location of the users plays a significant role in determining user intention to use telemedicine applications. The telemedicine application helps users from one location to have access to better healthcare facilities or health workers in different locations easily.

This study verifies that user satisfaction has a positive influence on user behavior and intention to use telemedicine. This finding is in line with previous studies (Kalinić et al., 2019; Lee et al., 2021; Pramudita et al., 2023). Based on this study, user satisfaction highly influences user intention to use or reuse telemedicine applications ($\beta = 0.676$, $p\text{-value} = 0.000$). Through this study, we found that users believe telemedicine applications can satisfy their needs and expectations which leads to user intention to use telemedicine applications in the future whenever they want to get healthcare services. To some extent, they also intend to use telemedicine applications as their first choice option in terms of healthcare services.

CONCLUSION

User satisfaction is still a mediating factor for behavioral intention to use telemedicine. The price value is the most significant factor in driving user satisfaction, which can be an opportunity for telemedicine providers to maintain existing customers and use a competitive advantage by providing more affordable prices with the same level of services or higher, and apply pricing strategy. Future research may exercise acceptable prices for services provided by telemedicine applications in Indonesia.

This study could provide a better understanding of the telemedicine user ratio in each province by applying the location of respondents as part of a filter questionnaire. In addition to the above recommendation, future research may include data privacy to measure user satisfaction as it becomes a serious concern.

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