

The Relationship between Accessibility of Telemedicine Services and Decisions on Use: A Cross-Sectional Study at General Hospital Malang

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Article Info

Article history:

Received Nov 08th, 2023

Revised May 28th, 2024

Accepted Aug 28th, 2024

Keyword:

Telemedicine

Accessibility

Outpatient

Hospital

ABSTRACT

As many as 65% of patients interviewed about telemedicine at Outpatient Hospital X in Malang Regency admitted that they were only aware of telemedicine services like Halodoc, Alodokter, Klikdokter, and the hospital's telemedicine applications, but had never directly used them. The patient acknowledges that the application menu service on several telemedicine platforms is overly complicated and challenging to navigate, particularly for patients over the age of 45. The aim of this study was to determine the relationship between the accessibility of telemedicine service applications and the decision to use them. In January 2023, we conducted this research at the outpatient facility of one of the hospitals in Malang Regency. This study had a total sample size of 67 patients. Researchers gathered the data through a questionnaire utilising a Likert scale, concentrating on the accessibility of telemedicine and the choices made concerning it. Researchers conducted statistical analyses using Pearson correlation. The findings revealed a significant correlation between telemedicine service accessibility and utilisation, with a significance level of 0.000, thereby validating the hypothesis. The decision to employ the telemedicine application for outpatient care is made. The hospital in Malang Regency is influenced by factors such as the ease of communication with health care providers, the clarity of their voices, the provision of diagnoses based on the patient's condition, the patient's ability to clearly see the health care provider or health worker, and the ease of using the telemedicine application itself.

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1. INTRODUCTION

Sophistication and technology in health service facilities are currently developing rapidly in accordance with the times. One of them is telemedicine service technology. Telemedicine services are a remote health service system that allows patient service and care activities without having to make direct contact [1]. When the State of Indonesia was hit by the Covid-19 pandemic, telemedicine services began to develop rapidly and were used by the public. The use of telemedicine services is an adjustment to health services in addressing the need for safe health services and in accordance with government recommendations during the Covid-19 pandemic [2]. In the development of increasing use of telemedicine services in recent years, various challenges have arisen, including; patient and doctor acceptance/perception of telemedicine services, smooth connections and support for insurance protection that is able to cover the costs of telemedicine services [3]. In addition, there are several factors that influence the implementation and use of telemedicine services. These factors include finance, user skills, accessibility of telemedicine services, and legal ethical laws regarding examinations conducted through telemedicine[4].

The scope of telemedicine services is quite broad, covering the provision of remote health services (including clinical, educational and administrative services), through the transfer of information (audio, video, graphics), using telecommunications devices (two-way interactive audio-video, computers, and telemetry) involving doctors, patients and other parties [3]. Telemedicine services can be utilized in sending patient data from the hospital for quick diagnosis, for example in radiological examinations and cardiac examinations. Telemedicine services can also exchange patient data between health facilities [5]. Some examples of application-based telemedicine services include Halodoc, Alodokter, Getwell, Good Doctor, KlikDokter, KlinikGo, Healthy Link, Milvik Dokter, ProSehat, SehatQ, YesDok, Aido Health, Homecare 24, Lekassehat, mDoc, Trustmedis, Vascular Indonesia. The application certainly has features that are different from one another.

In reality, implementing telemedicine is not easy, the main factor causing failure in the use of telemedicine services is 70% due to a lack of readiness to use new services and not mastering the features contained therein [6]. This feature in the telemedicine application can be referred to as the accessibility of telemedicine services. The accessibility of telemedicine services includes, ease of talking with telemedicine service providers, clear sound/audio between patients and doctors, complete diagnostic facilities/menus/diagnosis forms so that telemedicine service providers can understand the conditions of care needed by patients, good quality video conferencing, and convenience in using telemedicine services and accessing menus therein[7].

In a study conducted at Outpatient Hospital X, Malang Regency, it was found that as many as 65% of patients interviewed about the use of telemedicine admitted that they only knew about telemedicine services, for example Halodoc, Alodokter, Klikdokter and telemedicine applications that had been provided by the hospital, but had never used them directly personal for online consultation. The remaining 35% said they knew about telemedicine services including telemedicine services provided by hospitals and had used these online consultations. The community admits that the application menu service in several telemedicine services is too complicated and not easy to use, especially for residents over the age of 45. This triggers a reluctance to use telemedicine services because they feel more satisfied if they carry out direct examinations to meet with doctors at health facilities. It is from this background that this research was conducted with the aim of knowing the relationship between the accessibility of telemedicine service applications and the decision to use telemedicine service applications.

2. RESEARCH METHOD

The research method used in this study was quantitative with cross-sectional study method. This research was conducted in January 2023 at the Outpatient Installation of one of the hospitals in Malang Regency with a total population of 80 patients. The sampling technique used in this research is the Random Sampling technique with total sample of 67 patients. The inclusion criteria in this study are; patients aged between 20 – 40 years, can operate a smartphone, the patient is conscious and able to communicate. The exclusion criteria in this study are; Illiterate patients. Data collection used the questionnaire method. The independent variable in this study was the accessibility of telemedicine service applications, and the dependent variable in this study was the decision to use telemedicine services. Data analysis in this research uses product moment correlation research using SPSS version 26 analysis. The data collection technique used in this research was a questionnaire sheet. Before the questionnaire was used, the reliability and validity of the research instrument was tested on 20 respondents who were not included in the study. The test results show that the data is reliable and all questions are declared valid.

3. RESULTS AND ANALYSIS

3.1 Characteristic of The Study Participants

The general data of respondents in this study were taken from a total sample of 67 people consisting of gender, age, education, income and telemedicine applications used. The general data distribution of respondents can be seen in Table 1.

Table 1. Characteristic of The Study Participants

Characteristic	n(%)
Women	41 (61%)
Men	26 (39%)
17-24	38 (57%)
25-34	23 (34%)
35-49	6 (9%)
Elementary school	0 (0%)
Junior high school	4 (6%)
Senior High School	32 (48%)
Diploma	12 (18%)
Bachelor	19 (28%)
Masters	0 (0%)
Doctoral	0 (0%)
Student	23 (34%)
Government employees	5 (7%)
Private employees	24 (36%)
Laborer	4 (6%)
Businessman	5 (7%)
Doesn't work	6 (9%)
<Rp500.000	28 (42%)
Rp. 500.000- 2.500.000	22 (33%)
Rp. 2.500.000 - 5.000.000	14 (21%)
>Rp5.000.000	3 (4%)

Table 1, it is known that the majority of respondents were female (61%) with the most age range being 17-24 years (57%). From the data obtained, it is known that most of the respondents' last education was high school (48%) and the type of work most of them were private employees (36%). The highest amount of income is <Rp 500,000 (42%).

3.2 Linierity Test

The linearity test aims to determine whether the two variables have a significant linear relationship or not. Good data should have a linear relationship between the service accessibility variable (X) and the usage decision variable (Y). The results of the analysis carried out with the help of the SPSS computer program produced calculations that can be seen in Table 2.

Table 2. Linierity Test

	Sum of Squares	Mean Squares	F	Sig
Deviation of Linierity	0,148	0,148	2,597	0,112

Decision making in the linearity test can be done by looking at the significance and F value. In this case, the author uses a significant way to find out the results of the linearity test and F test. From the picture or results above, a significance value = 0.112 is greater than 0.05 which means that there is a significant linear relationship between the service accessibility variable (X) and the service use decision variable (Y). Based on the F value, the linearity requirement is $F_{count} < F_{table}$, the calculation results obtained by F_{count} is 2.59 which is smaller than F_{table} , which is 3.99, which means that there is a linear relationship between the service accessibility variable (X) and the decision variable for using telemedicine services (Y).

3.3 Correlation Test

The correlation test aims to determine whether there is a relationship between the two variables. The results of the analysis carried out with the help of the SPSS computer program produced calculations that can be seen in Table 3.

Table 3. Correlation Test

Variabel	Pearson Corelation	Sig
Service Accessibility (X)	0,960	0,000

In Table 3, the correlation coefficient is 0.960 with a significance of 0.000. H_a is accepted because the significance is >0.05 . So there is a significant relationship between service accessibility and the decision to use telemedicine services.

Based on the above data, hypothesis testing can be carried out by comparing the significance level with the error

- If the significance is > 0.05 , then H_0 is accepted
- If Significance <0.05 , then H_0 is rejected.

Decision:

In the above study, after going through data analysis using the Pearson Correlation Test (Product Moment), it is known that the significance is 0.000, because the significance is > 0.05 , H_a is accepted. So there is a significant relationship between the accessibility of telemedicine services and the use of telemedicine services.

Based on the results above, the r count is 0.96. Then based on r table with a confidence level of 0.05 (r table for 67 subjects with a 5% confidence level is 0.1997), it is understood that r count $<$ r table ($0.96 < 0.1997$) then H_a is accepted. Thus there is a significant relationship between the accessibility of telemedicine services and the use of telemedicine services.

3.4 Discussion

Based on the hypothesis testing in this research, it can be concluded that the accessibility of telemedicine services has an effect on telemedicine services. Accessibility to services consists of the ease of talking to health care providers, the ease of hearing the voices of health service providers, the provision of diagnoses that are appropriate to the patient's condition, the patient can clearly see the health care provider or health worker, the patient is easy to use the telemedicine application [2]. Technological developments in Indonesia have also influenced the development of telemedicine. The development of technology in Indonesia, one of which is telemedicine, has several obstacles, namely limited infrastructure and inadequate information technology services [8]. In Jamil's research, et al (2015) designed telemedicine services by utilizing cloud computing technology. Cloud computing (English: cloud computing) is a combination of the use of computer technology ('computing') and Internet-based development ('cloud'). Cloud (cloud) is a metaphor of the internet, as clouds are often depicted in computer network diagrams. By using good technology, the accessibility of telemedicine services can be better and improved. Accessibility to technology, especially in Indonesia, is still concentrated in Java[9]. This is also a challenge for the development of telemedicine in health facilities, because with the ease of accessibility of telemedicine services, it will be easier for people to access health services from hospitals or other health facilities.

Telemedicine services in practice have many challenges related to their service infrastructure. One of them is internet speed, because the better the internet signal, the easier it is for telemedicine services to access, in other words this will affect the accessibility of telemedicine services [10]. Another challenge to telemedicine services is that telemedicine is a platform that facilitates electronic medical records with capable software and hardware so that patients or customers who use telemedicine services obtain quality health services[11]. Software and hardware reliability in telemedicine service technology will make it easier for patients or customers to access telemedicine services, which will affect the accessibility of telemedicine services.

Ease of communication in telemedicine services is part of the accessibility of telemedicine services. Telemedicine services are mandatory to have easy communication. Ease of communication will impact the quality of service in telemedicine, patients or customers will easily understand disease information, actions taken by service providers when communication runs smoothly. Some telemedicine service providers use language translators to make it easier to communicate when providing health services via telemedicine[12]. The ease of communication in telemedicine services certainly needs to be supported by regulations regarding telemedicine. Regulations regarding telemedicine regulate clear boundaries regarding the provision of therapy, medication, patient medical record data and the code of ethics for health care providers. In addition, regulations regarding telemedicine also regulate the accessibility of telemedicine services, regulations regarding telemedicine applications or technology so as not to violate applicable laws and regulations [13]. It is necessary to pay attention to the underlying matters related to the provision of telemedicine services because they will affect the accessibility of telemedicine services and applications and the ease of access to telemedicine services will affect the decision to use telemedicine services.

4. CONCLUSION

The accessibility of telemedicine service applications which consist of the ease of talking to health care providers, the ease of hearing the voices of health service providers, the provision of diagnoses according to the patient's condition, the patient can see clearly the health care provider or health worker, the patient is easy to use the telemedicine application will affect the decision to use telemedicine services. The accessibility of telemedicine services will make it easier for users of telemedicine services to use these services and provide a satisfying experience for patients or users of telemedicine services.

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