

The Correlation Between Online Doctor Application And The Quality Of Users' Patient Health Service

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Abstract

Background: During this COVID-19 pandemic, service that provides online health consultation such as online doctor application has become popular in public. The quality of health service is an important thing that needs to be considered because there are still skepticism and a lot of user negative reviews regarding the quality of online health service. **Methods:** This study is a correlative analytical observational study with a cross sectional study design. 120 respondents were obtained with purposive sampling techniques. The instrument is Telehealth Usability Questionnaire (TUQ) translated into Indonesian and validated through pre-test. The correlation between the variables was analyzed using Chi-Square correlation test. **Results:** X with the largest number of users (42.5%) has the best quality of users' patient health service, followed by Y in terms of the number of users (37.5%) and the quality of users' patient health service, and Z in terms of the number of users (20%) and the quality of users' patient health service. The results of the Chi-Square correlation test showed $p=0.012$ (<0.05), means that there is a significant correlation between online doctor application and usability indicator, $p=0.228$; 0.097 ; 0.180 ; 0.494 ; 0.231 (≥ 0.05), means that there are no significant correlation between online doctor application and ease of use and learnability; interface quality; interaction quality; reliability; and satisfaction and future use indicators, $p=0.044$ (<0.05), means that there is a significant correlation between online doctor application and the quality of users' patient health service. **Conclusion:** X with the largest number of users has the best quality of users' patient health service, followed by Y and Z. There is a correlation between online doctor application and usability indicator. There are no correlation between online doctor application and ease of use and learnability; interface quality; interaction quality; reliability; and satisfaction and future use indicators. There is a correlation between online doctor application and the quality of users' patient health service.

Keywords: Online Doctor Application, Telehealth, Quality of Health Service, Patient Safety, Telehealth Usability Questionnaire

1. Introduction

Along with the times, progress in various fields, one of which is technology, is something that cannot be avoided (Sihombing, 2018). Technological developments affect various aspects of life, one of which is the use of the internet in health service (Budiyanti and Herlambang, 2021). According to Greenhalgh et al., (2016), service that provide online health consultation is popular in public. A survey conducted by Sesilia

(2020) showed that since the COVID-19 pandemic, 71.8% of respondents said that they had never visited a hospital or clinic and 65.5% of them said that they had more frequent consultations regarding their health through digital application.

According to Ayuninghemi and Deharja (2017), in cyberspace there are a number of applications that offer health information and remote health consulting services called online doctor application. In various countries such as US, there are Doctor On Demand and HealthTap applications with more than one million downloads. The application from UK is Milvik Dokter with more than a thousand downloads. The application from Jamaica is Get Well with more than five hundred downloads. Applications from India are Practo and Lybrate with more than five million downloads. An application from Singapore is Doctor Anywhere with more than one hundred thousand downloads. In Indonesia, online health consultation service providers are starting to develop (Pasaribu, Arisjulyanto, and Hikmatushaliha, 2018). There are also quite a variety of online health consulting applications that are widely used, such as Halodoc and Alodokter with more than five million downloads, KlikDokter and Good Doctor with one million, SehatQ, YesDok, ProSehat with one hundred thousand, LinkSehat with ten thousand, and Milvik Dokter and GetWell with a thousand.

According to Budiyanti and Herlambang (2021), even though it offers various conveniences and advantages, technology acts like a double-edged sword that can provide disadvantages to its users. Quoting from Efendi and Sari (2017), it is commonplace that the implementation of technology will also always faced with an obstacle. An obstacle will be overcome if through an evaluation process. WHO (2011) in Kushendriawan et al., (2021) said that online doctor application is necessary for evaluating the quality of their health service. Fransiska and Bernarto (2021) argue that the quality of health service is an important thing that health service provider needs to pay attention to, such as online doctor application. Garg and Camp (2012) in Chakraborty and Paul (2022) said that there is skepticism regarding the quality of health service carried out online. Coupled with information from Kushendriawan et al., (2021) which states that obstacles in implementing technology in the form of online-based health service, especially online doctor application, is related to the large number of complaints and negative reviews from users on the Google Play application regarding the quality of the application's health service.

An initial study conducted by Salsabila (2020) found that 56.67% of respondents said that online doctor application had not been able to meet the health care needs of their users. In addition, research conducted by Pratama et al., (2021) stated that online doctor application has an unfavorable level of ease of use. Pratama et al., (2021) also added that using this application is difficult to learn. Then, Nurhudatiana and Seo (2020) mentioned that there are still a lot of images and fonts on very small features and not easy to read by older users which result in these users having difficulty accessing the features of the online doctor

application. Also considering the initial study conducted by Salsabila (2020) which showed that 53.33% of respondents said that every feature function in the online doctor application was not efficient. Furthermore, the main complaint mentioned in Nurhudatiana and Seo (2020) regarding online doctor application health service is that users patient health consultations do not run smoothly due to the absence of a 'new message' notification icon when the consultation conversation is in progress. In addition, Nurhudatiana and Seo (2020) explained that telephone and video call icons are not easy to find, making it difficult for users to communicate with doctor to carry out health consultations using online doctor application. Nurhudatiana and Seo (2020) also revealed that users often complain because the application does not provide notifications that clearly inform the users that there is an error, such as when the internet network connection is unstable, there are no indicators in the form of notifications (for example, a 'loading' sign, writing 'retry' in the message column or even a short notification asking the users to resend the message) on the chat screen so that this causes the users' doctor and patient to continue waiting for a reply message. Finally, an initial study conducted by Salsabila (2020) reported that 60% of respondents admitted that the expectations that users expect regarding the performance of the online doctor application do not match what the users gets.

The quality of health services according to Sesilia (2020) is the level of perfection of health service in guaranteeing safety so that they are able to satisfy every user of health service. Based on the explanation above, this study aims to evaluate the correlation between online doctor application and the quality of users' patient health service.

2. Methods

Data Collection

This study is a correlative analytical observational study with a cross sectional study design. Data collection procedures in this study used primary data. Primary data were obtained from research subjects directly from filling out online questionnaire. The sampling technique was carried out using purposive sampling. The minimum sample size required is 51 patients ($Z\alpha=1.64$; $Z\beta=1.28$; $r=0.4$).

$$n = \left[\frac{Z\alpha + Z\beta}{0,5 \ln \left[\frac{1+r}{1-r} \right]} \right]^2 + 3$$

a. Inclusion criteria

1. The patient is registered in the Indonesian online doctor application;
2. The patient can operate the Indonesian online doctor application;

3. The patient has used the consultation feature with a doctor via the application;
4. The patient is competent;
5. Adult patient;
6. Mature minor patient (immature, but married);
7. The patient is willing to be a respondent.

b. Exclusion criteria

1. Uncooperative patient.

Data Analysis

The data generated is in descriptive and analytical form in the form of tables, texts, and diagrams. Correlation between variable online doctor application with each indicator of the quality of telehealth's health service was analyzed using bivariate analysis of the Chi-Square correlation test while the correlation between the online doctor application variable and the quality of users' patient health service consisting of several indicators was analyzed using multivariate analysis of the Chi-Square correlation test, p -value <0.05 was considered significant and was calculated using SPSS. This study was approved by the Health Research Ethics Committee of the Faculty of Medicine, Airlangga University.

3. Results

Questionnaire data was collected online (at each respondent's house) around October 2021-May 2022. There were 120 respondents who met the inclusion criteria.

Diagram 1. Age Group of Research Respondents

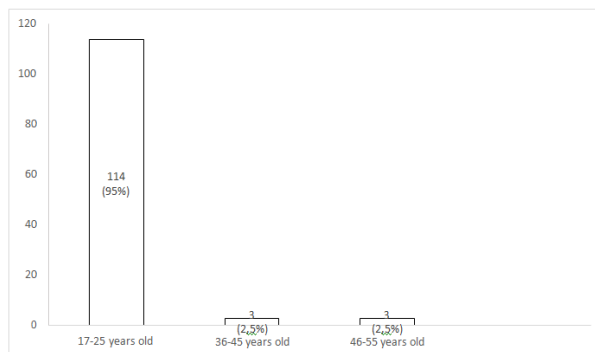


Diagram 1 shows that the most age group of the respondents is 17-25 years old (95%), followed by 36-45 and

46-55 years old (2.5%).

Diagram 2. Gender of Research Respondents

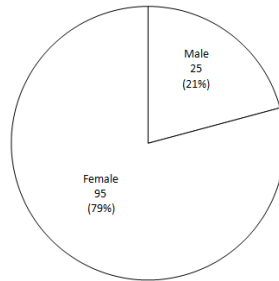


Diagram 2 shows that the most gender of the respondents is female (79%), followed by male (21%).

Table 1. Last Education of Research Respondents

Last Education	Amount	Percentage
High School	87	72.5%
Associate Degree	3	2.5%
Bachelor Degree	28	23.3%
Master Degree	1	0.8%
Postgraduate	1	0.8%
Total	120	100%

Table 1 shows that high school (72.5%) is the most last education of the respondents, followed by bachelor degree (23.3%), associate degree (2.5%), and master degree, postgraduate (0.8%).

Table 2. Marital Status of Research Respondents

Marital Status	Amount	Percentage
Unmarried	114	95%
Married	6	5%
Total	120	100%

Table 2 shows that unmarried (95%) is the most marital status among the respondents, followed by married (5%).

Table 3. Type of Work of Research Respondents

Type of Work	Amount	Percentage
Not yet working	3	2.5%

Lecturer	1	0.8%
General Manager	1	0.8%
Housewife	1	0.8%
College Student	106	88.3%
Marketing	1	0.8%
Private Employees	2	1.7%
Student	1	0.8%
Civil Servant	1	0.8%
Self-employed	3	2.5%
Total	120	100%

Table 3 shows that the type of work most of the respondents is college students (88.3%), followed by self-employed and not yet working (2.5%), private employees (1.7%), and lecturer, general manager, housewife, marketing, student, civil servant (0.8%).

Table 4. Address of Research Respondents

Address	Amount	Percentage
East Kalimantan	2	1.7%
Aceh	1	0.8%
West Java	1	0.8%
Bali	1	0.8%
East Java	111	92.5%
Jakarta	3	2.5%
Central Java	1	0.8%
Total	120	100%

Table 4 shows that address of most the respondents is in East Java (92.5%), followed by Jakarta (2.5%), East Kalimantan (1.7%), and Aceh, West Java, Bali, Central Java (0.8%).

Table 5. Online Doctor Application Used By Research Respondents

Online Doctor Application	Amount	Percentage
X	51	42.5%
Y	45	37.5%
Z	24	20%
Total	120	100%

Table 5 shows that X is the online doctor application with the highest number of users (42.5%), followed by Y (37.5%) and Z (20%).

Table 6. Analysis of Description of Frequency Distribution of The Quality of Users Patient Health Service Using Online Doctor Application

Category	Online Doctor Application		
	X	Y	Z
Fine	31 (60.8%)*	20 (44.4%)*	6 (25%)*
Good	18 (35.3%)*	21 (46.7%)*	14 (58.3%)*
Sufficient	2 (3.9%)*	4 (8.8%)*	4 (16.7%)*
Total	51 (42.5%)**	45 (37.5%)**	24 (20%)**

*percentage of respondents for each application

**percentage of all respondents

Table 6 shows that X has the best quality of users' patient health service, 60.8% of X users think that the quality of users patient health service using X is fine, 35.3% think it is good, and 3.9% think it is sufficient, followed by Y which ranks second in terms of the quality of users' patient health service, 44.4% of Y users consider that the quality of users patient health service using Y is fine, 46.7% rate it good, and 8.8% rate it sufficient, and the last is Z which occupies the third position in terms of the quality of users' patient health service, 25% of Z users consider that the quality of users patient health service using Z is fine, 58.3% rate it good, and 16.7% rate it sufficient.

Table 7. Chi-Square Correlation Test of Online Doctor Application Variable and Usefulness Indicator

Variable	<i>p</i>
Online Doctor Application	
Usefulness Indicator	0.012

Table 7 shows that the result of Chi-Square correlation test showed a significance value (*p-value*) is 0.012 (<0.05), meaning that there is a significant correlation between online doctor application and usefulness indicator.

Table 8. Chi-Square Correlation Test of Online Doctor Application Variable and Ease of Use and Learnability Indicator

Variable	<i>p</i>
Online Doctor Application	
Ease of Use and Learnability Indicator	0.228

Table 8 shows that the result of Chi-Square correlation test showed a significance value (*p-value*) is 0.228 (>0.05), meaning that there is no significant correlation between online doctor application and ease of use and learnability indicator.

Table 9. Chi-Square Correlation Test of Online Doctor Application Variable and Interface Quality Indicator

Variable	p
Online Doctor Application	
Interface Quality Indicator	0.097

Table 9 shows that the result of Chi-Square correlation test showed a significance value (*p-value*) is 0.097 (>0.05), meaning that there is no significant correlation between online doctor application and interface quality indicator.

Table 10. Chi-Square Correlation Test of Online Doctor Application Variable and Interaction Quality Indicator

Variable	p
Online Doctor Application	
Interaction Quality Indicator	0.180

Table 10 shows that the result of Chi-Square correlation test showed a significance value (*p-value*) is 0.180 (>0.05), meaning that there is no significant correlation between online doctor application and interaction quality indicator.

Table 11. Chi-Square Correlation Test of Online Doctor Application Variable and Reliability Indicator

Variable	p
Online Doctor Application	
Reliability Indicator	0.494

Table 11 shows that the result of Chi-Square correlation test showed a significance value (*p-value*) is 0.494 (>0.05), meaning that there is no significant correlation between online doctor application and reliability indicator.

Table 12. Chi-Square Correlation Test of Online Doctor Application Variable and Satisfaction and Future Use Indicator

Variable	p
Online Doctor Application	
Satisfaction and Future Use Indicator	0.231

Table 12 shows that the result of Chi-Square correlation test showed a significance value (*p-value*) is 0.231 (>0.05), meaning that there is no significant correlation between online doctor application and satisfaction and future use indicator.

Table 13. Chi-Square Correlation Test of Online Doctor Application and The Quality of Users' Patient Health Service Variable

Variable	<i>p</i>
Online Doctor Application	
The Quality of Users' Patient Health Service	0.044

Table 13 shows that the result of Chi-Square correlation test showed a significance value (*p-value*) is 0.044 (<0.05), meaning that there is a significant correlation between online doctor application and the quality of users' patient health service.

4. Discussion

Based on the results of this study, diagram 1 shows that the most age group that uses online doctor application is the 17-25 year age group (95%) with the dominating age, namely 21 years old followed by 20 years old, this is in line with previous research conducted by Handayani, Indriani, and Pinem (2021) which proves that the average age of online doctor application users is between 17-25 years old with a percentage of 76%. Diagram 2 shows that the most gender who uses online doctor application is female (79%), this is in line with the research of Silalahi, Hartono, and Tumpak (2018) and Handayani, Indriani, and Pinem (2021) which proves that female is the most gender of them that uses online doctor application with respective percentages of 59.5% and 74%.

Table 1 shows that in this study, the respondents who use the online doctor application dominated by high school graduates (72.5%) followed by bachelor graduates (23.3%), this is in line with research conducted by Layman (2021) who proves that the most users of online doctor application are high school graduates (44%), followed by bachelor graduates (43%). Table 2 shows that the respondents who use online doctor application dominated by respondents with unmarried marital status (95%). There was no research investigating the correlation between marriage and telehealth use. This finding can be based on the fact that the most users of online doctor application are women in the age group of 17-25 years, with the most age being 21 years and followed by the age of 20. When referring to the ideal age for marriage according to the BKKBN (2016), the ideal age for marriage for women is ≥ 21 years. This explains why in this study, users of online doctor application were dominated by unmarried respondents.

Table 3 shows that the respondents who dominate online doctor application users are college students (88.3%), this is in line with research conducted by Handayani, Indriani, and Pinem (2021) which proves that the most users of online doctor application are college students (42%). Table 4 shows that the respondents who dominate online doctor application users are located in East Java province (92.5%). This

finding is different from research conducted by Handayani, Indriani, and Pinem (2021), which proves that the majority of respondents using online doctor application are located in Jakarta. This could be due to difference in sampling location which could affect the dominance of respondents' address.

Table 5 shows that respondents who use online doctor application are dominated by users X (42.5%), followed by Y (45%), and Z (24%), this is in line with research conducted by Handayani et al., (2020) which proves that the Indonesian online doctor application with the most users is X, followed by Y. Table 6 shows that 31 out of 51 or 60.8% of X users think that the quality of users patient health service using X is fine, 35.3% rate good, and 3.9% rate sufficient. The results of the questionnaire also showed that 20 out of 45 or 44.4% of Y users considered that the quality of users patient health service using Y is fine, 46.7% considered it good, and 8.8% considered it sufficient. Furthermore, the results of the questionnaire also proved that 6 out of 24 or 25% of Z users considered that the quality of users patient health service using Z is fine, 58.3% considered it good, and 16.7% considered it sufficient. X as the online doctor application with the most users has the best assessment results regarding the quality of users' patient health service, followed by Y which ranks second in terms of the number of users and the quality of users' patient health service, and the last is Z which ranks third in terms of the number of users and the quality of users' patient health service.

Based on the Chi-Square correlation test presented in table 7, it was found that there is a significant correlation between online doctor application and usefulness indicator. Then, the Chi-Square correlation test presented in table 8 shows that there is no significant correlation between online doctor application and ease of use and learnability indicator. Furthermore, based on the Chi-Square correlation test presented in table 9, it was found that there is no significant correlation between online doctor application and interface quality indicator. The Chi-Square correlation test presented in table 10 shows that there is no significant correlation between online doctor application and interaction quality indicator. Based on the Chi-Square correlation test presented in table 11, it was found that there is no significant correlation between online doctor application and reliability indicator. The Chi-Square correlation test presented in table 12 shows that there is no significant correlation between online doctor application and satisfaction and future use indicator. Last, the Chi-Square correlation test presented in table 13 shows that there is a significant correlation between online doctor application and the quality of users' patient health service.

5. Conclusion

X with the largest number of users has the best quality of users' patient health service, followed by Y and Z in terms of the number of users and the quality of users' patient health service. There is a correlation

between online doctor application and usability indicator. There are no correlation between online doctor application and ease of use and learnability, interface quality, interaction quality, reliability, and satisfaction and future use indicators. There is a correlation between online doctor application and the quality of users' patient health service.

6. Recommendations

Future study is expected to involve more online doctor application users with a more diverse variety of online doctor applications so as to enrich research analysis, obtain a more thorough perspective, and refine the results of this study.

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