

PEMANFAATAN DAN PERSEPSI TELEMEDICINE DI INDONESIA: PANDANGAN PENYEDIA LAYANAN KESEHATAN



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Abstrak

Popularitas Telemedicine saat ini sudah mulai marak dan semakin diterima praktiknya di Indonesia. Namun, masih belum jelas apakah platform telemedicine yang tersedia di Indonesia sudah memenuhi standar dan kebutuhan pengguna. Penelitian ini bertujuan untuk mengevaluasi pemanfaatan dan persepsi pengguna telemedicine dari perspektif penyedia layanan kesehatan. Sebanyak 118 tanggapan dikumpulkan untuk melihat sudut pandang penyedia layanan kesehatan tentang platform telemedicine yang mereka gunakan menggunakan kuesioner yang disebarluaskan melalui media sosial. Kuesioner ini diadaptasi dari mHealth Application Usability Questionnaire (MAUQ). Data yang diperoleh pada tanggal 16 - 29 Juni 2020 dianalisis secara deskriptif kemudian disajikan dalam tabel distribusi. Empat platform telemedicine yang paling banyak digunakan adalah Alodokter, Halodoc, Mobile JKN, dan Hospital-linked Telemedicine. Tiga perempat responden menyatakan bahwa mereka menggunakan platform telemedicine karena jam kerja yang fleksibel (75,4%), sebagai alternatif selama pandemi dan mudah digunakan (71,2%), tersebar luas di masyarakat (50,8%), dan sebagian besar layanan kesehatan layanan memiliki sesi konsultasi (93,2%). Mayoritas responden mengutamakan komunikasi dokter-pasien selama praktik (89,0%). SehatPedia memiliki skor rata-rata tertinggi di antara pengguna platform. Kualitas layanan kesehatan yang dilayani oleh penyedia layanan kesehatan tidak berkurang dibandingkan dengan layanan kesehatan tatap muka, dan Telemedicine harus dikembangkan lebih lanjut.

Kata kunci: Telemedicine, COVID-19, pandemi, pemanfaatan, penyedia layanan kesehatan

UTILIZATION AND PERCEPTION OF TELEMEDICINE IN INDONESIA: HEALTHCARE PROVIDERS POINT OF VIEW

Abstract

The popularity of Telemedicine nowadays has started to bloom and increasingly becoming accepted practice in Indonesia. However, it is still vague whether the available telemedicine platforms in Indonesia have already met the standards and needs of the users. This study aimed to evaluate the utilization and perception of telemedicine users from the healthcare provider's perspective. One hundred and eighteen responses were gathered using a social-media broadcasted questionnaire. This questionnaire was adapted from the mHealth Application Usability Questionnaire (MAUQ). Data obtained from 16th - 29th June 2020 were analyzed descriptively. Four telemedicine platforms mainly used were Alodokter, Halodoc, Mobile JKN, and Hospital-linked Telemedicine. Three-fourth of respondents stated that they used the telemedicine platform due to the flexible working hours (75.4%), as an alternative during the pandemic and easy to use (71.2%), widespread in the society (50.8%), and most healthcare services have consultation sessions (93.2%). The majority of respondents prioritized doctor-patient communication during practice (89.0%). SehatPedia had the highest average score among platforms users. Majority of healthcare providers feel the benefits of using telemedicine. The quality of healthcare service served by healthcare providers does not diminish compared to in-person healthcare service, and that Telemedicine should further be developed.

Keywords: Telemedicine, COVID-19, pandemic, utilization, healthcare provider

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Introduction

Indonesia was a very populous developing country with a vast area of land. Today, Indonesia still faces many challenges in many sectors, including healthcare. ⁽¹⁾ According to the 1945 Constitution of Republic Indonesia and Law of Republic Indonesia Number 36 of 2009, every person has the same right to access resources in the health sector. ⁽²⁾ However, many regions in various parts of Indonesia lack adequate health services due to unequal distribution of facilities and human resources, especially in remote areas. ⁽³⁾ Indonesia's government has sought to minimize the disparity in the provision of health facilities by empowering advancement to serve all regions in Indonesia. Implementing Telemedicine in Indonesia was then regulated and adapted by healthcare facilities and standalone telemedicine platforms. ⁽⁴⁾

Recently, there has been a breakout of telemedicine platforms in Indonesia of more than 20 platforms. Although telemedicine platforms in Indonesia appear to be very well designed, there are still flaws that could be noticed compared to the regulations from other countries such as India and Singapore, for example, on the rule about human resource training. ^(5,6) Therefore, it is necessary to evaluate the use of Telemedicine according to health care providers' and patients' points of view. This research aims to evaluate the perception of Telemedicine among healthcare providers in Indonesia.

Method

This descriptive observational study is conducted on medical doctors, specialists, and dentists in Indonesia. Using convenience sampling techniques, 118 responses were gathered from an online questionnaire broadcasted through social media platforms from Jun 16 to Jun 29, 2020, who meet the inclusion criteria: a clinician who uses a telemedicine platform.

The questionnaire used in this research was adapted from the mHealth App Usability Questionnaire (MAUQ) for Interactive mHealth Apps Used by Healthcare Providers, which is helpful to evaluate the usability of a telemedicine platform according to user's experience and point of view.

The questionnaire was translated and validated in Bahasa Indonesia. Participants were given 21 positive sentences, and a scale of 1-7 indicating "strongly disagree," "disagree," "somewhat disagree," "neither agree nor disagree," "somewhat agree," "agree," and "strongly agree," respectively. The total score of response is calculated to determine the usability of an app, and the average score of all statements is determined. The higher the overall averages, the higher the usability of the platform. The data obtained was analyzed by descriptive and presented in a distribution table. This research was approved by Mohammad Heosin Central General Hospital and Faculty of Medicine Sriwijaya University, Health Research Review Committee (No.181/kepkrsmhfkunsri/2020).

Results

The most users are Mobile JKN, SehatPedia, Halodoc, Alodokter, KlikDokter and SehatQ. All six platforms provide consultation via built-in text messages between doctors and patients, and none of them consult via video conference or voice note. However, Halodoc and Alodokter platforms have paid consultation, while the others are free for consulting medical doctors. Comparing the six platforms, all platforms except Alodokter partnered with hospitals and clinics, and some also have a partnership with pharmacies, Laboratory, national insurance (BPJS), and private insurance. Other than that, Halodoc and KlikDokter are platforms that provide a prescription of drugs or accept drug purchases with uploads of conventional prescription. Apart from that, each telemedicine platforms have their unique features. The comparisons of telemedicine platforms are presented in Table 1.

The respondents of this study consist of 118 healthcare providers who practice using telemedicine platforms, with ages from 23 to 65 years old and a median age of 32 years old. Female practitioners dominate the respondents. Almost two-thirds of the respondents are medical doctors, while the rest are primarily specialists (32,2%). More than three-quarters of the respondents also practice in-person healthcare services (Table 2).

Table 1. Comparison of Telemedicine Platforms in Indonesia

Variables	Telemedicine platforms					
	Mobile JKN	Sehat Pedia	Halodoc	Alodokter	KlikDokter	SehatQ
Developer	Government (Apr 17 2016)	Government (Sep 20 2018)	Private (Mar 11 2016)	Private (Mar 13 2016)	Private (Feb 18 2015)	Private (May 13 2020)
Review/Rating	3.8/5	4.2/5	4.8/5	4.6/5	4.3/5	4.6/5
Downloads	>10.000.000	>10.000	>1.000.000	>5.000.000	>1.000.000	>100.000
Partner(s)	BPJS	BPJS	- Watson Pharmacy - Private Insurance - Prodia Laboratory	Century Pharmacy	None	Hospital and clinic
Link with hospitals/clinics	Yes	Yes	Yes	No	Yes	Yes
Media	Teks	Teks	Teks Phone Video Call	Teks	Teks	Teks Video call*
Consult with medical doctors	Free	Free	Paid	Paid	Free	Free
Consult with specialist/sub-specialist	Paid	Paid	Paid	Paid	Paid	Paid
Prescription	-	-	Yes	-	Yes	-

*Note: for specialist

Table 2 Demography of Respondents

Variable	N (%) (n=118)
Age (min-max)	32 (23 - 65)
Gender	
- Male	47 (39.8)
- Female	71 (60.2)
Occupation	
- Medical Doctors	74 (62.7)
- Dentists	4 (3.4)
- Specialists	38 (32.2)
- Others	2 (1.7)
Practice in-person healthcare service	
- Yes	96 (81.4)
- No	96 (81.4)

Table 3 Telemedicine Usage Details

Variable	N (%) (n=118)
Telemedicine platforms used	
- Alodokter	28 (23.7)
- Halodoc	23 (19.5)
- Mobile JKN	15 (12.7)
- SehatPedia	1 (0.8)
- Hospital-provided Telemedicine	20 (17.7)
- Others	32 (27.1)
Types of communication media	
- Text Chat	72 (61.0)
- Video	9 (7.6)
- Audio	2 (1.7)
- Kombinasi	35 (29.7)

Time Spent for Healthcare services through Telemedicine (hours/day)	
- 1	11 (9.3)
- 2	26 (22.0)
- 3	10 (8.5)
- 4	15 (12.7)
- 5	4 (3.4)
- 6	10 (8.5)
- 7	2 (1.7)
- 8	5 (4.2)
- 9	2 (1.7)
- 12	1 (0.8)
- Varying	32 (27.1)
Time of Experience using Telemedicine Platform	
- Less than 6 months	80 (67.8)
- 6 months - 1 year	17 (14.4)
- 1 - 2 years	8 (6.8)
- 2 - 3 years	8 (6.8)
- More than 3 years	5 (4.2)
Numbers of Patients served per day via Telemedicine Platform (patients/day)	
- Less than 5	65 (55.1)
- 5 - 10	21 (17.8)
- 10 - 20	11 (9.3)
- 20 - 30	10 (8.5)
- 30 - 40	7 (5.9)
- 40 - 50	2 (1.7)
- More than 50	2 (1.7)
Duration of service (minutes/patient)	
Less than 15	
- 15 - 30	39 (33.1)
- 30 - 45	67 (56.8)
- 45 - 60 (or 1 hour)	7 (5.9)
- More than 2 hours	3 (2.5)
	1 (0.8)

Recommend practice using Telemedicine for Healthcare service	
- Yes	106 (93.8)
- No	7 (6.2)
Recommend telemedicine platform to friends.	
- Yes	103 (91.2)
- No	10 (8.8)
Users confidence level that doctor-patient communication has been done via telemedicine consultation than in-person health service	
- Very Not Confident	3 (2.5)
- Not Confident	3 (2.5)
- Neutral	29 (24.6)
- Confident	71 (60.2)
- Very Confident	12 (10.2)
User's confident on diagnosing a patient through Telemedicine	
- Very Not Confident	1 (0.8)
- Not Confident	9 (7.6)
- Neutral	61 (51.7)
- Confident	44 (37.3)
- Very Confident	3 (2.5)
User's confident on treating a patient through Telemedicine	
- Very Not Confident	2 (1.7)
- Not Confident	8 (6.8)
- Neutral	53 (44.9)
- Confident	50 (42.4)
- Very Confident	5 (4.2)
Number of times reviewer team reviews the consult (times per week)	
- No reviewer team	48 (40.7)
- 1 - 2	57 (48.3)
- 3 - 4	3 (2.5)
- Everyday	10 (8.5)
Medical student should be educated about telemedicine news	
- Yes	104 (88.1)
- No	14 (11.9)
Telemedicine use should be continued	
- Yes	115 (97.5)
- No	3 (2.5)

Four telemedicine platforms were mainly used, i.e., Alodokter (25.7%), Halodoc (17.7%), Mobile JKN (11.5%), and Hospital-linked Telemedicine (17.7%). SehatPedia is the only platform with the least respondent (0.9%). More than half of the respondents reported that they communicate through text chat than video or audio, while nearly a third used a combination of communication media. The majority of the telemedicine platforms users use the platform for less than six months. A quarter of the users spent varying time on the platform, often facing less than five patients a day (55.1%) at particularly 15 to 30 minutes of healthcare service (56.8%). Around 40% of the platform users claim that the platforms they used

have no reviewer team. More than three-quarters of the users agree that Telemedicine is beneficial and should be taught to medical students. They would use Telemedicine for practice and recommend it to their colleagues. In many cases, users claim to have no changes in terms of confidence during either diagnosing or treating, but 71 users claim that they have better confidence in having doctor-patient communication during in-person practices (Table 3).

Table 4 Subjective Opinion

Variable	N (%) (n=118)
How respondents know about telemedicine platforms	
- Friends	63 (53.4)
- Family	7 (5.9)
- Social Media	60 (50.8)
- Commercials	25 (21.2)
- Email	4 (3.4)
- Others	21 (17.8)
Reason to use Telemedicine for daily practice	
- Flexible working hour	89 (75.4)
- Helps to inform the society	76 (64.4)
- Promising income	20 (16.9)
- High employment opportunities	24 (20.3)
- Able to surf the net in times of difficult questions	20 (16.9)
- Doesn't spend capitals like in-person practice	34 (28.8)
- As a part-time job	55 (46.6)
- App is easy to use	44 (37.3)
- Personal privacy is maintained	33 (28.0)
- As personal branding	31 (26.3)
- As an alternative during pandemic	84 (71.2)
- Others	6 (5.1)
Types of service telemedicine patient often need	
- Consult	110 (93.2)
- Counselling	75 (63.6)
- Emergency Cases	12 (10.2)
- Health Education	68 (57.6)
- Drug Prescription	40 (33.9)
- Not related to medical issue	6 (5.1)
- Others	4 (3.4)
Reason for Choosing the telemedicine platform	
- Easy to use	84 (71.2)
- Popular in the society	60 (50.8)
- Good pay	18 (15.2)
- Provide drug prescription	35 (29.7)
- Less Requirement Needed to Register	33 (28.0)
- Provide additional protection such as insurance	5 (4.2)
- Provide training and discussion forums	29 (24.6)
- Recommendation from co-doctors	22 (18.6)
- Application linked to workplace	32 (27.1)
- Others	9 (7.6)

Priorities during practice with telemedicine platform	
- Adequate diagnosis quality	59 (50.0)
- Doctor-patients communication	105 (89.0)
- Keeps patients privacy throughout the session	62 (52.5)
- Response time	52 (44.1)
- Good and appropriate health education to patient	85 (72.0)
- Maintain ethics when communicating with patients	74 (62.7)
- Safety of electronic medical record	36 (30.5)
- Patients' satisfaction	75 (63.6)
- Others	4 (3.4)

Users have first known telemedicine platforms either from their friends (53.4%) or social media (50.8%). When the users were asked about their subjective opinions and why they chose to use the telemedicine platform, they mentioned the flexible working hours (75.4 %) offered and an alternative during the pandemic (71.2%). Users chose the telemedicine platform by the ease of using the application (71.2%) and the popularity in society (50.8%). Most sessions of healthcare service include consult (93.2%), and most users consider doctor-patient communication and deliver excellent and appropriate health education to the patient as a priority when using telemedicine platform for practice (Table 4).

Table 5. mAUQ evaluated per statement

Platform	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14	S15	S16	S17	S18	S19	S20	S21
Halodoc	4.26	4.22	5.52	5.92	5.87	5.83	6.23	5.13	5.22	5.74	5.83	5.48	5.57	5.74	5.83	5.17	5.57	6.22	5.78	5.52	5.91
Alodokter	6.03	6	5.28	5.86	5.85	5.86	5.96	5.93	5.21	5.68	5.75	5.57	5.5	5.64	5.93	6.07	5.68	5.86	5.71	5.5	5.71
MobileJKN	5.15	5.38	4.77	5.31	5.15	5.38	5.15	5.31	5.08	5.15	5.08	4.77	5.23	5.08	5.08	5.31	5.08	5.08	5.08	5.23	5.31
SehatPedia	5.63	5.79	5.58	5.32	5.21	5.74	5.74	5.47	5.33	5	5.26	5.26	5.37	5.68	5.74	5.47	5.74	5.58	5.37	5.37	5.68
Lain	5.38	5.5	4.84	5.08	5.09	5.5	5.6	5.34	5.09	5	4.88	5.06	5.16	5	5.47	5.74	5.22	5.73	5.22	5.09	5.13

Table 6. Evaluation of Telemedicine platform using mAUQ

Telemedicine platform	Number of users	Total score	Average score
Halodoc	23	134.19	5.83
Alodokter	28	160.81	5.74
Mobile JKN	15	66.95	5.15
SehatPedia	1	126	6
Others	32	167.76	5.24

Telemedicine users were also asked to fill in a questionnaire adapted from mHealth Application Usability Questionnaires (mAUQ) (Table 5). The highest average score is held by the SehatPedia platform, with an average score of 6, even

though only one platform user. The runner-up is the Halodoc platform with 22 users whose average score is 5.83, followed by the Alodokter platform with 28 users, which is 5.74 (Table 6).

Discussion

This study focused on doctors' perception of telemedicine platforms and recommended using the applications. The primary aim of this study is to evaluate the usability of mostly used telemedicine platforms in Indonesia, namely Halodoc, Alodokter, Mobile JKN, SehatPedia, KlikDokter, and SehatQ. However, during the data collection, the noticeable telemedicine platforms in Indonesia are Halodoc, Alodokter, Mobile JKN, SehatPedia, and Hospital-linked Telemedicine. The main findings of this study were that the telemedicine platforms were acceptable and usable to healthcare providers, proven with the minimum and slight difference between the average scores of each telemedicine platform calculated based on mHealth App Usability Questionnaire (mAUQ) guidance.

It is shown that Mobile JKN and SehatPedia platform has the lowest number of users respondents even though they were the only government-funded Telemedicine. Evaluating Tabel 4, Mobile JKN has the lowest score for statement number one, which is applied is easy to use. Looking at the user's reviews of the application, there are some complaints that the platform insisted many times of updates and requirements to relog-in to use the application. Meanwhile, more than half of telemedicine platform users agreed that the ease of using a platform is one factor to consider when choosing a platform. A telemedicine platform that requires minimal specialized technical skills to be operated could improve patient care, health outcomes, and the confidence level of the provider (7). The same platform accumulated the lowest score in statements numbers 3, 12, and 18 related to the application interface, navigation consistency, and convenience to communicate with patients. The navigation and interface are the factors that can contribute to the application's presentation and should be kept as simple as possible; therefore, any nuisance of them could affect the user's con-

venience when using the application^(8,9). Another factor to consider is whether the application can help healthcare providers to monitor patients' health. Nowadays, many standalone telemedicine platforms are empowered by health monitoring applications that could help healthcare providers access health information related to the patient in times of emergency, avoiding test duplication and delay of treatment given to the patient⁽¹⁰⁾. There is no doubt if the standalone telemedicine platforms would have more satisfied users and a higher satisfaction rate.

The median age of the respondents was 31 years old from the age range of 22 to 65 years old. This could be related to Clements's research, where a third of online users worldwide were aged 25 - 35 years old⁽¹¹⁾. According to Agree et al.'s research, the number of Internet users who look for health information online has increased over the last ten years. Unlike the oldest and youngest age group, the productive age groups are more likely to seek health information online⁽¹²⁾. This supports the reason to use Telemedicine to provide healthcare services because of the high demand, and that Telemedicine could be a medium to educate the knowledge of the society. At the same time, Telemedicine also provides high employment opportunities when in-person healthcare service is not favored⁽¹³⁾. It is shown that there were more than half of the doctors who just started their careers in the telemedicine platforms since the pandemic evoked (less than six months ago). Our findings suggested Telemedicine is a tool that benefits the patients and the doctors in terms of access, speed, and convenience. When Telemedicine is to be compared with in-person healthcare service, researchers have proven it to be more clinically effective and cost-friendly⁽¹⁴⁾.

Additionally, some countries also support the development of telemedicine use and recommend that Telemedicine be a part of the medical student curriculum. According to the Association of American Medical Colleges (AAMC), it is crucial to ensure that graduates are ready for the challenges through an early introduction to the telemedicine healthcare system⁽¹⁵⁾. Therefore, it is righteous if telemedicine medicine users are

willing to recommend their colleagues to use telemedicine platforms and support the idea of educating medical students with this innovation.

One virtue of Telemedicine is the convenience for healthcare providers and patients⁽¹⁶⁾. This study shows that doctors preferred providing healthcare services through Telemedicine due to flexible working time. Additionally, Telemedicine offered an alternative to in-person healthcare service where the patient can receive treatment for common conditions from afar. Moreover, it also helps healthcare providers avoid direct contact with patients. This is incredibly beneficial, especially in pandemics where in-person healthcare service isn't feasible. However, the setbacks of not meeting the patient in-person means that the clinician couldn't do the physical examination needed to deduct the diagnoses and differential diagnoses, so it might affect the clinicians' performance.

One of the points to serve good quality healthcare is to have appropriate facilities for patients' best experience. However, meeting such demand is quite challenging, especially in preparing the physical assets for in-person healthcare service. This is in line with the benefits that Telemedicine offers. Being a practitioner in telemedicine platforms is also considered more profitable because though the pay is not as much as an in-person healthcare service, the payment is worth for⁽¹⁷⁾. Good quality healthcare could also be determined through practitioners' knowledge and technical skills⁽¹⁸⁾. Relating to research done by Fairchild, Elfrink, and Dieckman, diagnosis of diseases done using Telemedicine is as successful as in-person healthcare service⁽¹⁹⁾. This is by our study where most telemedicine users prioritize adequate diagnosis quality and have the same confidence in diagnosing, treating, and communicating with patients at either Telemedicine or in-person healthcare service. Although only a tiny portion of the practitioner surfs the internet in difficult questions, the patients' trust towards healthcare providers could be at stake. According to Telemedicine regulations in India and Singapore, all healthcare providers are required^(5,6). The legislation also mentioned that there would be periodic

reviews and evaluations of the service process on the healthcare providers. These points are lacking in Indonesia's regulation; thus, it is inevitable to avoid patient trust issues and complaints. Fortunately, some Indonesian telemedicine platforms provide formal discussion and training forums for healthcare providers to update their knowledge and service reviews.

Today, most patients considered telemedicine platforms as an accessible and convenient way to receive healthcare services. With the help of this platform, patients in remote areas benefit quicker and conveniently from access to specialists⁽²⁰⁾. The most frequently needed healthcare services in Telemedicine are consults and counsel; therefore, good communication between healthcare providers and patients is a crucial issue. As we can see in the results of this study, most doctors claim to prioritize doctor-patient communication during healthcare practice both in person and through telemedicine platforms. According to King and Hoppe, impressive evidence supports the association of doctors and patients' communication to their adherence and positive outcomes, making it easier to educate the patients. Additionally, good communication between doctors and patients through Telemedicine also helps to decrease the number of malpractice complaints related to non-verbal communication errors such as lack of empathy, lack of respect, facial expressions, and eye contact⁽¹⁷⁾.

Conclusion

Majority of healthcare providers feel the benefits of using telemedicine. SehatPedia is application that provides the most useful health services based on the perspective of healthcare providers. The introduction of Telemedicine in Indonesia has brought a lot of benefits to many parties in society and a solution for challenges in the healthcare sector. Telemedicine could certainly be a very useful media to help healthcare providers in their community services. However, the growth and development of telemedicine platforms should be monitored and evaluated periodically to maintain the improvements of the healthcare system in the country.

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