

Supplement

Teleconsultation in Hospital Service: Implementation Challenge

Telekonsultasi dalam Pelayanan Rumah Sakit: Tantangan Implementasi

Cicilia Maria Ernawati¹, Else Agustina², Suryanto³

¹Master Program in Hospital Management Faculty of Medicine Universitas Brawijaya Malang

²UMM Hospital Malang

³Department of Nursing Faculty of Health Sciences Universitas Brawijaya Malang

ABSTRACT

Teleconsultation is one of the telemedicine services provided by hospitals and is getting popular during the COVID-19 pandemic. As a new service model, developing a quality management system that can ensure the effectiveness and safety of this service to provide users' satisfaction is necessary. This research aimed to identify and analyze the process and problems of teleconsultation services. This research was qualitative with a descriptive case study approach to get a detailed picture of the teleconsultation process in a hospital and its issues. The study was conducted from September to October 2021 in a type C private hospital in Malang. Data were obtained from interviews with officers and patient feedback on teleconsultation services. Problems in teleconsultation services in the hospital were ineffective communication, limited-service coverage, lack of support for medical support facilities, technological constraints, lack of understanding of service flow, and cost affordability.

Keywords: *Healthcare quality, teleconsultation, telemedicine*

ABSTRAK

Telekonsultasi merupakan salah satu layanan *telemedicine* yang disediakan oleh rumah sakit dan semakin populer di masa pandemi COVID-19. Sebagai model layanan baru, pengembangan sistem manajemen mutu yang dapat memastikan efektivitas dan keamanan layanan ini untuk memberikan kepuasan pengguna sangat diperlukan. Penelitian ini bertujuan untuk mengidentifikasi dan menganalisis proses dan permasalahan layanan telekonsultasi. Penelitian ini merupakan penelitian kualitatif dengan pendekatan studi kasus deskriptif untuk mendapatkan gambaran rinci tentang proses telekonsultasi di sebuah rumah sakit dan permasalahannya. Penelitian dilaksanakan pada bulan September sampai Oktober 2021 di salah satu rumah sakit swasta tipe C di Malang. Data diperoleh dari wawancara dengan petugas dan feedback pasien terhadap layanan telekonsultasi. Permasalahan dalam layanan telekonsultasi di rumah sakit adalah komunikasi yang tidak efektif, cakupan layanan yang terbatas, kurangnya dukungan fasilitas penunjang medis, kendala teknologi, kurangnya pemahaman alur layanan, dan keterjangkauan biaya.

Kata Kunci: *Kualitas kesehatan, telekonsultasi, telemedicine*

Correspondence: Cicilia Maria Ernawati. Master Program in Hospital Management Faculty of Medicine Universitas Brawijaya Malang, Jl. Veteran Malang Tel. +6282140814079 Email: cicili@student.ac.id

DOI: http://dx.doi.org/10.21776/Article_in_Press

INTRODUCTION

Since Corona Virus Disease (COVID-19) was declared a pandemic by the World Health Organization (WHO), it has brought global challenges to health care systems. Those challenges were the new responsibilities and roles of health workers, fatigue and stress among health workers, positive changes in response to the crisis, psychological responses to COVID-19 as a catalyst for changes, and the need for open leadership from health managers and stakeholders (1). At the beginning of the pandemic, all health care systems faced difficult situations with the increasing number of patients, limited medical devices and medicines, COVID-19 transmission among health workers, and the issue of services for non-COVID-19 patients (2). The lessons learned from this pandemic situation were the need to prepare and implement evidence-based guidelines, accelerate collaboration between parties, redesign and use of information technology, and organizational leadership and learning (3). One of the service methods developed during the pandemic was telemedicine.

The word “telemedicine” comes from Greek. It consists of the word tele, which means far, and medical, which means health services given by health workers. Experts define telemedicine as a combination of information and communication technology with medical experts to provide health services that are not limited by distance or can be carried out remotely (4). Telemedicine applications can be divided as 1) Tele-expertise, telemedicine that connects general practitioners with specialists or between specialists; for example, interpretation of radiology results or second opinion, 2) Tele-consultation, telemedicine that connects patients with doctors, 3) Tele-monitoring, monitoring various parameters of the patient’s body virtually, 4) Tele-assistance, providing direction to patients; for example, the rehabilitation process, and 5) Tele-robotics, controlling a robot remotely, commonly used in telepathology or telesurgery (4).

Through the Decree of the Minister of Health Number 4829 of 2021, the government regulates telemedicine services that health service facilities can carry out during the COVID-19 pandemic, one of which is clinical teleconsultation services. The clinical teleconsultation in this guideline includes anamnesis, physical examination through audiovisual, advising, establishing a diagnosis, prescribing, and delivering additional examinations and further management. In providing telemedicine services, including teleconsultation, hospitals must provide quality services to ensure patient safety and customer satisfaction. Service quality is a critical factor that determines the long-term continuity of telemedicine services (5), as well as maintaining its benefits and strengthening its stability (6). One of the efforts to improve the quality of telemedicine services is to examine customers’ expectations and needs. Hospital management must look at the service process to identify improvement opportunities (5)

During the COVID-19 pandemic, telemedicine services carried out by teleconsultation via video have been encouraged and improved to reduce transmission risk (7). Many patients found it challenging to consult doctors directly during the pandemic, so teleconsultation services bridge the need for adequate medical care (8). In addition, telemedicine services provide other benefits, such as reaching patients far from the hospital at a more efficient cost (9,10), and can improve doctor-patient relationships, improve patient compliance, and reduce re-admissions (9).

Despite the benefits provided, previous studies revealed problems in telemedicine implementation, that were limited access to information and communication technology, lack of awareness of using the internet, lack of infrastructure support, lack of motivation, patient dissatisfaction, lack of trust and effective communication, low health literacy, unguaranteed digital security, questionable data accuracy, issues related to privacy and confidentiality, risk of misuse and misdiagnosis (9,10). The problems encountered made this service interesting to study in the context of the local situation in Indonesia.

This research was conducted at a type C private hospital that has various specialist and sub-specialist medical services. To meet the public needs, maintain customer engagement, and increase the income that had been decreased during the COVID-19 pandemic, the hospital developed a clinical teleconsultation service that was opened on July 21, 2021. During the service, complaints were registered from staff and patients. The staff complained about the limitations of the application system and technology-related problems, such as sudden drop of network, and the patients complained about the unclear information. As a relatively new service, teleconsultation services still have opportunities for service quality improvement. Although regulations on the quality standards of teleconsultation and telemedicine services, in general, have not yet existed, hospitals need to develop their quality management system for teleconsultation services. The development can be started by identifying the problems that arise in the teleconsultation services organized by the hospitals. Thus, this study aimed to identify and analyze the processes and problems of teleconsultation services in hospital.

METHOD

This research was descriptive qualitative with a case study approach to obtain a detailed description of the process of teleconsultation services at a type C private hospital. The study was conducted from September to October 2021. Data were obtained from interviews with the hospital staff involved in teleconsultation services and the results of patient feedback on teleconsultation services.

Interviews were conducted to describe the teleconsultation service process and identify the problems during teleconsultation services. Interviews were conducted with seven hospital staff involved with teleconsultation services, namely one front office officer, two teleconsultation service hosts, one person in charge of outpatient pharmacy, one cashier, one drug delivery administration officer, and the head of the Hospital Information System (HIS).

In addition, this study also collected feedback data from patients who received telecommunication services in the hospital, aiming to obtain their experiences and perceptions about the teleconsultation services they received through questionnaires using Google Forms consisting of 1) consent sheet, 2) demographic data, 3) registration procedure, 4) teleconsultation service, 5) prescription and drug delivery service, 6) financing, and 7) perceptions and expectations. Closed questions using a 5-point Likert scale were used on the components of registration procedures, teleconsultation services, prescription and drug delivery services, financing, and some questions on the perception and expectation components. Besides, open questions were given on the components of perception and expectation. The questionnaire systematics was adapted from the conceptual framework principles in the research of Lerouge et al. (2014) that explored the patients' perspective on telemedicine from system quality, information quality, service support quality, and the benefits and effectiveness of services (11). A total of 11 questionnaires were filled out from 42 patients who received teleconsultation services in July and August 2021. Descriptive analytics was carried out to analyze the data.

RESULTS

Teleconsulting Service Process

Teleconsultation services at the hospital involved four stages, namely, registration, execution, prescription services, and drug delivery. Patient registration was done through the hospital hotline by filling out the Google Forms provided. Teleconsultation was executed using Zoom Meeting guided by a host in charge of controlling the teleconsultation and assisting with technical problems faced by patients. The doctor conducted clinical teleconsultation that included anamnesis, physical examination through audiovisual (if necessary), diagnosis, therapy, and counseling and educating patients. Prescription services were carried out by pharmacists based on doctor's prescriptions. Prescriptions prepared by pharmacists were delivered to the patient's house by drug delivery staff. Teleconsultation cost was paid by the patients and was not guaranteed by health insurance both government and private insurance. Payments were made online by transferring to the hospital's account. The cashier verified the proof of payment, and then the patient was given a Zoom Meeting link for teleconsultation services. Proof of payment was sent to the patient along with drug delivery. Doctors documented the services in an electronic medical record that could be accessed by doctors through the teleconsultation application. The teleconsultation application was a web-based application developed to document clinical data of teleconsultation services and could only be accessed by doctors through their accounts. The application was restrictedly connected to the HIS, which was limited to patient data input by front office staff and prescriptions that could be seen by pharmacists.

Teleconsulting Problems from the Officer's Perspective

Based on the interview results, several problems were found related to the teleconsultation services delivered by the officers. These problems could be grouped into technology, registration process, service process and drug delivery, and payment process.

Problems related to technology include the lack of integration of hospital medical records with medical records in teleconsultation applications, patients' inability to use technology, electrical constraints, signals, and application limitations.

"...our homework is that the patients' medical records have not been integrated with the hospital's medical record. so, we can't access the patient's history..." (Respondent 1)

"...it feels bad if there are elderly patients, so they seem confused. especially when they join zoom meeting using their cellphones, and they don't get used to using zoom right, so some patients don't know how to unmute..." (Respondent 2)

"...suddenly blackout happened..." (Respondent 2)

"...when the doctor was talking to the patient, suddenly the patient left the zoom, so the doctor had to wait...." (respondent 2)

"...the doctor also ever suddenly left zoom...." (Respondent 2)

"...the doctor once complained about patient name being served that had not been listed in the application. in fact, it is already the schedule. I couldn't open the doctor's application, so I had to call the it staff...." (Respondent 3)

"...for the application, we admit that there are still limitations... there is no print menu yet, it is still impossible to make a data recap.... and, it has not connected to the hospital's medical record.... what the doctor often asks for is the menu to upload lab results, x-rays... it is still not available...." (Respondent 7)

The problem related to the registration process was the lack of communication, causing officers' inability to know that there were patients who registered.

"...so, it was a time that there was a patient who filled out the link, but didn't confirm us, so we didn't know. well, it was our fault that we missed checking, and in the google form, the date was not filled..." (Respondent 3)

About the service process and drug delivery, respondents stated the obstacles regarding drug education by pharmacists that had not been facilitated by the system and the unclear delivery address.

"...actually, the problem of drug education for tele patients is done by the doctor, but the patient still has to ask again, what the medicine is for..... sometimes, the patient asks at the cashier when he pays for the medicine, off course the cashier can't explain, so they ask us...." (Respondent 4)

"...the address is not clear, sometimes when the delivery arrived there, it turns out that the patient has moved, so the medicine is returned....." (Respondent 6)

Regarding the payment process, respondents stated that there are difficulties, such as if the patient cancels registration and the cashier must return the fees paid, the teleconsultation financing is not covered by insurance, and drug billing still uses a manual system.

"...our difficulty is if the patient cancels the service, and we must refund because we usually pay in cash..... if the transfer uses the hospital account, it takes a long time because we must submit to the director..... so, we figure it out by the transfer using the employee's personal account." (respondent 5)

".....the patient asked if he/she could use BPJS...." (Respondent 5)

".....the drug billing is still manual, ma'am. so, our staff deliver it to the pharmacy on foot...." (Respondent 5)

Teleconsultation Problems from the Patient's Perspective

The number of respondents who participated by filling out the questionnaire were 11 people, mostly aged 20-39 years, female, married, lived in Malang City, hold a bachelor's degree, private employees, hospital's loyal customers, knew information about teleconsultation from Instagram, and received the teleconsultation services just once.

Respondents' closed answers are shown in Table 1. In general, patients believed that the teleconsultation services were good, but some components were still unfavorable, namely the clarity of providing registration hotline information, internet network quality, duration of teleconsultation services, ease of prescription procedure administration, clarity in providing information on procedures for taking drugs, and cost affordability. Regarding patient satisfaction, 9.1% were dissatisfied with teleconsultation services and considered that teleconsultation was unable to meet their needs. In the interest of redoing the teleconsultation service, 9.1% of respondents were doubtful, and 18.2% disagreed.

Table 1. Frequency distribution of closed-question answers

	%				
	Very Good	Good	Fair	Poor	Very Poor
Teleconsultation Registration Procedure					
Ease of contacting the registration hotline	45,5	54,5	0	0	0
Registration hotline response swiftness	45,5	54,5	0	0	0
Clarity of providing registration hotline information	45,5	45,5	9,1	0	0
Easy registration procedure	45,5	54,5	0	0	0
Friendliness of registration hotline officers	45,5	54,5	0	0	0
Implementation of Teleconsultation					
Internet network quality	54,5	36,4	9,1	0	0
Ease of access to the given link	54,5	45,5	0	0	0

Ease of use of media	36,4	63,6	0	0	0
Application convenience	45,5	54,5	0	0	0
Image clarity	45,5	54,5	0	0	0
Voice clarity	45,5	54,5	0	0	0
Punctuality of doctor's attendance	45,5	54,5	0	0	0
Teleconsultation service duration	36,4	54,5	9,1	0	0
Friendliness and clarity of doctor's information	63,6	36,4	0	0	0
Technical support	27,3	72,7	0	0	0
Prescription and drug delivery services					
Ease of procedures for managing drug prescriptions	36,4	54,5	9,1	0	0
Drug delivery swiftness	27,3	72,7	0	0	0
Clarity of providing information about the procedure for taking the medication	36,4	54,5	9,1	0	0
Teleconsultation Cost					
Cost affordability	9,1	63,6	27,3	0	0
Ease of payment procedure	27,3	72,7	0	0	0
Perceptions and expectations					
	Very Satisfied	Satisfied	Neither	Dissatisfied	Very Dissatisfied
Satisfaction level	27,3	63,6	0	9,1	0
	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
Teleconsultation services can meet the needs	27,3	54,5	9,1	9,1	0
Teleconsultation services can reduce the disease or complaints	27,3	72,7	0	0	0
Interest in getting future teleconsultation services	27,3	45,5	9,1	18,2	0

The open questions asked were about the obstacles faced during teleconsultation services, expectations for teleconsultation services, and suggestions for improving the teleconsultation service quality. Some patients stated that there were no problems, but some conveyed technical issues, problems related to supporting examinations, problems due to difficulties in using the application, and obstacles related to drugs and information delivery. Patients' general expectation was that teleconsultation services could be developed so that more specialist doctors involved in these services. Patients also expected cheaper costs and better services. On the questions about input on teleconsultation services, the patient revealed the need for an explanation of the Standard Operating Procedure of the service, notification of drug delivery, information about drug side effects, costs that could be covered by health insurance, radiology examinations in digital form, while the doctor services were good because, according to the patients, the doctors were friendly and knowledgeable. The patients also stated that the teleconsultation service was quite good and not too many queues; however, the patients hoped to meet face-to-face with the doctor.

Thematic Analysis

Data on teleconsultation problems obtained from questionnaires and interviews were then analyzed thematically, as can be seen in Table 3. It is known that several themes emerged regarding teleconsultation issues related to communication, medical support, service coverage, technology, service flow, patient satisfaction, waiting time, and cost.

Table 2. List of Teleconsultation Problems in Hospitals

Theme	Problem Description	Data source
Communication	The clarity of providing information about registration procedures is considered poor by some patients	Questionnaire (closed questions)
	The clarity of providing information about the procedure for taking the medication is considered poor by some patients	Questionnaire (open-ended and closed questions)
	Provision of unclear information: about drug delivery and about the drug itself (side effects)	Questionnaire (open-ended and closed questions), Interview
	Lack of clear SOP of teleconsultation (according to the patients)	Questionnaire (open-ended questions)

Technology	Education about drugs by pharmacists has not been facilitated by the system	Interview
	Drug delivery address is not clear	Interview
	The application has not been able to print out patient data and to display reporting and presentation of patient clinical data	Interview
	Difficulty in using technology for elderly patients and patients who are not familiar with Zoom	Interview
Medical support	The quality of the internet network is not good	Interview, Questionnaire (closed questions)
	Patients cannot send X-rays because they use cell phones	Questionnaire (open-ended questions)
Patient Satisfaction	Filling out medical records for teleconsultation services has not been integrated with medical records in the hospital	Interview
	CT scan results are not yet available in digital format, so they cannot be used as a support for teleconsultation services (questionnaire results)	Questionnaire (open-ended questions)
	The duration of teleconsultation services is considered poor by some patients	Questionnaire (closed questions)
	Teleconsultation services have not been able to meet the needs of some patients	Questionnaire (closed questions)
Financing	Some patients are hesitant and even not interested in getting teleconsultation services	Questionnaire (closed questions)
	The affordability of teleconsultation services is considered poor	Questionnaire (closed questions)
Service Flow	The cost has not been covered by insurance	Questionnaire (open-ended questions)
	The ease of procedures for administering drug prescriptions is considered poor by some patients	Questionnaire (closed questions)
	Incidents of patient registration without confirmation to the front office staff	Interview
Service Coverage	Patients expect more polyclinics to open teleconsultation services and, if possible, can chat with their doctors	Questionnaire (open-ended questions)
Waiting time	Slow drug delivery	Interview

DISCUSSION

Problems in teleconsultation services in the hospital can be mapped into several themes, which are ineffective communication, limited service-coverage, lack of support for medical support facilities, technological constraints, lack of understanding of service flow, and cost affordability. The most common problems found are problems related to communication. Two other important issues are related to medical support and technology.

Problems related to communication mainly occurred between officers and patients. Some important information was not conveyed through online communication between officers and patients. The poor reading culture among the patients is an obstacle to delivering information through digital media (12). Information technology and communication are important instruments for improving health communication (13), but several possible barriers in the delivery of information must be anticipated. Constraints commonly found in online communication and education are limited physical access and digital capabilities (13), lack of technical skills, inadequate infrastructure, and lack of support and strategies from institutions (14). Social support, user experience, and collaborative communication design are required to overcome those constraints (13).

Effective communication is an essential requirement for implementing patient-centered care (15). It is because patient-centered care contains elements of fulfilling responsibilities to improve health literacy, build collaboration and relationships, and understand and appreciate patients (16). Thus, an environment that can facilitate interactions and conversations between officers and patients is needed to form these interactions (17).

As the backbone of teleconsultation services, issues from the technological aspect must be given serious attention. The elements in the technology aspect are reliability, usability, performance, affordability, sophistication, and ergonomic design (11), network rate, equipment quality, and operational comfort (6). Technologically, the use of Zoom Meeting for teleconsultation and WhatsApp for registration and communication media between customer service and patients is quite reliable. In practice, problems from the network aspect that cause interrupted services are because the doctor or patient suddenly disappears from the Zoom Meeting room. Although the hospital cannot intervene this problem, the hospital needs to anticipate it by communicating with doctors and patients to ensure that the internet quota is good and is in an area with good internet access.

Other technical aspects were audio clarity, image resolution, and motion handling (11). The problems found were mainly related to the motion handling of Zoom application, especially for elderly patients. The hospital overcame the problem by allowing the patient's family to accompany during the service, and the hospital prepared a host to assist the patients dealing with the difficulties of using the technology.

Technological issues relate to ease of access are overcome by providing timely, geographically reasonable health care, and the skills and resources used must match medical needs (16). Constraints from the technological aspect can limit access to teleconsultation services, especially in conditions where the internet network is weak, and patients are incapable of using technology.

One of the medical support problems in teleconsultation services in the hospital is that medical records have not been integrated in the teleconsultation application with medical records in the hospital. It can affect the continuity of patient care, especially for old patients who have received previous treatment. The integration of medical records is important to ensure continuity of care from patients. Continuity of care describes the extent of a series of health services received by patients can be coherent and consistently interconnected over time according to the needs and preferences of the patients (18). Continuity of care can improve the quality of care if it is consistently documented, especially for chronic patients (19). Additionally, continuity of care is also associated with patient satisfaction (20).

Based on Article 46 of the Medical Practice Law, a doctor must make a patient's medical record in carrying out a medical practice. Likewise, the sanctions are contained in article 79. Article 2 of Minister of Health Regulation Number 269 of 2008 concerning Medical Records explains that medical records must be made in writing, complete, and clear, or electronically. Medical records using electronic information technology are further regulated by separate regulations. Unfortunately, for more than 10 years since this regulation was made, there have been no update (21).

The medical record made in the teleconsultation application at the hospital contains patient's identity, chief complaint, history of current illness, past medical history, previous medical history, history of supporting examinations, physical examination, diagnosis, and treatment plan. Those components meet the Regulation of the Minister of Health Number 269 of 2008 Article 3 concerning Medical Records that the contents of the medical record for outpatients must at least contain a) patient identity, b) date and time, c) anamnesis results covering at least complaints and disease history, d) results of physical examination and medical support, e) management plan, f) treatment and/or action, g) other services given to the patient, h) odontogram for dental cases and approval of action when necessary .

In terms of service quality, medical records support effective clinical services. The services provided must be based on strong scientific evidence and able to provide results that improve patient health outcomes both individual and community, and the services provided must be based on patient needs (16). The service effectiveness can be evaluated through the completeness of the patient's medical record. Those data can be studied and analyzed to improve the quality of clinical services and become the basis for decision making, both clinical and managerial.

In addition to medical records, supporting examinations could not be integrated into services at the hospital. The teleconsultation application that has been built has not been able to facilitate the issuance of the diagnostic-support examinations. If the patient requires diagnostic support, the diagnosis is carried out separately from the existing system. The existing system also had not been able to facilitate the digital form of the results of supporting examinations. The menu for uploading the results of the patient's supporting examination to be stored in the teleconsultation medical record still does not exist. Based on the Decree of the Minister of Health Number 4829 of 2021 concerning Guidelines for Health Services Through Telemedicine during the Corona Virus Disease 2019 (COVID-19) Pandemic, supporting examinations are included in the scope of services that can be provided through telemedicine, with the terms and conditions described in the regulation.

Investigations are needed to help establish the diagnosis. If a patient requires a follow-up examination, the patient who comes in person and the patient who is served by teleconsultation should be treated the same. Therefore, the teleconsultation service system should also be able to facilitate the issuance of cover letters for supporting examinations in accordance with medical indications and regulated based on existing regulations.

The next problem related to supporting services is about prescription services. As specified in the regulations, telemedicine services may also include tele-pharmaceutical services. However, prescription services carried out for teleconsultation at the research hospital could not be considered as tele-pharmacy because the provisions contained in the regulations had not been fulfilled. The hospital faced several obstacles for the implementation of tele-pharmacy, such as the application system that did not have a menu for tele-pharmacy and the limited number of pharmacists in outpatient care so that tele-pharmacy services were not yet possible to implement.

Prescription services are related to the safety of health services. Drug administration is a service that poses risks to the patient. Therefore, the handling of these drug services must be done carefully. The Decree of the Minister of Health number 4829 of 2021 regulates pharmaceutical service standards facilitated by telemedicine or tele-pharmacy must ensure the quality and safety of pharmaceutical preparations, medical devices, and consumables. Pharmacists are required to convey information on pharmaceutical preparations, medical devices, consumable medical materials, and/or health supplements to patients in writing and/or through an electronic system and conduct counseling and monitoring of drug use if necessary. The system created must be able to guarantee that patients who have received pharmaceutical preparations, medical devices, consumable medical materials and/or health supplements will use drugs based on doctor's prescriptions and information from pharmacists.

Funding problems were also found in teleconsultation services in hospitals. From the feedback, patients complained that the cost was still too expensive and was not covered by insurance. However, theoretically, telemedicine has several advantages, namely 1) improving public health access, 2) improving health quality, and 3) reducing health costs (4). The

gap between the benefits of teleconsultation and in-person consultation is decreasing as the patients become closer to the technology (22). Meanwhile, economic value is still a difficult problem (22) although other studies have shown financing effectiveness (23).

Overall, the use of teleconsultation can save patients traveling costs to health care facilities by 94% (24). Telemedicine benefits patients because it reduces transportation costs, reduces work permit, and reduces waiting times, thereby increasing patient satisfaction (25). Telemedicine services can also increase hospital revenues, that telemedicine services in the United States increase hospital revenues by 101,744 USD per year (26).

Other problems identified were related to service coverage, service flow, and waiting time. The scope of services is expected to be wider, so more specialist doctors will provide teleconsultation services. Meanwhile, the service flow requires clearer information delivery about standard operating procedures in teleconsultation services, so patients could accept it easily. The waiting time for teleconsultation services by doctors is relatively good because doctors tend to be more punctual. The problem of waiting time in this study was related to drug delivery and information on drug delivery that was not clear.

In general, the level of customer satisfaction with teleconsultation services at the hospital was quite good, 63.6% of respondents said they were satisfied and 27.3% of them were very satisfied. The level of patient satisfaction with teleconsultation services varies in different countries, it is 86.8% in Malaysia (27), and between 59.40% and 83.96% in Jeddah (28). Hospitals need to make quality improvements, so the services provided can meet patient needs. Aspects that need to be improved are the quality of technology and function of the developed system (13,24), financing (13), and standardizing the attitudes of officers and doctors (25).

As an implication of this research, several considerations must be made if the hospital wants to develop teleconsultation services. From the communication problem, hospitals can develop attractive communication methods with understandable language and eye-catching designs. In interacting with patients through chat, officers must be able to dialogue with patients interactively by confirming the patient's understanding. If necessary, the organization can establish standard operating procedures for such communications. Since the technology is an important aspect in teleconsultation services, problems related to the network and usage must be anticipated before the service is launched. Good and appropriate communication about network requirements, the use of certain features and the provision of assistance from hospitals can be used as alternatives to overcome problems from the technological aspect. From medical support problems, especially medical records, pharmaceutical services and supporting examinations, hospitals can consider integrating them through the management information system they have. The existing HIS can be expanded with features for teleconsultation services. This development is also useful for improving services.

The limitation of this study is that this study did not explore the doctor's problem as the provider of teleconsultation services. Doctors are the main actors in teleconsultation services, so it is important to know their perspectives and experiences in providing online clinical consultation services. It is hoped that the quality of clinical services can be maintained even though the doctor's services are carried out remotely. This research can be developed both quantitatively with a larger sample size and varied types of hospitals, as well as qualitatively by examining in depth the perceptions and experiences of patients receiving teleconsultation services, as well as the experiences and perceptions of doctors as service providers.

REFERENCES

1. Turner S, Botero-Tovar N, Herrera MA, et al. *Systematic Review of Experiences and Perceptions of Key Actors and Organisations at Multiple Levels within Health Systems Internationally in Responding to COVID-19*. Implementation Science. 2021;16(1):1–14.
2. Bhambere S, Abhishek B, and Sumit H. *Rapid Digitization of Healthcare - A Review Of COVID-19 Impact on Our Health Systems*. International Journal of All Research Education and Scientific Methods. 2021;9(2):1457–9.
3. Lumenta N, Djasri H. *Editorial Pembelajaran Manajemen Mutu Pelayanan Kesehatan dari Pandemi Covid-19 Indonesian Healthcare Quality Network (IHQN)*. Journal of Hospital Accreditation. 2021;03:1–2.
4. IDI. *Telemedis: Rekomendasi Ikatan Dokter Indonesia Untuk Masa Depan Digitalisasi Kesehatan Di Indonesia*. 2018;76.
5. Yun EK, and Chun KM. *Critical To Quality In Telemedicine Service Management: Application Of DFSS (Design For Six Sigma) And SERVQUAL*. Nursing Economics. 2008;26(6):384–8.
6. Lu W, Wang XP, Zhao J, and Zhai YK. *Research on Teleconsultation Service Quality Based on Multi-Granularity Linguistic Information: The Perspective of Regional Doctors*. BMC Medical Informatics and Decision Making. 2020;20(1):1–13.
7. Ohannessian R, Duong TA, and Odone A. *Global Telemedicine Implementation and Integration Within Health Systems to Fight The COVID-19 Pandemic: A Call to Action*. JMIR Public Health and Surveillance. 2020;6(2).
8. Arshad Ali S, Bin Arif T, Maab H, et al. *Global Interest in Telehealth During COVID-19 Pandemic: An Analysis of Google Trends™*. Cureus. 2020;12(9).
9. Haleem A, Javaid M, Singh RP, and Suman R. *Telemedicine for Healthcare: Capabilities, Features, Barriers, and Applications*. Sensors International [Internet]. 2021;2(June):100117. Available from:

<https://doi.org/10.1016/j.sintl.2021.100117>

10. Chowdhury SR, Sunna TC, and Ahmed S. *Telemedicine Is an Important Aspect of Healthcare Services Amid COVID-19 Outbreak: Its Barriers In Bangladesh and Strategies To Overcome*. International Journal of Health Planning and Management. 2021;36(1):4–12.
11. Lerouge CM, Garfield MJ, and Hevner AR. *Patient Perspectives of Telemedicine Quality*. Patient Preference and Adherence. 2014;9:25–40.
12. Tahmidaten L, and Krismanto W. *Permasalahan Budaya Membaca Di Indonesia (Studi Pustaka Tentang Problematika & Solusinya)*. 2020.
13. Borg K, Boulet M, Smith L, and Bragge P. *Digital Inclusion and Health Communication : A Rapid Review of Literature*. Health Communication. 2019;34:1320–8.
14. O'Doherty D, Dromey M, Loughheed J, Hannigan A, Last J, and McGrath D. *Barriers and Solutions to Online Learning in Medical Education - an Integrative Review*. Vol. 18, BMC Medical Education. BioMed Central Ltd.; 2018:
15. Boykins D. *Core Communication Competencies in Patient-Centered Care*. ABNF Journal. 2014;25(2).
16. Ogden K, Barr J, and Greenfield D. *Determining Requirements For Patient-Centred Care: A Participatory Concept Mapping Study*. BMC Health Services Research. 2017;17(1).
17. Bokhour BG, Fix GM, Mueller NM, et al. *How Can Healthcare Organizations Implement Patient-Centered Care? Examining a Large-Scale Cultural Transformation*. BMC Health Services Research. 2018;18(1).
18. WHO. *Continuity And Coordination Of Care A Practice Brief To Support Implementation Of The WHO Framework On Integrated People-Centred Health Services [Internet]*. 2018: 76. p. Available from: <https://apps.who.int/iris/bitstream/handle/10665/274628/9789241514033-eng.pdf?ua=1>
19. Cabana MD, and Jee SH. *Does Continuity of Care Improve Patient Outcomes?* Journal of Family Practice. 2004;53(12):974–80.
20. Saultz JW, and Albedaiwi W. *Interpersonal Continuity Of Care And Patient Satisfaction: A Critical Review*. Annals of Family Medicine. 2004;2(5):445–51.
21. Kuntardjo C. *Dimensions of Ethics and Telemedicine In Indonesia: Enough Of Permenkes Number 20 Year 2019 as A Frame of Telemedicine Practices in Indonesia?* Soepa. 2020;6(1):1–14.
22. Frade S RH. *Benefits, Challenges and Impact of Teleconsultation - A Literature Review*. Stud Health Technol Inform. 2013;192:1157.
23. Reed K. *Telemedicine: Benefits to Advanced Practice Nursing and The Communities They Serve*. Journal of the American Academy of Nurse Practitioners. 2005;17(5):176–80.
24. Lu W, Hou H, Ma R, et al. *Influencing Factors of Patient Satisfaction in Teleconsultation: A Cross-Sectional Study*. Technological Forecasting and Social Change. 2021;168.
25. Cantos PL, Chua NJ, Florentin MJ, Gabriel Gomez T, Hapan MF, and Salmon S. *Perceived Level of Satisfaction of Filipino Patients Residing in Metro Manila towards Teleconsultation as New Means of Healthcare Delivery [Internet]*. Vol. 2, International Journal of Progressive Research In Science And Engineering. 2021. Available from: www.ijprse.com
26. Atmojo JT, Sudaryanto WT, Widiyanto A, and Arradini D. *Telemedicine, Cost Effectiveness, and Patients Satisfaction: A Systematic Review*. Journal of Health Policy and Management [Internet]. 2020;5(2):103–7. Available from: <https://doi.org/10.26911/thejhpm.2020.05.02.02>
27. Othman EA, Mohamad M, and Giampietro V. *Patient Satisfaction with Teleconsultation During Covid-19 Pandemic: A Descriptive Study for Mental Health Care in Malaysia*. Vol. 21, Malaysian Journal of Public Health Medicine. 2021.
28. Magadmi MM, Kamel FO, and Magadmi RM. *Patients' Perceptions And Satisfaction Regarding Teleconsultations During The COVID-19 Pandemic In Jeddah, Saudi Arabia*. 2020; Available from: <https://doi.org/10.21203/rs.3.rs-51755/v1>