ABSTRACT

Objective: The COVID-19 pandemic in Indonesia has transformed various aspects of life, particularly in healthcare, where communication between doctors and patients has shifted toward increased utilization of telemedicine. This research aims to achieve several objectives. Firstly, it investigates the deployment process of telemedicine as a remote medical service solution during pandemic circumstances, involving physical distancing and constraints. Secondly, it explores how telemedicine is adapted within clinic settings, considering the unique challenges and necessary adjustments for effective integration.

Method: This research utilizes a case study approach, specifically a multiple case study.

Result: Telemedicine heavily relies on patients' knowledge, information, and their role in substituting a physician's sensory input in making comprehensive medical decisions. Effective communication skills emerge as a critical solution, often overlooked as a soft skill for medical practitioners. Telemedicine encounters difficulties in discerning nonverbal cues compared to in-person consultations. To address this challenge, information gathering should encompass various media, such as photos and videos, in addition to text or verbal exchanges. Furthermore, telemedicine faces barriers related to connectivity and network issues.

Conclusion: Recognizing the equal standing of doctors and patients is imperative, with physicians fostering openness and trust as the foundation for mediated communication. Although specific criteria for information collection exist, doctors should proactively explore relevant patient aspects. To mitigate network issues, healthcare facilities should establish robust network infrastructure, provide healthcare professionals with suitable devices, and consider dedicated telemedicine applications for comprehensive technology mastery.

Keywords: COVID-19, doctor-patient communication, pandemic, telemedicine.
LIÇÕES APRENDIDAS COM A PANDEMIA NA INDONÉSIA:
MELHORANDO A COMUNICAÇÃO MÉDICA MÉDICO-PACIENTE PARA
MELHORAR A CERTEZA DO DIAGNÓSTICO NA TELEMEDICINA

RESUMO

Objetivo: A pandemia da Covid-19 na Indonésia transformou vários aspectos da vida, especialmente na área da saúde, onde a comunicação entre médicos e pacientes passou a ser direcionada para o aumento da utilização da telemedicina. Esta pesquisa visa alcançar vários objetivos. Em primeiro lugar, investiga o processo de implantação da telemedicina como uma solução de serviço médico remoto durante circunstâncias pandêmicas, envolvendo distanciamento e restrições físicas. Em segundo lugar, ele explora como a telemedicina é adaptada dentro dos ambientes clínicos, considerando os desafios únicos e os ajustes necessários para uma integração eficaz.

Método: Esta pesquisa utiliza uma abordagem de estudo de caso, especificamente um estudo de caso múltiplo.

Resultado: A telemedicina depende fortemente do conhecimento dos pacientes, da informação e do seu papel na substituição da contribuição sensorial de um médico na tomada de decisões médicas abrangentes. Habilidades de comunicação eficazes emergem como uma solução crítica, muitas vezes negligenciada como uma habilidade suave para os médicos. A telemedicina encontra dificuldades em discernir pistas não verbais em comparação com consultas presenciais. Para enfrentar esse desafio, a coleta de informações deve englobar diversas mídias, como fotos e vídeos, além de trocas de texto ou verbais. Além disso, a telemedicina enfrenta barreiras relacionadas à conectividade e a questões de rede.

Conclusão: Reconhecer a igualdade de posição entre médicos e pacientes é imperativo, com médicos promovendo a abertura e a confiança como base para a comunicação mediada. Embora existam critérios específicos para a coleta de informações, os médicos devem explorar proativamente aspectos relevantes do paciente. Para atenuar os problemas de rede, as instalações de saúde devem estabelecer uma infraestrutura de rede robusta, fornecer dispositivos adequados aos profissionais de saúde e considerar aplicações dedicadas à telemedicina para o domínio abrangente da tecnologia.


1 INTRODUCTION

In early 2020, the COVID-19 pandemic caused significant disruptions to healthcare systems worldwide, including in Indonesia. On January 30, 2020, the World Health Organization (WHO) declared COVID-19 a public health emergency. In Indonesia, the first wave peaked from June to August 2021, followed by a second wave from January to March 2022. As of June 2023, the total number of cases had exceeded 6 million (World Health Organization, 2022). One of the entities significantly affected by
the COVID-19 pandemic is the healthcare system, especially the healthcare workforce (Abdulkadir, Shettima, Abdullahi, & Abdulkadir, 2022). Indonesia stands out as a country with one of the highest numbers of healthcare professionals who have lost their lives due to COVID-19. In August 2022, the recorded toll reached 2,087 healthcare workers, with doctors being the most affected group, accounting for 751 individuals (Lubabah, 2021).

In light of this situation, the government has been compelled to seek ways to minimize face-to-face healthcare services while ensuring the continuity of public healthcare provision. This approach has been implemented through the enforcement of regulations that restrict the mobility and activities of the population while promoting the utilization of information and communication technology in healthcare services (Penyelenggaraan Pelayanan Kesehatan Melalui Pemanfaatan Teknologi Informasi dan Komunikasi Dalam Rangka Pencegahan Penyebaran Corona Virus Disease 2019 (COVID-19), 2020). One tangible manifestation of these regulations is the strengthening of healthcare services through the use of telemedicine.

In fact, telemedicine has been a part of the healthcare system in Indonesia for quite some time. Its development before the COVID-19 pandemic was predominantly utilized in academic research, scientific advancements, and healthcare services aimed at assisting healthcare facilities, particularly in regions with limited healthcare resources (Nugraha & Aknuranda, 2017). In 2012, the government launched a web-based application named Telemedicine Indonesia (Temenin), which connected healthcare professionals with healthcare facilities to facilitate remote healthcare services (Lubis, 2021). By 2014, telemedicine became widely recognized, with the private sector playing a significant role as providers of telemedicine services in the form of digital health innovations.

The use of telemedicine indeed comes with its advantages and disadvantages. Among its advantages is its ability to reduce the risk of COVID-19 transmission by eliminating the need for in-person meetings. However, on the flip side, there are several drawbacks that need to be considered. One of them is the potential decrease in patient trust in healthcare providers due to the absence of face-to-face interactions, which can ultimately impact the accuracy of diagnoses and the patient's confidence in those diagnoses. This research is conducted to explore critical aspects of communication through telemedicine and how these aspects serve as considerations in the development of telemedicine and digital healthcare services in Indonesia in the post-pandemic era.
This research aims to achieve several objectives. Firstly, it seeks to investigate and analyze the deployment process of telemedicine as a remote medical service solution during pandemic circumstances necessitating physical distancing and constraints. Secondly, it aims to explore and analyze how the execution of telemedicine is adapted within clinic settings, considering the unique challenges and adjustments required for effective integration.

2 THEORETICAL FRAMEWORK

In pursuit of the research objectives, a set of theories and concepts are proposed to underpin the argumentation. These theories and concepts pertain to the understanding of telemedicine, ideas related to medical communication, the theory of social reality construction within technological systems, and mediated communication within the context of telemedicine.

2.1 TELEMEDICINE

In 1998, the World Health Organization (WHO) provided a definition of telemedicine as "the use of information and communication technology, where distance is a critical factor, by which health professionals exchange valid information related to the diagnosis, treatment, and prevention of diseases and injuries, as well as for research, evaluation, and education of healthcare providers, aiming to improve both individual and public health" (Shirzadfar, 2017).

In addition to WHO's definition, there are several other definitions of telemedicine, such as: "a form of healthcare delivery, clinical information, and education that uses telecommunication technology to overcome geographical distance barriers" (Maheu et al., 2001); "the use of information and communication technology to transmit medical information for clinical services and education" (Norris, 2001); and "a subset of telehealth that uses communication networks to deliver healthcare services and medical education from one geographic location to another to overcome challenges of maldistribution and infrastructure and human resource gaps" (Sood et al., 2007).

2.2 MEDICAL COMMUNICATION

Communication plays a pivotal role in the healthcare process. The ongoing dialogue between doctors and patients serves to identify the patient's issues, make
decisions about treatment, and gauge satisfaction with healthcare services (Maguire, 2002). The communication between doctors and patients also plays a crucial role in guiding patient care and determining how patients will respond to it (Matusitz & Spear, 2014). The quality of healthcare services emphasizes not only medical procedures but also underscores the empathetic relationship between doctors and patients through effective communication (Ha & Longnecker, 2010) and strong interpersonal skills (van Zanten et al., 2007) in efforts to enhance patient health.

This interpersonal relationship is built through communicative behaviors between doctors and patients that occur during consultations (Ong et al., 1995). Good communication quality and strong interpersonal relationships yield positive benefits for both patients and doctors. These benefits encompass physiological conditions, emotional aspects (Brédart et al., 2005; Street et al., 2009), health knowledge, and even improvements in the quality of life (Goold & Lipkin, 1999; Ong et al., 1995).

Doctor-patient communication can be conceptually explained through three fundamental communication models. Mulyana elucidates the basic communication models and their relevance to healthcare communication, namely, the three fundamental models frequently referenced in communication literature: (1) the linear model, (2) the interactional model, and (3) the transactional model, which can be paralleled with healthcare communication models: (1) the paternalistic model, (2) the informed model, and (3) the shared model (Mulyana, 2016).

Communication, as a transaction, views participants engaged in communication simultaneously in the roles of message senders and receivers. This process is dynamic and non-reversible. Once a message is conveyed, both the message and its resulting impacts tend to persist. Messages cannot be withdrawn once they have been spoken.

This model takes a broader view of messages, encompassing not only verbal but also non-verbal messages. An emphasis is placed on the reception of messages in the transactional model, where not only are messages received, but a process of interpretation also occurs. As a result, communication is no longer viewed as causative but rather negotiative. When a message is interpreted, it is not essential for it to align with the sender's message intent; communication is considered to have taken place. The transactional model also incorporates considerations of context in a communication event, including physical, psychological, social, relational, and cultural contexts.
2.3 THEORY OF SOCIAL REALITY CONSTRUCTION WITHIN TECHNOLOGICAL SYSTEMS

The technological reality construction perspective emphasizes four main concepts: (i) relevant social groups, (ii) interpretative flexibility, (iii) closure and stabilization, and (iv) broader contexts (Bijker et al., 1989). Researchers employ technological reality construction to explain the relationship between telemedicine as an innovation and its redefinition due to interactions between users and technology, which always have the potential to generate problems and solutions, modifications, and reinventions in its utilization.

Trevor Pinch and Wiebe Bijker explain that relevant social groups are those that share the same meaning of a technological artifact. The meanings or interpretations held by a social group play a role in technology development. Relevant groups can dynamically emerge, allowing new groups to be discovered as technology evolves. Social groups that share meaning about technological artifacts are also inherently linked to their group's unique characteristics (Kline & Pinch, 1996).

Social groups not only shape technology but also have a reciprocal relationship with technology, as technology can also shape the identity of these social groups (Kline & Pinch, 1996). Relativism and subjectivity in the analysis of technological artifacts can be developed into categories that encompass a broader context in identifying relevant social groups, such as producers, advocates, users, and bystanders (Humphreys, 2005). Relevant social groups are described as embodiments of specific interpretations, where members of a social group share a common interpretation attached to a particular technological artifact.

The technological reality construction perspective examines the social views of knowledge, emphasizing that technology design is an open (interpretable) process that can produce various outcomes depending on the social conditions surrounding it (Bijker et al., 1989). Orlikowski explains the concept of reflexivity, stating that individuals have the capacity to observe and understand what they are doing as they do it (Orlikowski, 1992).

Orlikowski describes that the implementation of technological innovation can be viewed from two perspectives: the design mode and the use mode. The design mode relates to how organizations, through knowledge (interpretive scheme), goals (facilities), and rules (norms), plan changes to be made. In contrast, the use mode relates to how
humans adapt technology by seeking shared meanings of knowledge, goals, and rules (Orlikowski, 1992). Gallivan uses the term "facilitating initial innovation" to explain the process of aligning the goals of change with the organization's ability to make changes through assimilation (Gallivan, 2001).

Analysis of the social reality construction regarding the choice of relevant social groups contains subjectivity and can, therefore, span various stages of analysis, whether viewed from the perspective of innovation, utilization, or historical analysis (Humphreys, 2005). Technology development is a process where various social groups with their interpretations of technological artifacts then negotiate the design of technology with other social groups (Klein & Kleinman, 2002).

2.4 MEDIATED COMMUNICATION WITHIN THE CONTEXT OF TELEMEDICINE

Based on the definition of telemedicine as a service that allows individuals to obtain expert opinions in the field of healthcare using information and communication technology to overcome spatial and temporal constraints, telemedicine can be classified according to the type of information exchanged as follows: (1) based on real-time (synchronous) and pre-recorded (asynchronous) interactions, as well as based on the type or format of information, namely: (a) data, (b) text, (c) audio, (d) images, and (e) video. Nakajima also classifies telemedicine based on client-expert interactions, including (1) doctor-doctor, (2) patient-doctor, (3) patient-nurse, and (4) patient-pharmacist (Santoso et al., 2015).

The use of Computer Mediated Communication (CMC) is believed to transform traditional communication in the paternalistic doctor-patient relationship into a more open and empowering partnership (Lee & Zuercher, 2017). The use of CMC in medical encounters between doctors and patients, typically conducted face-to-face, also brings about changes in the sensory dimensions of a social meeting during consultation (Lupton & Maslen, 2017).

These changes also encompass how the application of CMC affects consultation models that employ patient-centered and humanistic approaches. This is because the primary mode of building balanced communication between doctors and patients involves certain complexities, especially when conveyed through communication that is not solely verbal but tends to be nonverbal, empathetic, and based on shared trust—the foundation of humanistic communication traditionally considered best established in face-to-face
interactions. These changes undoubtedly have consequences for understanding a medical consultation event, as technological advancements also bring changes in how we perceive the reality of life.

The various theoretical and conceptual perspectives outlined above have positioned the doctor-patient dyad as participants who construct the medical encounter as a social reality, rather than merely a deterministic event determined by the causality between technology and its users. Efforts to uncover the experiences of doctors and patients in the context of medical encounters (teleconsultations) are expected to provide a rich and nuanced description of the presence of telemedicine, especially teleconsultation, in Indonesia, which is still relatively new. Additionally, these experiences contribute to the construction of meaning regarding the nature of the relationship that unfolds between doctors and patients within the realm of telemedicine.

3 METHODOLOGY

The paradigm employed in this research is grounded in social interpretive constructivism, where individuals strive to understand the world in which they live and work (Creswell, 2016). The focus is on the communication experiences of clinic managers and doctors in the implementation and execution of telemedicine. Thus, the depiction of the reality of their lives becomes the foundation for obtaining insights related to the research objectives.

This research utilizes a case study approach, specifically a multiple case study. Case studies provide an understanding of real-world events or cases within their encompassing contexts (Yin, 2018). The multiple case study method is chosen with the consideration that the analysis conducted on each case will reveal specific patterns that can then be compared to identify tendencies for replication, whether literally or theoretically, through the information presented or discovered. These tendencies can also lead to similarities or contradictions, thus generating conceptual insights that describe reality and provide analysis and input related to the cases (Yin, 2018). A well-designed case study should consider four criteria: construct validity, internal validity, external validity, and reliability, related to the data source selection process and data collection process (Yin, 2018).

The object of this research is the efforts made by clinics in the process of implementing and executing telemedicine in healthcare services, including the mediated
communication process carried out in medical encounters through telemedicine. The clinics serving as research locations are MA Clinic, TM Clinic, and P Clinic. The subjects in this study are clinic managers, both owners and responsible individuals, in the three clinics chosen as research locations. Additionally, the doctors and healthcare professionals who conduct telemedicine in healthcare services at the clinics are also subjects of the study. Each informant has experience and direct involvement in the implementation of telemedicine in the clinics during the COVID-19 pandemic and is willing to participate in interviews.

The selection of informants in this research is guided by purposive sampling criteria (Yin, 2018), which include consideration of individuals with direct experiences in the implementation of telemedicine, their descriptive capabilities to articulate communication events in telemedicine, and their willingness to actively participate in the research. In line with the research objectives, additional criteria are added as follows:

1. Clinic management informants involved in telemedicine implementation.
2. Doctor informants who have been providing telemedicine services for more than three months, starting at least from March 2020.
3. Healthcare professional informants engaged in telemedicine services for more than three months, starting at least from March 2020.

Based on these criteria, two informants were selected from each clinic, resulting in a total of six informants, as detailed below:

<table>
<thead>
<tr>
<th>Code</th>
<th>Descriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case Study #1</td>
<td>Director of MA Clinic, Secretary of the Indonesian Clinic Association for the West Java Region</td>
</tr>
<tr>
<td>Case Study #2</td>
<td>General Practitioner at MA Clinic</td>
</tr>
<tr>
<td>Case Study #3</td>
<td>Clinic manager at P Clinic</td>
</tr>
<tr>
<td>Case Study #4</td>
<td>Pediatric Specialist at P Clinic</td>
</tr>
<tr>
<td>Case Study #5</td>
<td>Director of TM Clinic</td>
</tr>
<tr>
<td>Case Study #6</td>
<td>Dentist at TM Clinic</td>
</tr>
</tbody>
</table>

Source: Personal source

In the data collection process, following the stages of data collection activities (Creswell, 2016), the research begins with a pre-research phase to determine the
appropriate informants in line with the research objectives. This phase also involves efforts to establish access and build good relationships with the participants. Data collection primarily employs in-depth interviews as the main tool, along with observation and document review. Observations are conducted in a limited manner, taking into consideration the confidentiality of medical meetings between doctors and patients. Therefore, observation is passive and based on natural moments that arise with the consent of the informants.

The research will focus on clinics in the city of Bandung, Indonesia, that implement and carry out telemedicine services. The selection of Bandung as the research location is based on the consideration that this area has been significantly affected by the pandemic and has had a high rate of COVID-19 cases in Indonesia. Bandung also experienced periods of Large-Scale Social Restrictions (PSBB) until February 2021, which were still in effect at the time of the research. The choice of clinic locations is based on their experience in telemedicine implementation and their willingness to participate in the research. Additionally, the characteristics of the clinics and healthcare professionals align with the predetermined participant or informant selection criteria. Building rapport and data collection were conducted in June 2022, taking into account the pandemic situation, which was at the peak of the second wave, making data collection at clinics and among healthcare professionals challenging. Field data collection took place over a period of 7 months, concluding in February 2022.

4 RESULTS AND DISCUSSION
4.1 CHALLENGES IN COMMUNICATION IN TELEMEDICINE

First and foremost, a comparative analysis will be conducted to assess the differences in doctor-patient communication carried out through face-to-face interactions, synchronous methods (teleconferencing/visual and audio-based telemedicine applications), and asynchronous methods (text-based telemedicine applications), particularly with respect to patient biographical/personal identification and the extent of medical identification possible. This data has been gathered through interviews with informants.

In interviews with Case Study #1 and Case Study #3, a consensus emerged that in face-to-face meetings, the identification of a patient's personality can be more comprehensive compared to synchronous and asynchronous interactions. Case Study #2
added that, particularly in asynchronous communication, doctors tend to make more assumptions about a patient's personality, making it somewhat subjective. Additionally, the asynchronous method heavily relies on the descriptive explanations provided by the patient regarding their condition and what they are experiencing, consequently depending on the patient's typing abilities.

Case Study #1 and Case Study #3 hold the view that face-to-face meetings remain the most ideal form of interaction between doctors and patients, especially concerning direct examinations, as they offer a comprehensive presentation of the patient's presence, enabling a comprehensive assessment of all aspects of the patient. Meanwhile, Case Study #5 and Case Study #6 are of the opinion that synchronous and asynchronous methods fundamentally do not have significant differences in terms of diagnosis because patients can still attach health records through photos, videos, or external documents. In certain situations, both synchronous and asynchronous methods can focus on the patient's issues and not be distracted by external factors such as family or the medical environment.

The interview results can be encoded in the following table:

<table>
<thead>
<tr>
<th>Table 2. Interview Results Encode</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Face-to-face interactions</strong></td>
</tr>
<tr>
<td><strong>Synchronous methods</strong></td>
</tr>
<tr>
<td><strong>Asynchronous methods</strong></td>
</tr>
<tr>
<td>-----------------------------------</td>
</tr>
<tr>
<td><strong>Biographical identification/ personal identity verification</strong></td>
</tr>
<tr>
<td>● Tends to be objective with perceptual interference inherent to the communicator's personality.</td>
</tr>
<tr>
<td>● Accompanied by physical appearance perceived through sensory faculties (vision, hearing, smell).</td>
</tr>
<tr>
<td>● Supported by patient biodata/historical records.</td>
</tr>
<tr>
<td>● Complemented by patient descriptions.</td>
</tr>
<tr>
<td>● Relatively objective with perceptual interference inherent to the communicator's personality.</td>
</tr>
<tr>
<td>● Accompanied by physical appearance perceived through sensory faculties (vision, hearing), limited by the field of view and the waveforms of the aural (audio) medium.</td>
</tr>
<tr>
<td>● Supported by patient biodata/historical records.</td>
</tr>
<tr>
<td>● Complemented by patient descriptions.</td>
</tr>
<tr>
<td>● Tends to be subjective with perceptual interference inherent to the communicator's personality.</td>
</tr>
<tr>
<td>● Accompanied by physical appearance perceived through sensory faculties (vision) via symbols attached, such as photos, status, and the like.</td>
</tr>
<tr>
<td>● Supported by patient biodata/historical records.</td>
</tr>
<tr>
<td>● Relies on patient descriptions.</td>
</tr>
<tr>
<td><strong>Clinical/medical identification</strong></td>
</tr>
<tr>
<td>● Tends to be comprehensive based on stimuli perceivable by sensory faculties.</td>
</tr>
<tr>
<td>● Involves sensory sensory devices (vision,</td>
</tr>
<tr>
<td>● Tends to be less comprehensive based on stimuli perceivable by sensory faculties.</td>
</tr>
<tr>
<td>● Involves sensory sensory devices (vision,</td>
</tr>
<tr>
<td>● Tends to be limited based on stimuli perceivable by sensory faculties.</td>
</tr>
<tr>
<td>● Involves sensory sensory devices</td>
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</tbody>
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<th>Source: Personal source</th>
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</table>

It must be acknowledged that telemedicine introduces unique characteristics in the examination phase, differing from what is typically conducted in an in-person medical meeting. The non-physical nature of the examination phase tends to reduce the completeness of information available to and required by the doctor for processing into a diagnostic report. All doctor informants stated that the examination phase, whether in an in-person medical meeting or telemedicine, consists of medical interviews or anamnesis and other examinations, including physical examinations and supporting tests. The limitations of telemedicine services, which often do not physically bring both parties together, necessitate doctors to make additional efforts to supplement information that cannot be obtained through direct physical examination. The limitations in utilizing sensory or sensory aids as tools for doctors during examinations experience a decrease in sensory degrees, such as touch and smell.

In addition to utilizing the sensory aids available to doctors, doctors commonly perform physical examinations directly using healthcare technology tools such as stethoscopes, thermometers, sphygmomanometers, otoscopes, penlights, and other assistive devices. Some of these aids and their supporting equipment may not necessarily be owned by patients, and patients may not necessarily be able to use them correctly. The use of assistive devices in telemedicine requires the availability of devices and patient-side capabilities/knowledge. In certain situations and cases, delegation of the examination can be accomplished using alternative methods that do not involve assistive devices but require collaboration with the patient.

The limitations of the medium in conveying nonverbal cues are also related to the medium's ability to provide a field of view. Not necessarily does the field of view transmitted by the medium capture all the nonverbal information from the patient. In a technology-mediated meeting, such as virtual conversations through video calls and
teleconferencing applications, there is a tendency for the doctor's field of view to be restricted by the medium used. This limitation also restricts the inspection phase in the examination process.

Case Study #1 and Case Study #2 added that although visually observable, the patient's body language is not as comprehensive as when conveyed in an in-person meeting. The completeness of nonverbal cues in a medical meeting is important for doctors to compare subjective verbal statements with objective statements typically obtained through the physical examination phase. The absence of physical presence of both the patient and the doctor makes it difficult for the doctor to make objective assessments. This situation tends to be redirected into the form of anamnesis. The doctor's ability to perceive nonverbal cues changes when the format of the medium used also changes. Conversations through instant messaging applications conducted through text make nonverbal cues increasingly difficult for doctors to capture.

One effort to minimize discrepancies in understanding between doctors and patients is by seeking nonverbal cues that emerge during message exchanges. It is possible for a patient to verbally express their level of understanding, but if this contradicts the nonverbal cues being conveyed, doctors can avoid this situation by being more sensitive to the nonverbal signals. The limitations of nonverbal cues inherent in the medium can lead to perceptual gaps in medical meeting situations.

Additionally, another issue pertains to connectivity and network facilities, which are commonly encountered obstacles in telemedicine-mediated communication, leading to information being obstructed or incomplete (Khairiah et al., 2023). If either party experiences disruptions, the communication may not necessarily achieve the desired objectives. This situation is certainly not one that can be controlled by the doctor or the clinic alone, so other efforts need to be made to ensure that the communication process runs smoothly. The availability and readiness of technology are crucial in the provision of remote healthcare services. Supportive devices, both in terms of telecommunication technology and information systems owned by the clinic, need to be considered when selecting the most appropriate medium for facilitating the delivery of services.

Hence, it can be determined that challenges in medical communication through telemedicine are associated with (1) the dependence on patient knowledge, information, and their ability to substitute for a doctor's senses in making comprehensive medical decisions, (2) the increased difficulty in discerning nonverbal cues compared to in-person
meetings, and (3) issues related to connectivity and network problems that can hinder communication, resulting in incomplete or obstructed outcomes. However, there are advantages to medical communication through telemedicine, such as the reduction of external distractions like family and the environment.

4.2 PROPOSING SOLUTIONS TO THE CHALLENGES OF COMMUNICATION IN TELEMEDICINE

The process of medical decision-making is closely intertwined with the relationship that develops between the doctor and the patient. Nevertheless, in conventional or non-mediated medical communication, the doctor-patient relationship tends to be asymmetric, with the doctor typically having greater authoritative legitimacy compared to the patient. With the presence of telemedicine and its associated challenges, there is a need for a more equitable distribution of roles between doctors and patients to facilitate the development of sound medical decisions.

In relation to the issues arising in telemedicine-mediated communication, proposed solutions for each are as follows:

(1) the dependence on patient knowledge, information, and their ability to substitute for a doctor's senses in making comprehensive medical decisions

In addressing the issue of relying on patient knowledge, effective communication skills emerge as a pivotal solution, an aspect that is not consistently emphasized as a soft skill for medical practitioners. In this context, recognizing the equal footing of doctors and patients is essential and should be mutually acknowledged. Doctors must foster openness and trust in their patients as this form the critical underpinning for mediated communication. Unlike face-to-face interactions where doctors often assert their authority, in this context, doctors must be adept at conducting exploratory inquiries, relying on the patient's basic knowledge of their own body, and delegating some of the doctor's sensory assessments to the patient, all built upon a foundation of complete trust.

Furthermore, with the predicted increasing prevalence of telemedicine use due to its convenience, patients are expected to strengthen their knowledge so that they can provide more robust explanations to doctors. This is highly feasible in today's world where patients can independently search for medical information, although it requires thorough fact-checking to ensure accuracy.
(2) The increased difficulty in discerning nonverbal cues compared to in-person meetings

In relation to the limited awareness of nonverbal cues in mediated communication, which usually provide additional information for doctors, this issue needs to be addressed further by seeking more comprehensive information. This information should not be restricted solely to text or verbal communication but should also utilize other media such as photos and videos to be attached to telemedicine. The comprehensive information gathering requires a certain set of standards to be applied by doctors. However, regardless of these standards, doctors themselves must take the initiative to explore aspects that may be relevant to the patient, which can then be included as information in telemedicine.

(3) Issues related to connectivity and network problems that can hinder communication

The issue of network and internet connectivity is crucial to the smooth operation of mediated communication in telemedicine. However, addressing this issue requires structural improvements and can be somewhat challenging on a case-by-case basis, as it may vary significantly in terms of the facilities available to each doctor or patient. Nevertheless, at the very least, it is advisable to encourage every clinic to have a robust network infrastructure and provide healthcare professionals with adequate devices. Furthermore, it would be ideal if each clinic had its own telemedicine application to ensure comprehensive mastery of the technology.

The relationship between the presented problem and the offered solutions can be summarized in Figure 1. The entire doctor-patient communication process in telemedicine is expected to yield a higher level of diagnostic certainty, provided it is supported by equality in persuasive communication, as well as suitable communication applications and networks.
5 CONCLUSION

Based on the findings and discussions above, the conclusions drawn from this research are as follows:

1. Telemedicine heavily relies on patients’ knowledge, information, and their capacity to serve as a substitute for a physician's sensory input when making comprehensive medical decisions. To address this challenge, effective communication skills emerge as a crucial solution, an aspect that is not consistently emphasized as a soft skill for medical practitioners. In this context, recognizing the equal standing of doctors and patients is imperative and should be mutually acknowledged. Physicians must cultivate openness and trust with their patients, as these factors constitute the fundamental foundation for mediated communication.
2. Telemedicine presents a drawback in terms of the difficulty in discerning nonverbal cues compared to in-person consultations. To mitigate this issue, the ability to gather information should not be confined solely to text or verbal exchanges but should also incorporate other media, such as attaching photos and videos to telemedicine interactions. The comprehensive collection of information necessitates a specific set of criteria to be applied by physicians. Nonetheless, irrespective of these standards, doctors themselves should take the initiative to explore relevant aspects concerning the patient, which can then be incorporated as part of the information exchanged during telemedicine sessions.

3. Telemedicine encounters barriers related to connectivity and network issues that can impede effective communication. To address this challenge, it is crucial to encourage every healthcare facility to establish a robust network infrastructure and equip healthcare professionals with suitable devices. Furthermore, it would be advantageous if each healthcare facility had its own dedicated telemedicine application to ensure a comprehensive mastery of the technology.
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