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Health communication: the urgency and challenges of telenursing in remote nursing practice

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Abstract This study examined the challenges and opportunities for telenursing services' success in remote regions of Indonesia, particularly the role of health communication in addressing these issues. This research was done using Online Research Methods (ORMs) and analysed using NVivo 12 Plus. The results reveal the desperate need to use telenursing to enhance access to and efficiency and quality of services, especially in regions far removed from healthcare facilities. The analysis showed the existence of significant barriers to the care and technological infrastructure of the area, the scant digital literacy among healthcare providers and patients, and fears concerning data security and privacy. Additionally, there is a lack of sufficient government policies and resource funding, which would otherwise improve the situation. To respond to such challenges, this study advocates for adopting other tools such as health communication models, particularly promotional and trust-building therapeutic communication designed for interaction with patients at the clinic, to increase trust and responsiveness among healthcare workers towards telemedicine. Programmatic, regulatory, and institutional documents, schemes, and strategies for digital literacy, public advocacy, and services for training healthcare workers of advanced age are also enabling and essential factors for the practical and sustained application of telenursing in Indonesia.

Keywords: health communication; health policy; remote nursing; telenursing; therapeutic communication

INTRODUCTION

Effective communication between patients and healthcare providers is fundamental to quality medical care (Du et al., 2020; Świątoniowska-Lonc et al., 2020). When patients express their symptoms and concerns clearly, healthcare providers should respond with accurate diagnoses, explanations, and appropriate treatment recommendations (Jiang, 2020; Khoong et al., 2022; Timmermans, 2020). More than just exchanging information, good communication fosters trust and reassurance, making patients feel heard and supported throughout their healthcare journey (Martin et al., 2021). This trust is crucial—it encourages patients to follow medical advice and motivates them to take an active role in maintaining their health.

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However, access to healthcare is far from easy for many people, especially those living in remote or underserved areas. Distance, limited medical facilities, and inconvenient clinic hours create obstacles preventing timely treatment (Kibret et al., 2023; Weiss et al., 2020). In rural areas, some patients must travel long hours to see a doctor, only to face long waiting times or insufficient resources when arriving (Garnelo et al., 2020). These logistical barriers cause delays and can lead to worsening health conditions that could have been managed with earlier intervention.

Many countries have turned to telenursing, a remote healthcare solution that allows nurses and patients to connect via digital communication tools to bridge this gap. Through video calls, phone consultations, and messaging platforms, telenursing provides a lifeline for those who struggle to reach traditional healthcare facilities (Bdair, 2024; I. J. Kim, 2024; Navarro-Martínez et al., 2024). Unlike general telemedicine, which focuses on efficiency, telenursing is designed for continuous, personalised care, particularly for patients with chronic illnesses or limited mobility. By making healthcare more accessible, telenursing helps ensure no patient is left behind, regardless of where they live.

The demand for telenursing services has risen significantly in the past few years due to increased medical concern about efficient and secure remote care (Moriyama et al., 2021). Healthcare through telenursing, which uses information and telecommunications technology to provide nursing services (Y. M. Kim et al., 2023).

Telenursing can be an option optimised through internet capacity in its application (Esmaeilpour-BandBoni et al., 2021). A few factors have driven the use of telenursing services. However, one of the main factors is that it became increasingly necessary due to COVID-19, which pushed patients and healthcare service providers towards delivering care remotely to reduce face-to-face interactions and not put them at risk (Hargreaves et al., 2021). Also, the rise in chronic patients requiring long-term care and regular assessment is another propelling force (Kamei et al., 2021). This novel technology of Telenursing may allow patients to get healthcare from clinics or hospitals remotely (Arnaert et al., 2022). This is particularly helpful to those living in remote or rugged locations (Eriksson et al., 2020). The tools or media required in telenursing services are provided by phones and virtual social networks to care for patients (Bahmanpour et al., 2023).

With advancements in telecommunications technology increasing and healthcare personnel shortages arising, telenursing is on track to continue its growth worldwide (Trehan et al., 2021). Across the globe, telenursing services are accepted and practised in specific countries to enhance healthcare accessibility and system handling, like Latin America, Canada, China, and Japan (Kawaguchi & Toyomasu, 2021; Souza-Junior et al., 2016; Toffoletto & Tello, 2020; Wu et al., 2021). Much research has been highlighted based on this subject regarding the use of telenursing in chronic diseases such as diabetes and heart disease to improve their control, monitoring, and treatment (Ghoulami-Shilsari & Bandboni, 2019). The importance of telenursing has been increasing, especially for elderly health monitoring and treatment as well as medical consultations (Harada et al., 2022; Kamei et al., 2018; Mamom & Daovisan, 2022; Sadeghmoghadam et al., 2019). With this trend, telehealth nursing is said to increase and become more crucial towards not only improving healthcare accessibility but also streamlining all healthcare systems throughout the world. The progress of the national nursing world in Indonesia must also give us space to adopt it.

While Telenursing is expected to expand and lead to several benefits, it still presents many challenges that nurses must face daily. One such issue is the constraints in technological infrastructure, particularly internet connectivity (Siriwardhana et al., 2021). One of the implementation challenges here is the lack of adequate technical infrastructure, which further blocks telenursing services development (Nejadshafiee et al., 2022). Moreover, privacy and data security concerns are also vital in telenursing services. Patients' health information must be kept confidential, and unauthorised access to this type of sensitive data must be prevented (St George et al., 2009). Another challenge is the lack of technical know-how and digital literacy (Isidori et al., 2022). This can be a barrier for patients in accessing telenursing services or become an obstacle for nurses as medical personnel at hospitals; these technological challenges should be eliminated by solutions that allow implementation efforts to be carried out more effectively and efficiently, primarily through nursing care using a remote system.

With the need to provide effective and safer care remotely, the demand for telenursing services has risen significantly in the past few years, mainly due to the COVID-19 pandemic, which has led to decreased face-to-face interaction. Telenursing is the use of information and communications technology to provide nursing service; it can be utilised as a solution for patients in remote areas and patients who need long-term care. Nevertheless, the establishment of telenursing is problematic due to the hindrances that may be encountered in the form of poor technological infrastructure, internet access, data privacy and protection, and low digital literacy in the two groups of users: the patients and those providing medical services. Nevertheless, technological development and broader access to health services in the community keep pushing telenursing development in several countries, including its application in Indonesia, which could support chronic disease patient care, medical consultations, and elderly health monitoring.

There is still a lack of previous research related to telenursing services, including those that focus on communication concepts, mainly when applied in Indonesia. However, there is still a little left over from the rest of the analysis, which can be elaborated upon. First, health communication refers to the study and practice of conveying health information between people, communities or organisations to increase public awareness about disease prevention (Johnson & Kalkbrenner, 2017; Mheidly & Fares, 2020). Second, health communication can be done by healthcare workers or professionals (like in the case of doctors), societal organizations and governments, private institutions, and ordinary people (Zhu et al., 2020). Third, telenursing is a type of health communication that uses telecommunications technology to provide nursing care remotely (Harada et al., 2022; Wu et al., 2021).

This study is necessary to address the gaps in previous research, which has not specifically and simultaneously observed health communication topics related to telenursing in Indonesia. The following research questions are: a) How essential is establishing telenursing services to underpin remote nursing practice within Indonesia? b) What challenges are encountered in adopting telenursing services to facilitate remote nursing practice in Indonesia? (c) What health communication model is required to support telenursing services in Indonesia? The findings of this study will provide valuable data to improve the effectiveness and quality of remote nursing in the future, especially as they relate to health communication.

The research findings have potent implications that can be considered insight into how telenursing services should be implemented in Indonesia, primarily related to health communication. This research can emphasise the importance of telenursing services, which needed to be established to realise long-distance nursing practice to maximise the accessibility of health services throughout Indonesia, especially in remote areas. Second, this research will outline the significant challenges in the implementation process of telenursing, including limited technological capacity, deficiencies in health workers' skills, and the issue of patient data privacy and protection. Third, by understanding the health communication models necessary to support telenursing. These findings can be used to develop effective communication strategies to strengthen the relationship between health workers and patients and improve Indonesian people's health literacy regarding digital health services.

METHODOLOGY

This study maximises the ORM research approach as a research method. By definition, online research methods (ORMs) are oriented towards collecting data and information via the internet or other digital technologies (Fielding et al., 2016). ORM refers to data retrieval information from websites included in this research. The data search was performed through Google Scholar, an indexing search engine specifically for scientific articles (academic material). Moreover, the search is limited to sites with information relevant enough to the research topic within the parameters set for searching.

The data extraction process from the website is carried out by defining filters based on keywords 'telenursing', 'remote patient monitoring', and 'telehealth nursing'. These keywords are expanded to find data that is broad in scope but still relevant. If any data is located, it gets assessed according to established inclusion and exclusion thresholds for relevance. Criteria for inclusion identify subject characteristics or data that can be included in research. In contrast, criteria for exclusion define those that can introduce bias or potentially compromise the validity of research results (Lekan et al., 2021). The inclusion criteria were articles or sources specifically

focused on or discussing remote nursing services, digital patient monitoring, and the implementation of telehealth in nursing. At the same time, the exclusion criteria are also included in sources that simply talk about health technology in general without emphasizing the nursing scale and articles that do not provide full access or do not meet the established academic standards.

The research field selected the keyword focusing on remote nursing services adopting digital technology. This covers some of the main areas of research: technology in healthcare, what works, and the dogma of shared interests. In addition, keywords allowed relevant works from online sources to be identified. Moreover, telenursing is indicative of global trends in technology-based innovations in healthcare. Each piece of data found is tested for relevance. The collected research data was then acquired and imported into the analysis tool, Nvivo 12 Plus. With Nvivo 12 Plus, it is further optimised for data analysis purposes.

The researcher extracts relevant data from the website whose filters are defined using the telenursing keyword. Data filtering, in this case, enriches the corpus beyond a specific source or category and instead targets relevant sources on the historical web. By adopting this approach, the researchers gathered a broader and more systemic range of data on different dimensions of telenursing, from the technology aspect to the challenges faced and best practices of remote nursing services. This method led to a more thorough and detailed detection of the literature, which resulted in a more well-rounded perspective of the subject matter. This stage was carried out in 2023 by only considering literature published in the last 10 years. The series of stages of this research are described systematically in Figure 1.

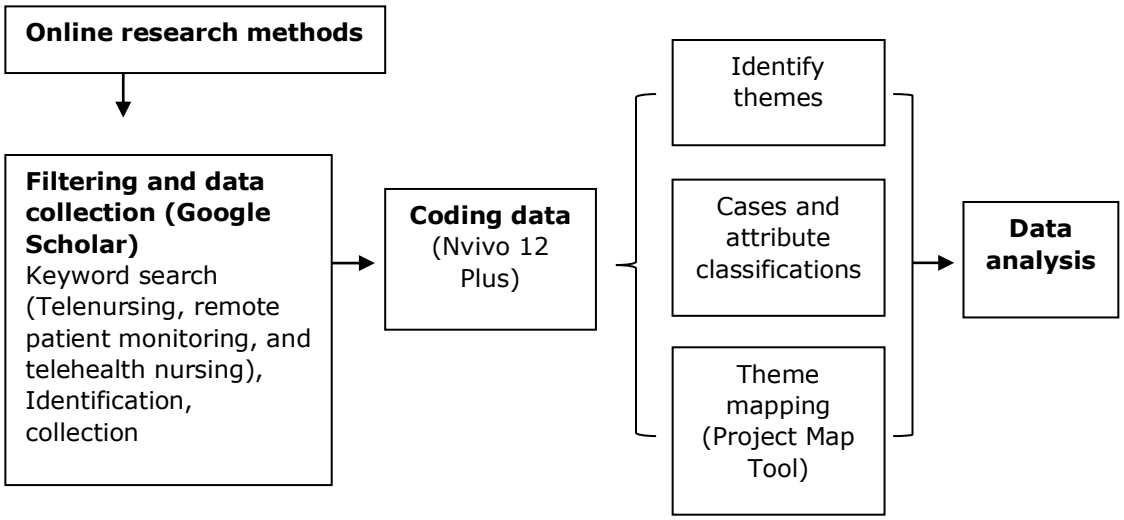

Figure 1. Stages of research data analysis
Source: Edited by researcher, 2023

In Figure 1, the analysis process starts with data collection and identifying potential sources related to several stages. Using websites with sufficient data points—other relevant sources were found from select websites. The process of filtering and collecting data through search steps using keywords to identify information or based on which to conduct a review. Finally, the collected data will be exported to Nvivo 12 Plus for data coding. This step outputs the data coding process, using the analysis features based on identifying themes, case and attribute classifications, and theme mapping. Identify the themes and identify those points which are relevant and remain in the data. In a research project performed in Nvivo 12 Plus, the identity themes feature serves as a lens through which researchers find critical patterns, trends or topics raised from their coded data. These themes can help researchers comprehend critical areas of the research questions and categorise data into themes.

The collected data is assigned to various cases and attribute classifications. Nvivo 12 Plus comes with case and attribute classification to sort data based on specific attributes for researchers. Theme mapping is used to map back the final results of data coding after categorisation. The theme mapping feature (Project Map Tool) of Nvivo 12 Plus is handy for researchers because it can not only see the relationships between themes but also according to

new patterns. Overall, this method helps visualise the overall picture and thereby illustrates how each identified theme or subtheme is interconnected with other themes or sub-themes present in the data. This allows researchers to craft a cohesive story and answer research questions more in-depth. Each unit of analysis has unique features to cluster, categorise, and plot the data obtained, making it easier for researchers and clinician scientists to access information in a well-understood format that makes relevant findings more visible and tends to avoid messy lines using brown-faced research questions.

To perform data validation, an initial selection uses keywords corresponding to the research objectives, after which the collected data is filtered and compared against these objectives. The data was validated and analysed using stages of data coding, theme identification, case classification, and attributes to confirm the consistency and correctness of the findings using the Nvivo 12 Plus. The data is presented through visualisations like theme maps plotting connections among identified patterns, themes, and sub-themes. This visualisation clearly describes the data structure, making it interpretable, providing knowledge of everything, and supporting conclusions oriented to the research objectives.

Overall, data validation involves comparing the extraction results with the research objectives to ensure any data collected is appropriate for the topic studied. The included studies are also subjected to quality checks based on source credibility, distance from the inclusion and exclusion criteria, relevance of the study content to the research question, and consistency of the information.

RESULTS AND DISCUSSION

The section highlights the urgency of telenursing services in the form of long-distance nursing practice in Indonesia, challenges in its implementation, and health communication models supporting these services. Relating to the need for inclusive and technology-centred health services, this discussion presents the importance of telenursing in accessing and improving the quality of health services, particularly in remote regions. The analysis includes the main barriers and communication models that may guarantee the usefulness of telenursing services in Indonesia.

The urgency of telenursing services to support remote nursing practice in Indonesia

In health services in Indonesia, Telenursing aims to encourage long-distance nursing practice. As a country with a broad geography and several remote areas identified, there are still several severe obstacles to accessing health services that facilitate community access (Meliala et al., 2013; Mulyanto et al., 2019). However, with the push of technology, telenursing has emerged as an alternative as well as an innovative solution to overcome these obstacles (Esmaeilpour-BandBoni et al., 2021; Machmud et al., 2020; Souza-Junior et al., 2016; Thomas et al., 2022). Furthermore, this study outlines some of the urgency of using telenursing, especially in Indonesia, as follows in Figure 2.

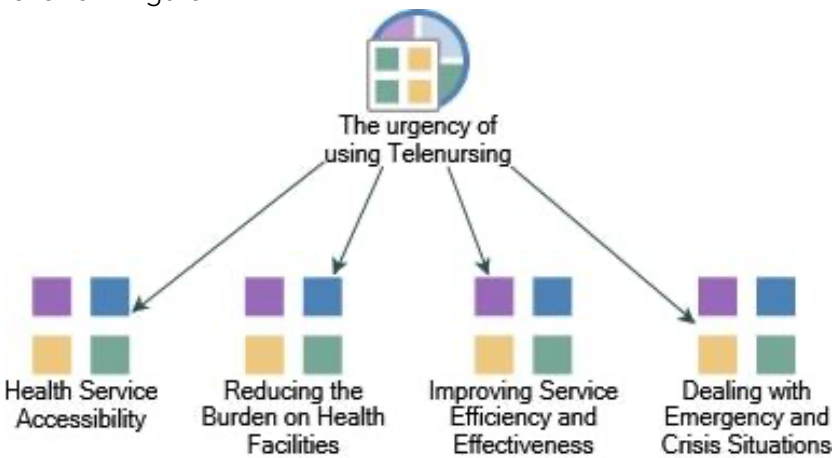

Figure 2. Mapping the urgency of using telenursing
Source: By researchers using Nvivo 12 Plus, 2023

Telenursing services increase access to health facilities for patients from underdeveloped or conflicted origins, as physically reaching such areas is difficult (Harada et al.,

2022). With the help of communication technologies, nurses can offer long-distance nursing services to patients in remote areas. It will help overcome geographical barriers and reduce the distance populations to treat themselves, particularly those less capable of reaching traditional health centres. Telenursing will be one available resource to alleviate the pressure on health facilities by enabling remote nursing services, which are crucial during such times. This mode is helpful for patients whose conditions are uncomplicated and require only periodic observation, making visits to health facilities preventable. This assists in optimising resource utilization and saves patients time and money on travel (Ghoulami-Shilsari & Bandboni, 2019; Moriyama et al., 2021; Souza-Junior et al., 2016; Toffoletto & Tello, 2020).

It also allows nurses to provide more efficient and effective care. Through electronic communication, nurses can quickly provide consultation, health education, and monitoring of patient status in order to obtain timely follow-up (Bahmanpour et al., 2023; Harada et al., 2022; Nejadshafiee et al., 2022; St George et al., 2009). This can shorten the response time and render those interventions more effective. Similarly, nurses can use telenursing to share information promptly with other health team members and assist in providing patients with integrated care. Telenursing services are critical in countless emergency scenarios, such as natural disasters or pandemics. Telenursing enables nurses to continue primary health care for patients in the distance in times of movement restrictions or social distancing. This minimises the risk of disease transmission and ensures patients receive needed care, easing pressure on already overburdened healthcare systems (Firouzkouhi et al., 2021).

Overall, telenursing services showed great potential in supporting remote nursing practice, which could also boost accessibility-, effectiveness- and efficiency performance if appropriately implemented and developed — upscaling them throughout several service programs, private and public collaborations inside Indonesia. Telenursing can significantly improve the quality of health services by utilizing current telecommunication technology and significantly help people around the states. In addition to the urgency identified above, several other matters are at stake: health service inequities. Indonesia has a vast geography and is composed of thousands of islands. Many remote regions require additional assistance to access traditional health services. In this regard, telenursing is a formidable solution to address accessibility among health services. Nurses can use communication technology to deliver nursing services to patients hundreds or even thousands of miles away. It balances urban-rural disparities in healthcare and makes it possible for every patient to be provided with a good standard of care.

Telenursing can potentially increase the access and quality of health services, but its implementation in each country, including Indonesia, encounters several issues. Challenges in implementing this service were also reported across other regions worldwide, particularly in remote areas with poor technological infrastructure and limited internet access. For instance, the low digital literacy rate of the public and health workers is a barrier to using communication technology for health services (I. J. Kim, 2024; Muñoz-Villaverde et al., 2024). Also, ensuring the privacy and safety of patient data is a significant concern, given that digital systems are prone to high levels of data breaches (Kamei et al., 2024). Other challenges are that many governments need more resources to develop the technology infrastructure and train health workers (Talebi et al., 2023). This is the point at which telenursing can work only if all parties are strongly committed to offering sustainable solutions and making health services accessible and fair in the region.

Telenursing is gaining traction worldwide as a powerful tool to expand access to quality healthcare, especially for those in remote and underserved areas (Ariyanto & Rosa, 2024). Countries like the United States, Canada, Australia, and several in Europe have successfully implemented telenursing to overcome geographical barriers and create more efficient healthcare systems (Bruce et al., 2024; Erdmann et al., 2024). While challenges remain—such as gaps in infrastructure and digital literacy—these countries demonstrate that telenursing is not just a concept but a real, practical solution. Their experiences offer valuable insights into how Indonesia and other nations can integrate telenursing into their healthcare systems. This ensures that high-quality medical support reaches even the most hard-to-reach communities.

Adopting telenursing services in Indonesia: a challenge

Telenursing services represent a recent and advanced form of nursing practice that has contributed to many changes in the naive functional role during the journey to this emerging domain over a few years (Eriksson et al., 2020; Mamom & Daovisan, 2022). Telehealth or telenursing, aided by advances in telecommunication technology, enables nurses and other health workers to provide e-health nursing service care from one location without travelling. Telenursing services are an up-and-coming solution in Indonesia because access to health services is difficult, especially for people who live in remote areas and islands. Telenursing can also remove the geographical problem, and nurses will never miss any patient in hard-to-reach localities. It may also reduce travelling costs and time for face-to-face meetings between nurses and patients. However, its potential and urgency also have several obstacles to its application in Indonesia. Below are the challenges that were successfully mapped at Figure 3.

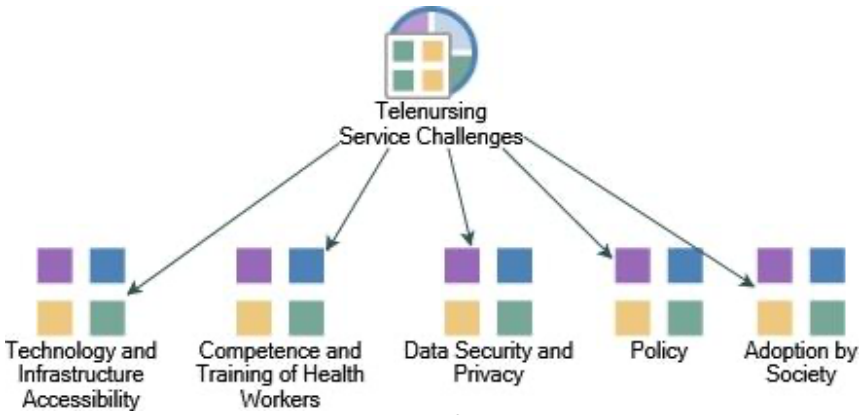

Figure 3. Challenges of using telenursing
Source: By researchers using Nvivo 12 Plus, 2023

The development of telenursing services in the implementation of remote nursing practice faces some challenges that must be seriously addressed, especially in Indonesia. The primary barrier to beginning with voice is accessibility, technology, and infrastructure (Ambas et al., 2024; Judijanto et al., 2023). Limited internet connectivity in rural or remote areas often prohibits effective delivery of services due to a lack of telecommunications infrastructure. The deployment of telecommunications infrastructure remains below target, and coverage needs to be expanded, requiring substantial efforts. Indonesia presents severe challenges regarding technology accessibility and infrastructure development, particularly in rural and remote areas. Limited internet connectivity still needs to be widely available, which is a crucial challenge (Dewi et al., 2024; Judijanto et al., 2024). In remote areas like Papua, Maluku, and East Nusa Tenggara, internet networks are slow or even non-existent (Hadi et al., 2022; Muhtar et al., 2024; Putri, 2024). This immunity is due to the need to develop telecommunication coverage networks in these areas. In fact, people in rural areas often have to drive for hours to the closest city to obtain internet access, which generally hinders local economic development, educational opportunities, and various other necessary services.

Poor accessibility of technology and infrastructure in Indonesia contributes to the deterioration of health services, including the implementation of telenursing. In many remote places, people cannot access the internet to get health information or consult with a doctor online. Moreover, physical infrastructure, such as unpaved roads and limited access to electricity, limits the reach of technological devices and health services in these regions. For example, in Papua and several regions in Indonesia, health workers often need help accessing patients to provide services because the road infrastructure still needs to be improved, and technology-based health services are difficult to realise. Given this inequality, equitable infrastructure development can ensure that health services, including telenursing, can be accessed by all Indonesian people.

Secondly, using technology and telenursing practices require initiative, competence and training for health personnel. Nurses should also be provided with integral knowledge and tools of communication and data management for telenursing to address the need for training and retraining of nurses on technology use and killing them in telenursing practice. Continuous

guidance and improvement of the competencies of health workers, especially nurses, in the field and telenurse practices are closely related and associated with the sequential use of technology (Mun et al., 2024). They have to be loaded with knowledge regarding communications, data management, and the use of essential technical devices. For instance, in a Makassar-based hospital, a training implementation was conducted for nurses regarding using the hospital's telemedicine application to improve their remote consultation capabilities (Wirmando et al., 2021). However, the assessment revealed that some nurses struggled with the system, so more intensive retraining was required to ensure the service's effectiveness.

In addition, data security and patient privacy must be taken into account. Patient medical information) should be confidential and stored securely while transporting patient data using electronic communication methods. It also requires robust security measures to meet the personal data protection regulations that are nowadays applied to take care of patient privacy (Heo et al., 2021; Kamei, 2013). In addition to it, suitable policies are another major issue that needs due attention while developing telenursing. The responsibilities, authorities, and practice standards must be controlled through proper regulations for telenursing (Meliala et al., 2013; Schlachta-Fairchild et al., 2010). That concerned some of the technology and how it will be taken care of if there is a data breach. Telenursing is licensed to practice everywhere, as well as who gives health services. A solid regulatory framework helps to establish a basic, stable, and safe platform upon which the telenursing practices are rolling.

Lastly, the degree of acceptance and adoption in the community regarding telenursing services is crucial. More public education on these services' potential benefits and dangers is needed (Hvalič-Touzery et al., 2022; Peng et al., 2023). Communities must start considering telenursing as a responsible and secure means of care, providing excellent quality without unnecessary delay in difficult-to-reach patients. Collaboration between the government, health workers, and society is necessary when addressing these problems (Anthony Jnr, 2021; Schlachta-Fairchild et al., 2010; Weinstein et al., 2021). There are no quick or easy solutions to these dilemmas, and it requires moving away from blanket calls for improvements in infrastructure/technology, health worker training, policy support, and more concrete actions that step up responses to the challenge. Telenursing services in Indonesia would improve to increase accessibility and quality of nursing care from a distance with collaboration effort. In addition to these challenges, health communication is another significant element that must be considered when providing telenursing services for Indonesia.

Telenursing in Indonesia has tremendous potential to provide better access to quality health services, especially in remote areas. The most notable challenges are related to limited telecommunications and technology infrastructure—sparks of internet connectivity and inadequate access to electricity and proper roads. In addition, health workers' skills in telenursing technology need to be improved through training. Lastly, protecting patient data and privacy is equally challenging, and regulations and secure measures are needed to protect patients from any breach. So, overcoming these challenges, collaboration among the government, the private sector, and society is crucial to achieving inclusive and effective telenursing services.

The health communication model needed to support telenursing services in Indonesia

Implementing telenursing in Indonesia encounters different problems, such as the availability of technology infrastructure, health workers' competence, data protection, and patient privacy. Addressing these challenges requires a comprehensive and strategic approach operationalised through a health communication model. Health communication, as a fundamental tool to deliver information, create trust, and increase health literacy, can also help to overcome these barriers. It also discusses the need for initiatives to empower health workers with the proper knowledge, promote acceptance of telenursing among communities, and increase collaboration between various stakeholders so that telenursing is a safe and inclusive solution.

Thus, an effective health communication model that is suitable for telenursing services in Indonesia is essential. Successful information delivery, understanding between nurses and patients, and informed decision-making in telenursing practice may have a better effect when the right health communication model is adopted (Barbosa et al., 2016; Kawaguchi et al., 2004; Mheidly & Fares, 2020). Several considerations need to be made regarding the health communication model in telenursing. Nurses' caring and empathetic communication skills must

be adept as their first line of response to treating patients (Kwame & Petrucka, 2020). Because telenursing is partially computer-mediated communication, the nurse must also demonstrate emotional presence and screen for patient verbal statements that indicate stress or distress. The nurse must also identify response choices based on cues from listening actively to unpack patient need states.

The telenursing health communication model should also consider the diversity of patient culture, language, and background (Schouten & Meeuwesen, 2006), especially in Indonesia. The impact of inclusive communication on perceptions, respect, and involvement in health care decision-making needs to be investigated (Elberse et al., 2011). On the telenursing health communication model side, it is essential to consider the effective use of communication technology. Nurses also need to ensure patients are able and know how to access the necessary technology, as well as provide guidance through tech support. Electronic-oriented communications need to be clear, transparent, and secure enough to protect patient information.

Moreover, the health communication model in telenursing should promote a shared responsibility between nurses and patients (Dithole et al., 2016). In this way, the nurse is not only an information provider but also a helper and accommodator of patient-extracted decisions. The participation of patients in the process of their care and viewing them as persons who are worthy of helping make decisions regarding their health is an essential part of that communication model. Moreover, the health communication model for telenursing should focus on patients' education and empowerment. Nurses must be skilled at health literacy communication, effective instructional methods and prompting patient activation in their care. The health communication model in telenursing is another issue that should be taken into account, and it will also show the necessity of education for patients. Nurses need to explain health information in simple language, harness the power of plain speaking, and enable patients 'active participation in their health. A health communication model can be implemented to bridge telenursing services in Indonesia. Figure 4 shows several relevant models.

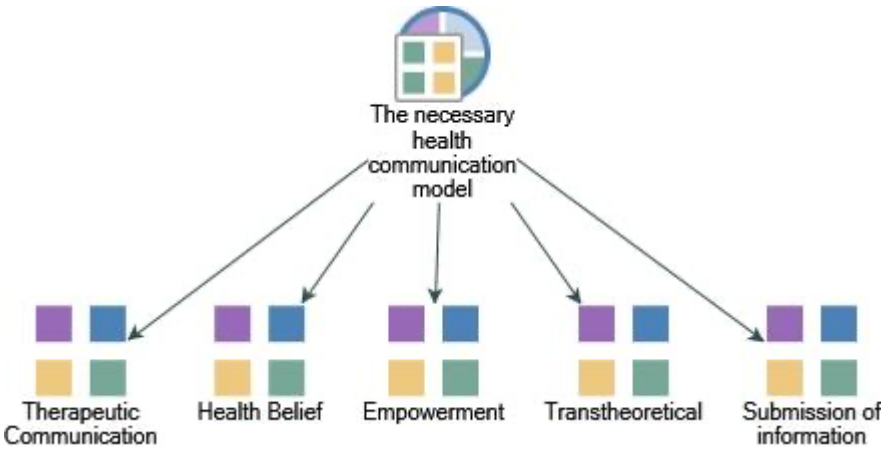

Figure 4. Several health communication models considered
Source: By researchers using Nvivo 12 Plus, 2023

The therapeutic communication model focuses on the therapeutic relationship that has to exist between nurse and patient (Donovan & Mullen, 2019). Empathic, understanding, and supportive communication is used to build trust and facilitate the exchange of important information. They would build trust through understanding and empathetic communication, creating a safe environment for the exchange of critical information. This model emphasises collaborative decision-making about patient healthcare. The health belief model should also be considered because it addresses patient beliefs, understanding and attitudes in relation to health and disease (Carpenter, 2010). Nurses use communication skills to help patients understand their health condition, explore their beliefs and readiness for behaviour change related to healthy actions, and overcome barriers that may become obstacles to attaining positive, sustainable changes.

Another model is related to empowerment. The model is built from the perspective of diversion and, of course, education integrated to empower patients to know what they need to

manage their health. Educational, supportive and collaborative communication by nurses can help patients to understand their health conditions as well as be able to do something about it (Chang, 2020). While the Transtheoretical Model targets changes in behaviour and stages of change experienced by individuals (Feldman et al., 2022; Li et al., 2020). In telenursing, this model can be used to help nurses gauge where patients are in that process of change about whatever health issue we may be discussing and better inform us on what type of communication might/will assist the patient in breaking down some barriers around those bad habits, thereby shedding light on new behaviours.

The information delivery model is also essential because it makes it possible to convey helpful information clearly and straightforwardly to patients. The best way to communicate medical information is concise, organised, and contextualised. The model also considers the patient's needs, including literacy level, language, or form of communication (Dillard & Shen, 2005; Snyder et al., 2004). The context will determine the appropriate health communication model choice and the need to provide telenursing services in Indonesia. These models can be applied in combination or according to specific circumstances and requirements regarding patient attributes, communication goals, or others.

Health communication models are necessary for addressing barriers and reinforcing the necessity of establishing telenursing in Indonesia. Nurses can foster more empathetic and respectful relationships with patients using the therapeutic communication model that enhances trust, helping to elicit crucial information. The health belief model can compensate for the heterogeneity of patient beliefs and perceptions regarding telenursing services. In contrast, the empowerment model is conducive to increasing patients' autonomy in maintaining their health. Nurses can use the transtheoretical model to help them tailor communication for patients at different stages of behaviour change. On the other hand, the information delivery model allows any information provided to be understood, structured, and straightforward. By implementing an appropriate health communication model, barriers such as lack of physical interaction and use of technology can be overcome, including the urgency of providing remote health services that can be met sustainably.

The results of a comprehensive study of health communication models indicate that applying the appropriate model can address all issues within telenursing services in Indonesia, such as lack of infrastructure, health worker competence, and patient data privacy. Despite the remote communication, a health communication model drawn from a therapeutic relationship, articulated by Donovan & Mullen (2019), becomes prime in establishing compassionate and trusting communication between the nurse and patient (Donovan & Mullen, 2019). The informal relationships established with empathetic human communication will allow the flow of the essential details needed in care. The health belief model focuses on the patients' understanding, attitudes, and beliefs about their health condition. This will allow nurses to assist patients with understanding their condition, surmount obstacles to realising positive behaviour change, and enhance patient readiness to adhere to the care recommendations provided.

This health communication model has important implications for telenursing career development in Indonesia. Telenursing can be an excellent solution if different supportive communication models are applied, including empowerment models encouraging autonomy among patients and transtheoretical models delineating the steps of patients' behavioural changes. When delivering medical information, a simple structured communication model will reduce confusion and accelerate patient-initiated understanding, especially in low literacy or low language proficient patients. It helps strengthen the communication and the physicians' determination if one is needed to visit. Therefore, the suitable health communication model not only dissects the barriers created by physical interaction and technology but also propels the success of telenursing as part of a more modern and inclusive health system in Indonesia.

CONCLUSION

This study highlights how health communication plays a crucial role in addressing the challenges of telenursing in Indonesia, particularly for people in remote areas who struggle to access healthcare. Telenursing offers a lifeline for patients with chronic illnesses or mobility limitations, providing faster, more accessible care through digital communication. However, its successful implementation is hindered by several key challenges that must be addressed. One major issue is technological infrastructure, especially in rural areas with weak internet connectivity, limited

telecommunication facilities, and unreliable electricity. These gaps make it difficult to ensure consistent remote healthcare services. Additionally, many healthcare professionals lack the digital skills to operate telemedicine platforms effectively. Without adequate training in telehealth tools, cybersecurity, and patient data management, the adoption of telenursing remains slow.

Data privacy and security are also significant concerns. As patient information is shared digitally, the risk of cyberattacks, unauthorised access, and data breaches increases. Strong encryption, authentication protocols, and legal frameworks must be in place to build trust in telenursing to protect sensitive medical records. Effective health communication models tailored to Indonesia's needs should be adopted to address these challenges. The therapeutic communication model is crucial for building trust between patients and healthcare providers, ensuring patients feel heard and supported even in remote interactions. The belief-based model can help overcome cultural and social barriers, making people more receptive to digital healthcare. Finally, patient empowerment strategies can encourage individuals to take an active role in their healthcare, making telenursing more effective. Government support is essential, but it must go beyond general commitments. Targeted funding for infrastructure improvements, nationwide digital literacy programs for healthcare workers, and clear telehealth regulations are necessary steps.

This study has certain limitations. The first one is related to the ORM method, which is limited to online data and does not include information that may only be present in physical sources or more specific field contexts. In addition, depending on search terms such as 'telenursing' may restrict the inclusivity of relevant literature, as multiple terminologies are used in different health literature. Future studies should broaden data sources to include interviews with health practitioners or field surveys to gain a detailed and holistic view of telenursing implementation. Another option for future research is to study data from regions with different infrastructures to analyse a broader spectrum of challenges and their possible solutions.

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