THE MODEL OF VIRTUAL NURSING CARE FOR FUTURISTIC CHALLENGE: A LITERATURE REVIEW

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INFORMASI	ABSTRACT
Korespondensi dwiyunita@unmuhjember.ac.id *Keywords:* *Information Technology, Patient Quality of Care, Virtual Care Nursing*	*Objective: To provide an understanding and summarize the challenge regarding the need to be prepared for performing virtual care.* *Methods: This literature review was conducted through searching 5 databases including ProQuest, Science Direct, PubMed, SAGE, and Google Scholar were searched to identify relevant articles. The strategy used in searching for literature that matches the topic in this literature review uses the PICO framework and then a review was carried out using the PRISMA method to gain insight into the virtual care nurses.* *Results: Eight studies met the inclusion out of 45 search results. Currently, Virtual nursing care delivery is an innovative strategy to improve patient quality of care. This strategy refers to a variety of healthcare activities delivered remotely using telecommunications and other technologies and this service requires an organized change on nursing management process.* *Conclusion: Educational preparation includes telenursing as one of the models of nursing care in the nursing education curriculum, developing standards of practice, and certification for Tele nurses to assure patient safety and quality patient outcomes.*

BACKGROUND

Technological advance has brought fast development in every sector including health sector. Technological development of health information is able to improve the quality of health services. The use of electronic media can process, store and exchange the information of health. The world of health has considerably changed by carrying out various innovation of health based on information technology. It provides the convenience for the patients in obtaining their health service. Integration of information technology in the health sector can improve the optimal service of quality for the patient (Sudirman, 2022). Telenursing is one of information technology in the field of nursing. It has many benefits for patients, health workers, and government. The benefits that can be felt directly are the efficiency of costs and time. Telenursing makes the nursing services can reach wider (Rutledge and Gustin 2021).

New technologies enable to create innovation of virtual nursing care strategies. It also can improve the quality of patient care. The implementation of virtual care requires an organized change management. Virtual nursing offers the opportunities for the nurse retention by providing work environment which needs clinical expertise without physical demand of bedside. Nursing care is not only for patients' care when they are hospitalized, but also after they are discharged. The nurse evaluates the patients' nursing care results which are provided and educates them about their health. Especially for elderly patients who have chronic and terminal illnesses whose condition must be monitored. The evaluation of the implementation of health education that is carried out currently cannot be controlled or evaluated optimally, so that evaluation can only be carried out when the patient do check up in the hospital (Hidayah 2022).

Currently, health care facilities are required to be responsive and fast adopt to digital technology such as telehealth or virtual care. Both facilities refer to the provision of health services for patient care by giving information and doing communication techologically. The use of telemedicine and telenursing has been suggested as a method to maintain continuous health care for patients. Telenursing are expected to provide appropriate treatment time and minimize virus exposure.

This method is aimed at protecting both nurse and patient. Because of virtual care arrangements in Indonesia are only limited on telemedicine between health care facilities, virtual care between nurse and patient still does not have definite regulation.

The growth of telehealth users occurred very fast during pandemic. More than 84% of telehealth users have only used this remote health service since the last two years. Telehealth services were used by more than 67% of respondents (n = 2,108). They use this service because it can save time, avoid transmission of covid, can be used anytime and anywhere also saves transportation costs (KIC, 2022). Telenursing is a comprehensive system to monitor and provide education for post TKA patients so that they can improve the patient's knee function (Meitri and Herawati 2022). Telenursing can help patient to get immediate primary health care, getting the right care remotely from the hospital. Telenursing can also induce better nursing care by reducing the risk of transmission for nurses. From a nurse-managerial point of view, digitizing of nursing practice can improve the quality of health care by reducing costs, human and material resources. This is necessary so that nurses can still provide holistic care regardless of time and place (Castner et al. 2022).

However, the implementation of telenursing has many obstacles such as resources, community behavior, and government policies. Many of these obstacles occur in developing countries such as Indonesia, thus it hampers the implementation of telenursing there. This condition causes the implementation of telenursing in Indonesia has not been maximized yet. Based on the data above, the author feels the need of conducting a literature review to dig deeper into the virtual nursing care model as a challenge for the nursing world in the future.

METHODS

Searching method for academic journals in this literature study was carried out using an online journal database obtained from ProQuest, Science Direct, PubMed, SAGE, and Google Scholar from 2020-2022, both journals in English and Indonesian. This study began with a literature review using the PICO and PRISMA diagrams. Meanwhile, the strategy used to make it easier to get journals that are relevant to the topics in this

review literature is to usekeywords and Boolean Operators (and; or; and not). The keywords used in searching for journals are information technology, virtual care, telenursing, nursing management, and patient safety. Inclusion criteria were articles consisting of full-text articles about digital technology in nursing, written in English, and articles that explain the virtual care of nursing. Exclusion criteria were articles with unpublished report, title, and abstract not relevant with aim of this literature study.

RESULTS

The selection of journals produced 45 articles, after the elimination of duplicate articles and the exclusion of studies by title and abstract, found 18 relevant articles were identified for a complete test review. 10 articles were excluded due to a lack of information on the kind of methods or tools also outcomes that are used in virtual care. Therefore, 8 articleswere eventually included in the systematic review (Figure 1). Most of the papers included in this review are research conducted in Portugal, the United States, Korea, Australia, China, and Indonesia. All studies are published in English. The journal consists of various medical specialties, not limited to nursing management.
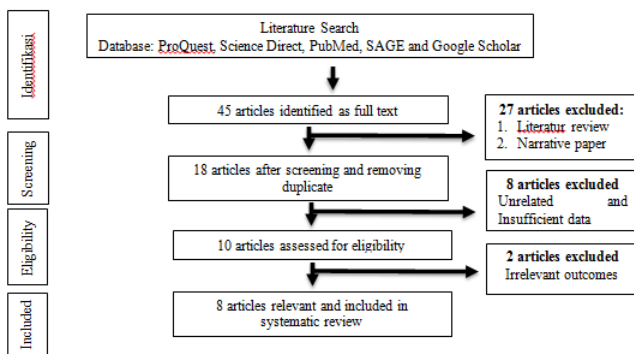

Figure 1. PRISMA Flow Diagram

The review produced overarching themes that help support the usage of technology in virtual health care delivery: innovative strategies to improve patient quality of care, and the need for telehealth in nursing services. The themes are discussed below.

Innovative strategies to improve patient quality of care

The healthcare environment continues to change rapidly to meet the growing demands of payers and patient care. Payer expectations for quality and service at lower reimbursement rates (value-based purchases) and increased expectations for transparency exacerbate the problem. Hospitalized patients experience greater severity and complications when the shortage of nurses is getting worse. As demand for care workers rises, with one-third of the workforce aged 50-64 and 850,000 care workers expected to retire, creating new and innovative care models is critical (Cloyd and Thompson 2020). These models of care should consider the issues that contribute to caregiver burnout, the needs of the millennial workforce, and how to balance the expertise of new graduates and experienced caregivers in the hospital work environment. there is. Solutions using technology and innovation should be considered. Telehealth refers to a variety of healthcare activities delivered remotely using telecommunications and other technologies

Telemedicine is defined by the Health Resources and Services Administration (HRSA) as the use of electronic information and telecommunications technologies to support long-distance clinical care delivery, patient and professional health-related education, public health and health care. The World Health Organization defines telemedicine as the use of telecommunications and virtual technologies to provide health care outside the traditional healthcare facilities. The National Council of State Boards of Nursing defines telenursing practice as "care delivered through a various of telecommunication technologies, including high-speed internet, wireless, satellite, and video communications. Telenursing or virtual care nurses can provide care and services wherever telephone and/or video technology is available. Video technology generally includes a high-definition two-way camera and two-way voice communication so that the patient and virtual nurses can see and communicate with each other to meet the needs of distance efficiency and cost limitations.

The need for telehealth in nursing services

Some telehealth needs in health services are virtual consultation with a doctor or nurse (teleconsultation), home care, geriatric services and palliative care, provision of health care support, telemonitoring services, telenursing services. All the needs for telehealth in nursing services requires an organized change on nursing

management process.

DISCUSSION

The practice of virtual care nursing is more challenging because virtual care nursing is generally practiced in many countries in the world (Rim and Shin 2022), but this practice is not widespread in Indonesia right now. The absence of virtual care nursing regulations makes this program difficult to develop, thus making virtual care nursing far left behind if compared with other e-health services such as telemedicine, although both of them have different functions and outcomes (Firouzkouhi et al. 2021). Before implementing telenursing as one part of telehealth the government should make policies and rules also standard operating procedures to control its implementation. Things to plan is preparing human source, platform, regulation, standards of practice, experience requirements, educational preparation, and certification as validated way to access the skills and expertise of nurses conducting this role to assure patient safety, service quality and patient outcomes (Cloyd and Thompson 2020).

In Indonesia, health technology transformation is one of the 6 areas of health reformation: primary health service, referral health services, health security, health financing, health human resources, and health technology. Some of the national priorities that are the targets of the 2020-2024 RPJMN indicators in digitizing health services and information include the implementation of Electronic Medical Records, Integrated Referral Systems, and telemedicine services. Digital-based health services in this case Telemedicine, especially teleconsultation, is a form of health service. Regulation of telemedicine services between health service facilities in accordance with the Regulation of the Minister of Health Number 20 of 2019 concerning the Implementation of Telemedicine Services Between Health Facilities, this regulation is expected to stimulate health facilities to utilize Information and communication technology (ICT) in carrying out health services, especially telemedicine. Meanwhile, telemedicine services that regulate consultations from patients/communities to health workers currently do not exist. The principle of telemedicine services is between health facilities and is carried out by medical personnel/health workers who have SIP / SIK in health service facilities.

Research conducted by Raesi et al. (2021) stated that health education provided throughtelenursing can improve patient quality of life. She suggested that appropriate policies for healthcare could be adopted by health managers, because as technology develops, the innovation of nursing care must also be improved. Research conducted on post op bariatric patients states that connecting with nurses who provide education, motivation and conduct periodic remote assessments strongly shows that this treatment is focused on patient care (Arnaert et al. 2022). WHO recommends the use of telenursing during the pandemic to avoid exposure to covid-19. This statement is inline with the research that telenursing not only provides benefits for patients, but also healthcare workers. Telenursing can be interpreted as the process of providing health services, nursing care management, and coordination of health services between nurses and other health professionals (Castner et al. 2022).

Four components must be owned by nurses who provide telenursing services to improve the quality of patient care, patient safety, and patient satisfaction namely by affective support, professional technical competencies, health information, and decisional control (Mattison & Arestedt, 2022). The application of telenursing provides great benefits for clients and families, including being able to monitor clients in carrying out the treatment process, reducing treatment costs to health services, preventing recurrence or relapse, and through this telenursing clients or families can consult with health workers according to the complaints they feel so that they get treatment as soon as possible regarding the problem at hand.

CONCLUSION

The high use of the internet in the community today strongly supports the implementation of telenursing as an effort to digitize care (virtual care) during the pandemic and after. Things that need to be considered are ethical and legal issues, including the confidentiality of data and the law, the involvement of non-clinical personnel, and efforts to prevent hackers and data theft. Nursing education makes educational preparation by includes telenursing as one of the models of nursing care in the nursing education curriculum,

developing standards of practice, and certification for tele-nurses because there will need to be validated way to assess the skills and expertise of nurses performing this virtual care to assure patient safety and quality patient outcomes.

REFERENCES

Arnaert, Antonia, Alice Girard, Stephanie Craciunas, Zhida Shang, Hamza Ahmad, Zoumanan Debe, and Sebastian Demyttenaere. 2022. "Patients' Experiences of Telenursing Follow- up Care after Bariatric Surgery." *Journal of Clinical Nursing* 31(7–8):985–94. doi: 10.1111/jocn.15955.

Castner, Jessica, Sue Anne Bell, Breanna Hetland, Claudia Der-Martirosian, Martin Castner, and Aditi U. Joshi. 2022. "National Estimates of Workplace Telehealth Use Among Emergency Nurses and All Registered Nurses in the United States." *Journal of Emergency Nursing* 48(1):45–56. doi: 10.1016/j.jen.2021.07.001.

Cloyd, Beth, and Julia Thompson. 2020. "Virtual Care Nursing:: The Wave of the Future." *Nurse Leader* 18(2):147–50. doi: 10.1016/j.mnl.2019.12.006.

Firouzkouhi, Mohammadreza, Abdolghani Abdollahimohammad, Judie Arulappan, Taha Nouraei, and Jebraeil Farzi. 2021. "Challenges and Opportunities of Using Telenursing During COVID-19 Pandemic: An Integrative Review." *Frontiers in Health Informatics* 10(1):98. doi: 10.30699/fhi.v10i1.332.

KIC, 2022. *Survei: Konsumen Makin Nyaman Menggunakan Layanan Telemedik,* s.l.: Kata Data.

Mattison, M. & Arestedt, K., 2022. Role of Interaction of Caller Satisfaction in Telenursing: A Cross Sectional Study. *Clinical Nursing Wiley,* pp. 1-10.

Meitri, W. & Herawati, T., 2022. Efektivitas Telenursing terhadap Fungsi Lutut Pasien Post Total Knee Arthroplasty. *Journal of Health and Cardiovascular Nursing.*

Raesi, Rasoul, Zahra Abbasi Shaye, Sam Saghari, Mohammad Ali Sheikh Beig Goharrizi, Mehdi Raei, and Kiavash Hushmandi. 2021. "The Impact of Education through Nurse-Led Telephone Follow-up (Telenursing) on the Quality of Life of COVID-19 Patients." *Journal of the Egyptian Public Health Association* 96(1). doi: 10.1186/s42506-021- 00093-y.

Rim, Dahae, and Hyunsook Shin. 2022. "Development and Assessment of a Multi-User Virtual Environment Nursing Simulation Program: A Mixed Methods Research Study." *Clinical Simulation in Nursing* 62(2003):31–41. doi: 10.1016/j.ecns.2021.10.004.

Rutledge, C., Gustin & Tina, 2021. Preparing Nurses for Roles in Telehealth: Now is The Time. *The Online Journal of Issues in Nursing.*

Sudirman, A., 2022. *Information Technology: Konsep dan Implementasinya.* 1 ed. Bandung: Media Sains Indonesia.