THE EFFECT OF TELENURSING IMPLEMENTATION ON THE QUALITY OF LIFE (QoL) OF PATIENTS WITH CHRONIC DISEASES: A SYSTEMATIC REVIEW

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ABSTRACT

Background: There are still differences in access to health services in Indonesia in the current digital era because conditions show that rural residents, especially those living in border areas, experience obstacles in obtaining health services and the prevalence of chronic diseases has increased, with hypertension rising from 25.8% to 34.1%, diabetes mellitus rising from 6.9% to 8.5%, stroke prevalence rising from 7% to 10.9%, and chronic kidney disease rising from 2% to 3.8%.

Purpose:The purpose is to determine the effect of telenursing implementation on the quality of life of patients with chronic diseases.

Methods:The method applied is a systematic review referring to the PRISMA guidelines, articles for the last 5 years, subject area, nursing, relevance, article types, and were selected to be analyzed and assessed using JBI.

Results:The research findings indicate that nine studies were taken from 1,373 publications. Publications were taken from the period 2021 to 2025. Research articles were searched through academic electronic databases (Scopus, Pubmed, and Google Scholar). The implementation of telenursing has positive implications for the quality of life of patients with chronic diseases.

Conclusion: Telenursing has shown positive results in improving the hope of improving the quality of life of patients with chronic illnesses. The variety of media and applications used in the implementation of telenursing also contributes to its success. It is hoped that further research will further examine the factors influencing the implementation of telenursing and also research can be conducted on the same media.

Keywords: Chronic Disease, Quality Of Life, Telenursing.

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INTRODUCTION

The disparity in access to healthcare facilities and services between urban and rural areas remains a challenge for the Indonesian government. Patients with chronic illnesses require ongoing care, and one or two visits are not sufficient. This leads to increased costs for accommodation and transportation, especially for patients living far from healthcare centers. (Setiawan et al., 2020). The World Health Organization (WHO) defines quality of life as a person's personal view of their place in life, within the context of the culture and values that surround them, and in relation to their aspirations, expectations, norms, and concerns. According to the WHO, health is a state of complete physical, mental, and social well-being, and not merely the absence of disease or infirmity. Therefore, it is important to remember that any health problem affects not only the physical but also all other dimensions of an individual's health (Septiani et al., 2022). Nurses have a very important role in providing health services (Fadhilah et al., 2024). Therefore innovation is very necessary, one of which is telenursing which allows nurses to provide nursing services to patients remotely using information technology and web-based systems (Erna et al., 2025).

Telenursing is one of the latest information and communication technology systems in the healthcare sector that enables the delivery of nursing services or care remotely. In other words, patients and nurses interact not directly but through media that can be used by the patient and their family (Setiawan et al., 2020). Telenursing is a process that involves providing, managing and regulating services and delivering health services by utilizing information and communication technology (Fitriani & Mulyono, 2022). Implementation of telenursing can take the form of utilizing websites, social media platforms, telephones, mobile phones, and interactive videos to provide care to patients (Fitriani & Mulyono, 2022).

Other implementation methods that can be used are outpatient care, telephone center services, telenursing triage, telenursing discharge planning, consultation using a secure messaging system, consultation via a hotline service, and audio or video sessions between patients and nurses (Setiawan et al., 2020). Telenursing can also provide nursing care and consultations to patients through electronic platforms, which contributes to increasing access to care, improving the quality of life, and in addition, with telenursing, nursing services can reach more people (Fadhilah & Bili, 2025). The immediate benefits include more effective use of time and money. The scope of nursing services is expanding with the advent of telenursing (Amanah & Herawati, 2022).

Data shows that there are 70,000 cases of chronic diseases that end in death, most of which are caused by people's lifestyles that favor fast food and experience stress. It is predicted that by 2030, approximately 150 million people will suffer from chronic diseases. The prevalence of chronic diseases has increased, with hypertension rising from 25.8% to 34.1%, diabetes mellitus rising from 6.9% to 8.5%, stroke prevalence rising from 7% to 10.9%, and chronic kidney disease rising from 2% to 3.8% (Adiwisastra et al., 2025). Supported by previous research, regarding the impact of telenursing on patients with chronic kidney disease (CKD), with the support of data CKD is ranked 9th as a cause of death in America with an estimated more than 100,000 people with end-stage CKD died in 2016. Meanwhile, in Indonesia the death rate of CKD patients undergoing dialysis was 1,243 people. This study found that in the intervention group before the intervention the majority had a poor quality of

life and after the intervention there was an improvement, namely the majority had a good quality of life. The results of this study are supported by the results of a study on quality of life measurements by Soelistyoningsih, & Wira (2019) which stated that the quality of life is categorized as good >60.0 and poor ≤60.0 with the result that 63.3% of patients have a good quality of life (Gultom et al., 2021). Telenursing is an innovation in the information and communication technology sector, which facilitates supervision, allowing healthcare providers to assess health conditions remotely, provide educational interventions, or provide health and social services to patients at home (Zuliatika & Purnamawati, 2024).

Providing nursing services remotely by utilizing communication tools or telenursing not only helps clarify the medical evaluation of patients, but also places greater emphasis on the level of urgency and duties of nurses, so that nurses can concentrate more on information and improving patient understanding (Ballsy et al., 2021). In such situations, telenursing is seen as a solution to improve the situation. The public can access healthcare services in a more practical and affordable manner, thereby improving the quality of health and well-being. With telenursing, nurses can reach more patients and provide personalized healthcare, anytime, anywhere, even at the patient's home (Fadhila & Afriani, 2020). Based on the background above, the aim of this systematic review is to explain and present the influence of telenursing on the quality of life of patients with chronic diseases.

METHODS

Design

In a systematic review conducted through P.R.I.S.M.A., keywords such as telenursing, quality of life, and chronic disease were used to search for authoritative sources. The population was patients with chronic diseases in various countries. The intervention was the implementation of telenursing through various media. The results of this study were the effect of telenursing on the quality of life of patients with chronic diseases. Researchers identified relevant databases for searching these studies using PubMed, Scopus, and Google Scholar. The keywords "telenursing," "quality of life," and "chronic disease" were used.

Search Methods

Included: Inclusion criteria, which stipulated originality, publication in English, and alignment with the research objectives. Search Results: In a systematic review conducted through P.R.I.S.M.A., keywords such as "telenursing," "quality of life," and "chronic disease" were used to search for authoritative sources.

1. Systematic Review Process Flowchart

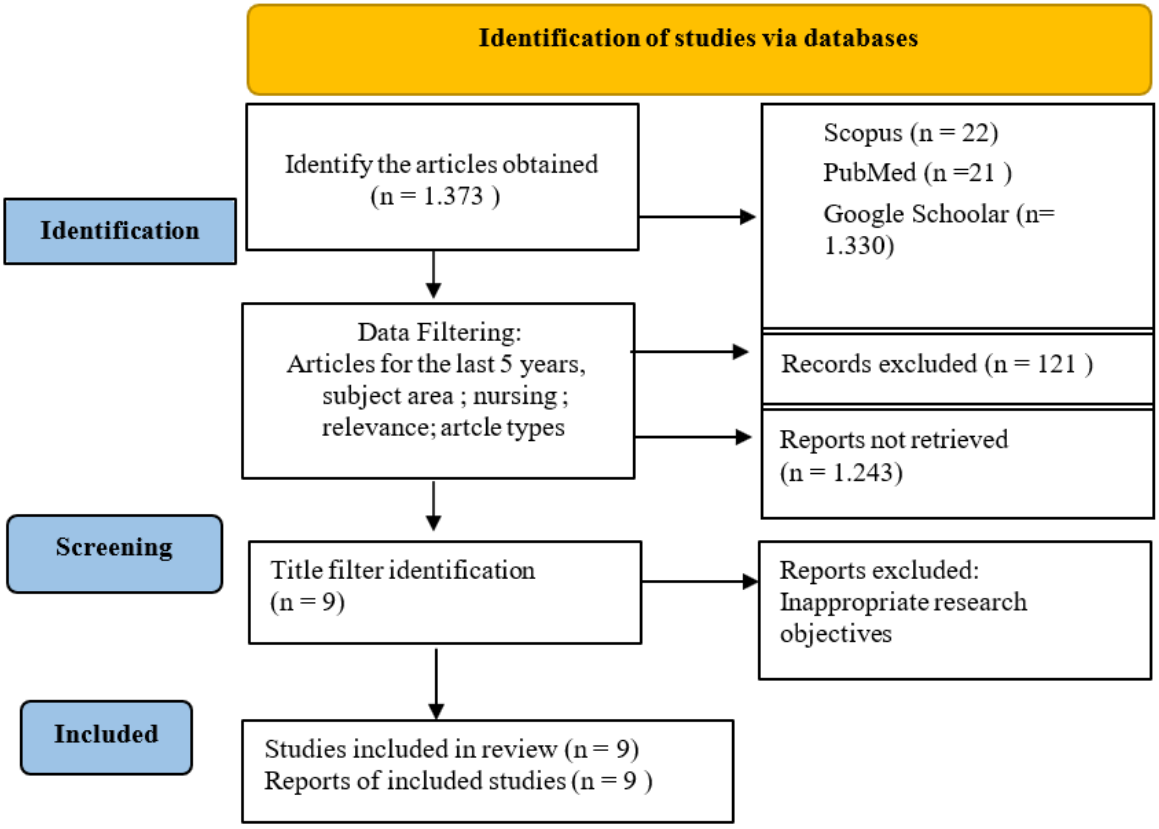

Figure 1.
PRISMA Algorithm

Quality Appraisal

Of all the articles included in the library, the article identification process was carried out for 1,373 articles, then the filtering process with data filtering: Articles for the last 5 years, subject area, nursing, relevance, article types, and obtained 1,243 articles and the next filtering process was to review and record the full text of articles with similar themes as many as 130 articles, of the 130 articles were validated with the criteria of articles that have themes according to the selection included and valid as many as nine articles. From this study, nine articles were selected to be analyzed and assessed using JBI, and following the PRISMA guidelines.

Data Abstraction

The valid data is then extracted and synthesized, then analyzed and compiled

Data Analysis/ Synthesis

The valid data in the form of a table and calculated as a percentage of the existing theme.

RESULTS

Tabel 1. List of Articles

N o	Tittle & Author	Aimed	Result
1.	Efficiency of an mHealth App and Chest-Wearable Remote Exercise Monitoring Intervention in Patients With Type 2 Diabetes: A Prospective, Multicenter Randomized Controlled Trial (Li et al., 2021)	aimed to determine the efficiency of exercise using a fitness app and heart rate band to remotely monitor patients with type 2 diabetes in comparison with that of traditional exercise.	It is known that the intervention group experienced an increase in cardio pulmonary system endurance and a decrease in body fat compared to the control group.
2.	The Effect of Telenursing on Disease Outcomes in People with Type II Diabetes Mellitus (Faezeh et al., 2024)	aimed to evaluate the effects of telenursing compared to routine care on disease outcomes in people with T2DM.	The findings indicated that telenursing or nurse-led telephone follow-up significantly increased self-care efficacy scores, improved adherence to treatment regimens, and reduced levels of glycosylated hemoglobin and plasma glucose. However, no significant effects were observed on lipid profiles or body mass index. Quality of life also improved compared to routine care.
3.	Mobile App for Gynecologic Cancer Support for Patients With Gynecologic Cancer Receiving Chemotherapy in China: Multicenter Randomized Controlled Trial (Lin et al., 2023)	The aim of this study was to examine the efficacy of a mobile app for gynecologic cancer support (MGCS) for patients with gynecologic cancer receiving chemotherapy in China.	The MGCS program demonstrated efficacy in supporting patients with gynecologic cancer receiving chemotherapy. This trial illustrates that an app-based program can be incorporated into routine care to support patients with cancer and suggests that allocation of more resources (grants, manpower, etc) to mobile health in clinics is warranted.
4.	Effectiveness of telehealth on the glycemic control of patients with type 2 diabetes mellitus during the COVID-19 pandemic: A systematic review and meta-analysis of randomised controlled trials (Chiaranai et al., 2024)	This study aimed to examine the impact of telehealth on the glycemic control of in dividuals with type 2 diabetes mellitus during the pandemic.	In our review, we showed telehealth's positive impact on glycaemic control in type 2 diabetes mellitus patients. Healthcare professionals can use telehealth in diabetes care. Caution is needed due to heterogeneity of the results. Further research should explore the long-term impacts of telehealth interventions.
5.	Examining the	aims to synthesize	The impact of mHealth on the QoL

N o	Tittle & Author	Aimed	Result
	influence of mHealth interventions on quality of life among individuals living with HIV or hypertension: A systematic narrative review (James et al., 2025)	existing definitions, frameworks, facilitators and barriers to scaling-up health innovation in low-middle-incomecountries (LMICs)	of people with HIV showed a spectrum from positive to neutral, influenced by factors such as technology used and patient demographics. For hypertensive patients, mHealth interventions generally improved QoL, although some studies reported neutral impacts. Key trends highlighted the importance of personalization and user engagement in correlating with improved QoL outcomes.
6.	Role of Telemedicine in Inflammatory Bowel Disease:Systematic Review and Meta-analysis of Randomized Controlled Trials (Pang et al., 2022)	aimed to compare the impact of telemedicine with that of standard care on the management of IBD.	Telemedicine intervention showed a promising role in improving IBD-specific QoL among adolescents and decreased the number of clinic visits among patients with IBD. Further research is warranted to identify the group of patients with IBD who would most benefit from telemedicine.
7.	Telehealth care and remote monitoring strategies in heart failure patients: A systematic review and meta-analysis (Masotta et al., 2024)	To synthesize evidence related to the impact of telemonitoring strategies on mortality and hospital readmissions of heart failure patients.	Sixty-one studies were included in the review. Narrative synthesis of data suggests a trend towards a reduction in deaths among monitored patients, but the number of rehospitalized patients was higher in this group. Meta-analysis of studies reporting one-year all-cause mortality outlined the protective power of care models based on telemonitoring in reducing one-year all-cause mortality. Meta-analysis of studies reporting the number of rehospitalized patients in one-year outlined that telemonitoring is effective in reducing the number of rehospitalized patients when compared with usual care strategies.
8.	Telenursing in the postoperative period: a scoping review (Maria et al., 2024)	to map available evidence on telenursing use in the postoperative period and its impact on patient outcomes.	Of the positive outcomes, we highlight improved levels of disability, autonomy and quality of life, lower rates of post-operative complications, pain and reduced costs. Telephone monitoring was the most widely used modality, but there were few studies in the pediatric context and in Brazil. of the studies, 11 (91.6%) identified at least one positive outcome in

N o	Tittle & Author	Aimed	Result
			telenursing use and none showed negative aspects in the postoperative period.
9.	The impact of education through nurse-led telephone follow-up (telenursing) on the quality of life of COVID-19 patients (Raesi et al., 2021)	This study was conducted to determine the impact of nurse education and telephone follow-up (telenursing) on the quality of life of COVID-19 patients.	Telenursing improves the life quality of COVID-19 patients. Through appropriate policies, health managers may put on the agenda the implementation of telenursing for COVID-19 patients

Based on the articles obtained, research findings showed that telenursing, using various media or applications as interventions, has shown improvements in the quality of life of patients with chronic illnesses. Other research findings presented in several systematic review articles also indicate positive outcomes on patients' quality of life.

DISCUSSION

This study examined all media and methods used in implementing telenursing. Furthermore, the chronic disease sample was not specific, encompassing all patients with chronic illnesses. Therefore, this study cannot specifically indicate which method is most effective. However, a review of the articles found indicates that all media used demonstrated positive results. This is supported by several previous studies, strengthening the finding that telenursing has a positive impact on the quality of life of patients with chronic illnesses. Telenursing is defined by the International Council of Nurses (ICN) as activities in nursing care, teaching, management, and research conducted remotely using electronic means (Marques, 2022). Telenursing typically refers to healthcare services delivered through various types of ICT systems, ranging from email, telephone, chat, or text messaging to computer-based video conferencing, remote monitoring, diagnosis, or remote applications requiring advanced technology. Telenursing offers three benefits: for patients, nurses, and healthcare institutions. For patients, telenursing supports them and their families in managing their chronic illnesses, providing them with the right information and support online, and reducing distance and travel time (Nasition et al., 2023).

Another study showed that telenursing had no significant impact on the quality of life of heart failure patients, but there were significant changes in self-care management. One type of telenursing that did not impact the quality of life of heart failure patients was telephone monitoring (Amanah & Herawati, 2022). Other studies also suggest that these findings may be influenced by various factors, including routine monitoring of medication adherence, encouraging regular visits to cardiologists, providing recommendations regarding activity levels appropriate to the patient's physical and mental abilities, and facilitating open communication between patients and researchers during the intervention phase. There were significant differences in various aspects of quality of life after the intervention between the control and intervention groups. The intervention impacted various aspects of quality of life, which is consistent with the findings of this study. Another study showed that telephone

counseling conducted by nurses resulted in improved outcomes for the quality of life of patients with cardiovascular disease (Mahvar, 2025).

Telehealth interventions have been shown to be effective in improving blood glucose control in people with type 2 diabetes mellitus, as evidenced by significant reductions in glycated hemoglobin and improvements in other outcomes. The superior effectiveness of telehealth interventions compared to conventional care can be attributed to several factors. First, the use of advanced technology has significantly contributed to the development and widespread acceptance of telehealth. Telehealth utilizes communication technologies, such as video conferencing, remote monitoring devices, text messaging, and mobile health applications to provide health-related services and information. This technology enables the collection and transmission of health data, facilitates interactions between patients and healthcare providers, and supports the delivery of care remotely. Without this advanced technology, the implementation and delivery of telehealth services would be impossible (Chiaranai et al., 2024). Supported by research, telenursing offers health education and direct instruction on health issues from nurses to patients and their families. Furthermore, the use of telenursing also empowers nurses to provide remote care with the ability to monitor, follow-up, gather information, and provide multidisciplinary services such as remote interventions, pain management, and family support in creative ways. Follow-up is one aspect of the mental health care process. By implementing telenursing (telephone follow-up), patients need continuous monitoring of their ability to cope with their illness and learn how to change their lifestyles in an efficient manner, despite limitations in terms of human resources, time, and costs compared to conventional methods. Through the telephone, nurses can identify patients' needs and help them meet them. This approach can alleviate patients' stress, anxiety, and depression, increase their self-confidence, and move patient care from the healthcare facility to their homes (Purwanti & Katmini, 2023).

Telenursing is a new strategy that, during the pandemic, can help the healthcare system both cost-effectively (effective use of funds) and for public health (improving patients' quality of life). Thus, it can be said that telehealth services can support care for patients with chronic diseases and improve their quality of life by providing accurate and useful information (Nazari et al., 2024).

CONCLUSION

This study reveals the impact of telenursing implementation on the quality of life of patients with chronic illnesses. Several studies have demonstrated positive outcomes from telenursing implementation, including increased patient resilience and improved quality of life for patients with chronic illnesses. The variety of media and applications used in telenursing implementation, such as mobile apps and phone calls, also contributed to its success. Future research is expected to further explore the factors influencing telenursing implementation in patients with chronic illnesses and also research can be conducted on the same media.

DECLARATION OF CONFLICTING INTEREST

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