

**THE EFFECTIVENESS OF TELENURSING TO IMPROVE THE QUALITY OF LIFE OF CORONARY ARTERY DISEASE PATIENTS: SYSTEMATIC REVIEW****Ketut Holifah*, Tuti Herawati**

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*ketut789ketut@gmail.com**ABSTRACT**

The quality of life in coronary artery disease (CAD) patients generally decreases. Nurses need to carry out comprehensive nursing interventions even though the client has been discharged from the hospital or at home. Telenursing is one of the nurse efforts to provide nursing care remotely, especially education and monitoring of CAD patients. This literature study aims to see the effectiveness of implementing telenursing on the condition of CAD patients which has implications for the patient's quality of life. The database was collected from open source online journals including Pubmed, Science Direct, Proquest, Clinical Key Nursing, and Willey Online Library. Articles were searched using the keywords telenursing, telemonitoring, teleeducation, quality of life, and coronary artery disease. The articles used were articles from the last 5 years from 2019 to 2024 with an initial number of 241 and 9 articles analyzed. Forms of telenursing in this literature study include application-based telenursing, telephone reminders, telephone follow-up and via messages. All research studies in the study show that telenursing has a significant impact on the quality of life of CAD patients. All types of telenursing have an impact on the patient's quality of life. Nurses with support from the government are expected to be able to implement comprehensive and integrated telenursing with cardiac rehabilitation programs to improve the quality of life for CAD patients.

Keywords: coronary artery disease; quality of life; telenursing

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INTRODUCTION

Coronary Artery Disease (CAD) is narrowing or blockage arteries the coronary that distributes blood to cardiac muscle. The causes are general divided into two, namely decreasing intake oxygen which is affected by atherosclerosis, thromboembolism, and vasospasm, then increasing need oxygen myocardia. Disturbance system cardiovascular still be one reason death in the world. According to the American Heart Association disorders system cardiovascular become reason death as many as 17.3 million world population, about 3 million soul from the death occurred before 70 years old (Putri et al., 2023). World statistics show there are 9.4 million deaths every year caused by disease cardiovascular and 45% of deaths are caused by coronary artery disease. Estimated that number will increase to 23.3 million in 2030. Coronary Artery Disease (CAD) contributes 31% of deaths, mostly in the form of coronary artery disease and accidents cerebrovascular. In England Coronary Artery Disease contributes nearly 34% of all deaths, whereas the numbers about 40% in the European Union. Worldwide CAD rates estimated will increase Because prevalence factor risk increased in previous countries risky low (Novia Rahmadanti et al., 2023).

CAD disease has an impact to various aspect life the sufferer. Patients with CAD physically experience various changes that could have an impact to aspect other aspects such as psychological and spiritual. According to WHO quality life is reviewed from context culture and systems mark Where they live, relationships with standards life, hope, joy, and care they. This is summarized in a complex manner covers health physical, psychological status, relationships social, and relationships with the environment they (Rahma Ramadhanti et al., 2022). Physical domain on quality this life encompasses energy and fatigue, pain and discomfort, sleep and rest, mobility, activity daily life, dependence on drugs, and capacity work. Psychology domain covers appearance and image body, feeling positive, feeling negativity, self- esteem, thinking, learning, memory and concentration as well as spiritual. Relationship domain social covers personal relationships, support social and activity sexual. Domain of relations with the environment covers source finance; freedom, safety physical and security; health and care social (accessibility and quality); environment house; opportunity to earn new information and skills; participation and opportunities in sport nor recreation; environment physical (pollution/noise/traffic/climate) and transportation (Rahma Ramadhanti et al., 2022).

Previous research by Rezaei et al (2021) show that one interventions that can be carried out is giving education, monitoring as well as good motivation to patients so that it improves quality patient's life. This is in line with research conducted by (Purnama, 2020) that education effective to improve quality life of coronary artery disease patients. Follow developments over time intervention the intervention is presented in the form application or technology other. With its introduction technology information in the field maintenance health so that new methods of providing care emerge known nursing known as telenursing.

Telenursing is use technology to provide care nursing and practice nursing distance Far to patients aiming to improve maintenance health. This is form communication and technology dependent information to factor humans, finance and technology itself. Based on research conducted okay Fadhila & Afriani (2020), implementation of telenursing will increase satisfaction clients and upgrades participation active family. Telenursing can help resolve lack nurse, lower interval visiting and looking after patients who have been discharged from House Sick. Seeing these results, the researchers delved deeper into the effectiveness of using this technology as an intervention to improve the quality of life of CAD patients seen from several aspects such as medication adherence, patient activity, patient physical fitness, anxiety and depression.

METHOD

The method used in this research is study systematic review. Initial steps taken is to identify the PICO (Population, Intervention, Comparison, and Outcome) question "How is effectiveness application of telenursing in improving quality life of CAD patients?" Furthermore is search literature conducted in October 2023 using 5 databases, namely Pubmed, Science Direct, Proquest, Clinical Key Nursing, and Willey Online Library. Search The literature uses the keywords Coronary Artery Disease AND Telenursing OR Teleeducation OR Telemonitoring AND Quality of Life. Included articles that have criteria Randomized Controlled Trial (RCT) and quasi research designs experimental related intervention Telenursing interventions in CAD patients, article Published in the last 5 years, full text and in English. Studies that don't fulfil criteria issued from research. The next step writer do study critical to appropriate studies criteria inclusion. Study critical carried out using a guide study critical RCT study from JBI. Selection results The study can be depicted in the PRISMA flow diagram below (figure 1) :

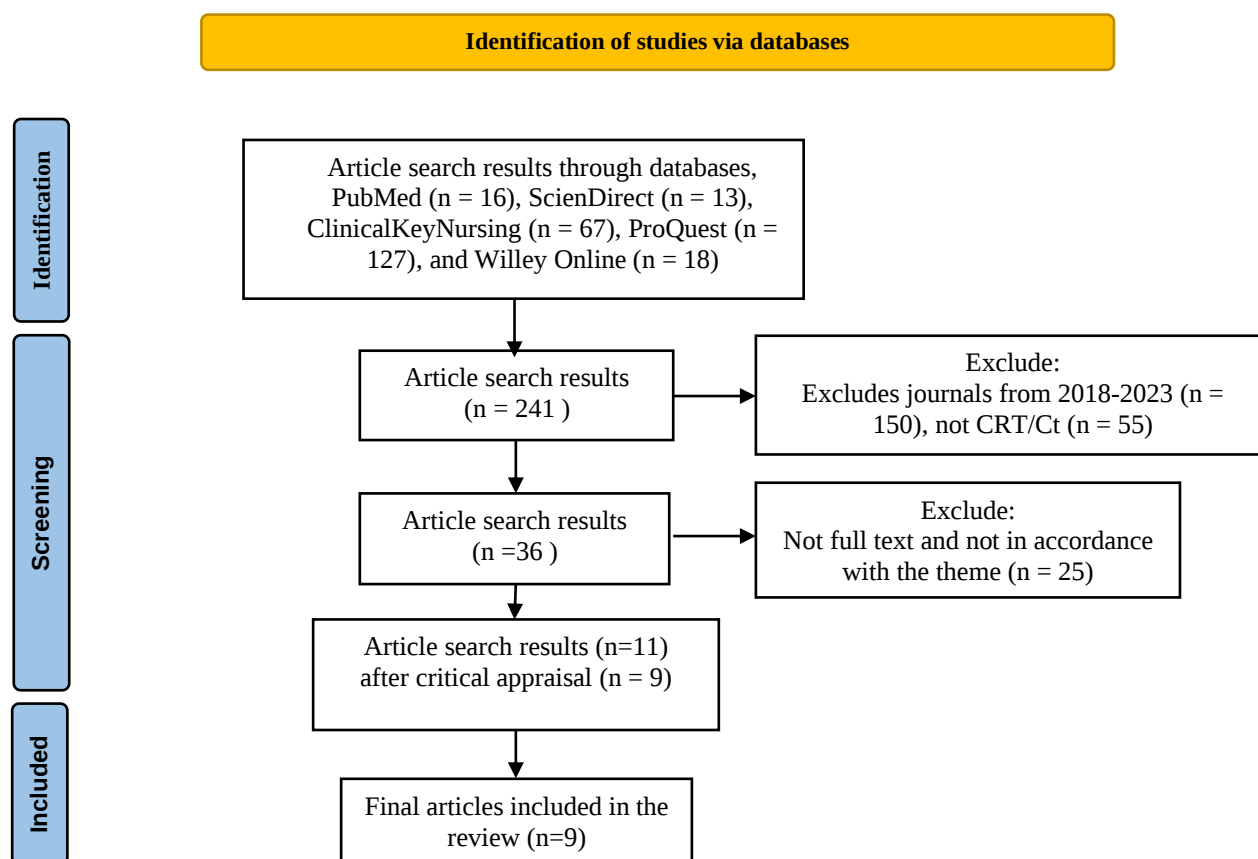


Figure 1. PRISMA diagram of the article search process

RESULTS

This research analyzed 9 studies, where There were 8 studies using a randomized control trial (RCT) design and 1 study using a quasi-experimental design. Participants in each each studies range between 20 and 165 participants Where If a total of 912 participants. Ninth studies has A critical appraisal was carried out using the JBI (Journal of Biomedical Information) instrument and obtained results that ninth valid study. Ninth studies has answer research questions and achieve research objectives namely analyze the effectiveness of telenursing clearly. Here's a summary analysis article (table 1).

Table 1.
Journal Analysis

Author (year) and Method	Objective	Telenursing Method	Result
Effects and costs of real-time cardiac telerehabilitation: randomized controlled non-inferiority trial (Maddison et al., 2019) Method : RCT	The purpose of this research journal is to evaluate effects and costs from real-time cardiac telerehabilitation (REMOTE-CR) in repair results clinical, fitness physical, and quality life of patients with coronary heart disease. This study also aims to evaluate patient satisfaction with the cardiac telerehabilitation program and to assess effectiveness cost of this program compared with conventional cardiac rehabilitation.	Application telerehabilitation (REMOTE-CR)	Telerehabilitation effective for repair results clinic, fitness physical and quality patient's life. Telerehabilitation is also necessary cheaper costs compared to conventional cardiac rehabilitation.

Author (year) and Method	Objective	Telenursing Method	Result
Home-based exercise with telemonitoring guidance in patients with coronary artery disease: Does it improve long-term physical fitness? (Avila et al., 2020) Method : RCT	The aim of this study is to compare effectiveness and efficiency cost of a cardiac rehabilitation program based home with telemonitoring guidance or The TeleRehabilitation in Coronary Heart disease (TRiCH) compared with a conventional cardiac rehabilitation program in disease patients coronary artery	Application telerehabilitation: TeleRehabilitation in Coronary Heart disease (TRiCH)	Telemonitoring is effective in defending level activity physique and strength muscles in patients with the disease arteries coronary heart disease (CAD). tele- rehabilitation not just reduce level rehospitalization cardiovascular, but also reduces cost medical related to heart care
The sustained effects of extending cardiac rehabilitation with a six-month telemonitoring and telecoaching program on fitness, quality of life, cardiovascular risk factors and care utilization in CAD patients: The TeleCaRe study (Snoek et al., 2021) Method: RCT	The aim of the research is to evaluate effect from intervention telemetry and telecoaching to capacity exercise cardiorespiratory (peakVO2) in patients with the disease arteries coronary heart disease (CAD) who have undergo based cardiac rehabilitation exercise.	Application telenursing: telemonitoring and telecoaching (TELE)	Telemonitoring and telecoaching (TELE) is effective in improving capacity exercise peak (peakVO2) and quality patient's life
Long-term follow-up with a smartphone application improvements exercise capacity post cardiac rehabilitation: A randomized controlled trial (Lunde et al., 2020) Method: RCT	The aim of the research is to test effect Individual follow- up using the app mobile during one year against capacity oxygen peak (VO2peak) in cardiac rehabilitation (CR) patients	Application mobile	Use application mobile effective in improving capacity oxygen peak (VO2peak) and Exercise performance of CAD patients thereby improving quality patient's life
Efficacy, efficiency and safety of a cardiac telerehabilitation program using wearable sensors in patients with coronary heart disease: the TELEWEAR-CR study protocol (Antoniou et al., 2022) Method: RCT	The aim of this research is to evaluate effectiveness , efficiency , and safety of a cardiac telerehabilitation program using a sensor (TELEWEAR-CR) that can be worn in patients with coronary heart disease	Application sensor : (TELEWEAR-CR)	Telerehabilitation effective , efficient and safe for individuals with the disease cardiovascular . Telerehabilitation program easy accessed for cardiac rehabilitation
The impact of telenursing on levels of depression, stress and anxiety in discharged patients after coronary artery bypass graft surgery: A randomized clinical trial (Bikmoradi et al., 2023a) Method: RCT	The aim of this research is to evaluate effectiveness of telenursing and reminders message short (SMS) in reducing level anxiety, depression, and stress in discharged patients after arterial bypass surgery coronary heart disease (CABG)	Telenursing messages short SMS	Telenursing and reminders message short messages (SMS) are effective in reducing level depression anxiety and stress after six Sunday intervention
Effect of telenursing on stress, anxiety and depression in patients with myocardial infarction (Keshavaraz et al., 2021a) Method:Quasi- experimental	The aim of this research is to investigate the influence of telenursing on stress , anxiety , and depression in infarction patients myocardial (MI)	Telenursing : message text	Telenursing is effective in reducing level stress , anxiety , and depression in infarction patients myocardial (MI)
Comparison of the effectiveness of home visits and telephone follow-up on	The aim of this study is to compare effectiveness visit home and telephone follow- up on the	Telenursing: telephone	Follow up via telephone effective in increasing patient self-efficacy and

Author (year) and Method	Objective	Telenursing Method	Result
the self-efficacy of patients undergoing coronary artery bypass graft surgery (CABG) and the burden of their family caregivers: A randomized controlled trial (Gohari et al., 2022) Method: RCT	self-efficacy of patients who have undergo arterial bypass surgery coronary heart disease (CABG) and burden for family caregivers they		reducing caregiver burden
Evaluating the effects of telenursing on patients' activities of daily living and instrumental activities of daily living after myocardial infarction: A randomized controlled trial study (Sefidi et al., 2022) Method: RCT	Evaluate effects of telenursing on activity life daily living (ADLs) and activities the patient's daily life after heart attack and to show that telenursing can be effective intervention for post -MI patients	Telenursing : message and telephone	Telenursing is effective in improving ADL in patients with heart problems

DISCUSSION

Telenursing is defined as a process of providing, organizing and coordinating care as well as giving service health through technology information and communication. Based on the results analysis of 9 articles that have been done obtained that telenursing is effective intervention as a treatment program in CAD patients. The technologies that can be used in telenursing vary greatly including: telephones, personal digital assistants, smartphones, tablets, computers , internet, video and audio conferencing and computer information systems. Although there is A little changes in giving care nursing through telenursing but that's not the case change principle giving care fundamental nursing.

Several types of telenursing are used in carrying out treatment and rehabilitation programs for coronary artery disease patients. We can use telenursing group become three type namely mobile app, message, and telephone. The mobile apps used in several of the studies above are Realtime-CR, TRiCH, TELE, and TEWAR-CR. One of the studies conducted by (Febiathy & Martha, 2023) where to use the MHealth application to get results increase obedience to self -care and change behavior. mHealth can facilitate better communication and interaction between patient and team giver service. Patients can share real-time health data with power medical so that it is possible evaluation and planning maintenance more effective health. mHealth use may reduce amount visit to House aches and reduces cost maintenance.

Types of telenursing message through message short SMS, Research conducted (Carrillo et al., 2021) state that utilization message text carried out to optimize behavioral programs style life health such as diet and exercise in patients with CHD. Message content text can be personalization (personal patient care) so that it is more effective. The last type is telephone telenursing ordinary telephone. Research conducted by(Wu et al., 2019) show that patients receive follow-up and education through telephone after done PCI action at home. Education and follow up provided by researchers individual depending patient needs, emphasis to guard style life healthy and help patients improve patient self-management. Based on the analysis that has been done done third This type of telenursing is effective applied to CAD patients.

Telenursing is useful in the process of monitoring, educating and directing patients. Based on the analysis of several articles above, telenursing can improve quality the patient's life in

aspects, biological, psychological and social. Tenure useful in improving medication adherence, improve patient activity and fitness patient's physical condition. If we look from facet psychologically, telenursing can reduce anxiety and depression. This is in line with research carried out by Zhou et al (2020), those who get it results that the use of telenursing, namely WeChat app for CAD patients can reduce level patient depression and anxiety, as well increase quality life they. In addition, the use of WeChat can also improve patient compliance in taking medication. In other research, the use of telenursing can reduce patient anxiety levels, which has implications for improving patient quality of life (Pamungkas & Mulyono, 2021).

In previous research, related research was also carried out difference use one application ie whatsapp with technique conventional notes reminder, where the research got results in line with this research, that use message short WhatsApp proven to be more effective in improving medication adherence and lowering pressure blood of hypertensive patients as well increase quality lives of CAD patients (Nhestricia et al., 2023). In general telenursing has benefit for CAD patients especially enhancement quality life. But telenursing also has limitations, where implementation of telenursing based application is very dependent to patient compliance and honesty in completing telemonitoring. Apart from that, telenursing is based telephone is not enough efficient time for nurse Because nurse must call one by one patient manually (Avila et al., 2020; Gohari et al., 2022; Lunde et al., 2020).

Based on the analysis carried out on nine articles, the application of telenursing aims to improve the self-care management of CAD patients. In telenursing, it is explained how for CAD patients to improve clinical improvement results, increase physical fitness, maintain physical activity levels, increase peak oxygen capacity, reduce levels of depression, anxiety and stress. The results of this analysis are in line with the results of previous research that the application of telenursing education can improve the self-care abilities of CAD patients (Leutualy et al., 2021). In other research, it was also explained that telenursing can help heart patients by developing a telenursing self-care training program. This approach places responsibility on the patient to manage his or her own illness at home after discharge from the hospital (Mohamed & Soliman, n.d.). Likewise, research conducted by Talebi et al (2023), telenursing can improve self-care management, especially in diet programs and disease management itself.

Self care in question includes self-care maintenance, self-care monitoring, and self-care management in CAD patients. Telenursing is used as a medium to provide education health to CAD patients in order to improve their self-care abilities, such as looking after pressure blood, index mass body, hemoglobin levels, glucose blood fasting, and low-density lipoprotein cholesterol within normal limits. Apart from that, there are increase in activity physical, dietary compliance (consumption fruit, vegetables, and fish), control salt intake, stop smoking, and quitting consuming alcohol (Keshavaraz et al., 2020). Further analysis on each article obtained that If good self care management like the points above then will implications for increasing quality patient's life. In previous research it was also explained that telenursing can improve quality life of patients with CAD through supervision distance distance, education, and support provided by nurses through technology telecommunication (Arian et al., 2022). So it's based on exposure the above discussion can be said that telenursing plays a role important in improving quality lives of CAD patients.

CONCLUSION

The application of telenursing can improve quality lives of CAD patients, which telenursing is beneficial in improving medication adherence, improve patient activity and fitness patient's physical condition . If we look from facet psychologically, telenursing can reduce anxiety and depression. Achieving all the conditions above ends with an increase quality survival in CAD patients.

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