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The Effect of Telenursing on Preventing Re-admission among Patients with Heart Failure: A Literature Review

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Abstract. Nurses have a role as educators. The purpose of the nurse is to help the client to learn about his condition and what health service procedures must be undertaken to maintain his health status. Tele nursing is a method of communication in providing education to clients, especially clients with heart failure. This literature study seeks to describe how to implement effective telenursing in patients with heart failure. Several databases were collected from the following sources: Science Direct, ProQuest, Scopus, EBSCO, BMJ, Research Gate, Clinical Key, articles collected have conditions for publication between 2014 - 2019 and selected based on compatibility with keywords. Knowledge and ability of efficient telephone communication from nurses should be enhanced to be tailored to the needs of patients. It was combined with comprehensive systematic monitoring that can be used in building professional relationships between clients and nurses, making implementation easier. Tele nursing methods can be developed to find better ways to communicate with patients after the hospitalization process to prevent clients from returning to the hospital. Tele nursing cannot work alone but requires an integrated system to support telemonitoring so that clients can be monitored on an ongoing basis to maintain their health status

Keyword: telenursing, nurse telephone follow-up, heart failure, readmission

INTRODUCTION

Non-communicable disease (NCD), including heart disease, is the leading cause of death in the world. The incidence is increasing in terms of the number of sufferers, both in the family and community [1]. The prevalence of heart failure is predicted to increase by 46% from 2012 to 2030, with more than 8 million sufferers aged over 18 years experiencing heart failure. The number of heart failures was expected to be increased from 2.42% in 2012 to 2.97% in 2030. Because most cases of heart failure tend to occur in old age, and the population is aging, the risk of life span for communities with heart failure becomes high. In Asia, the prevalence of heart failure ranges from 1.26% to 6.7% [2].

The readmission rate of patients with heart failure cases is quite high. Commonly, they re-admitted from 365 days after being discharged from the hospital with just one third for another episode of HF [3]. Non-adherence in self-care behavior, family support are the main challenges that can lead to exacerbations of disease symptoms and unwanted readmission[4].

The results of previous studies show that a good management plan after returning a patient and preventing the entry of patient clients to the hospital is by follow-up via telephone within no more than three days after the patient's return [5]. It aims to monitor client compliance after hospitalization. The 2016 ESC Guideline states that a component of the management program for heart failure patients is to increase access to health services, including follow-up through remote monitoring using a telephone contact.

The decrease in readmission rates among heart failure patients has been proven by a remote-based program that can be accessed from home called the telephone. This intervention proved to be meaningful with ongoing implementation in a minimum period over 18 months, resulting in a reduction in hospital costs and a reduction in the mortality rate [6].

Structured telephone support includes regular telephone contact between patients and health care providers, includes discussions about reports of symptoms felt by patients and physical signs data, as well as the importance of adherence to appropriate therapeutic recommendations and self-management. This support is provided by trained nurses and uses interactive interviews with standardized and validated questionnaires [7]

OBJECTIVE

The study aimed to examine the effect of telenursing in reducing readmission among patients with heart failure.

METHOD

Data sources

Database and article's search engine published in English were used, it consists of 11 database source: Science Direct, ProQuest, Scopus, EBSCO, BMJ, Research Gate, Clinical Key, published in 2014 - 2019

Search strategy

Several keywords were used to search the paper, including "telenursing," "nurse telephone follow-up," "heart failure," and "readmission." The results of this literature review are explained in the type of methods were used from the implementation of their use in each study

Eligibility criteria of the study

This literature review used PRISMA as the process of article selection, as shown in figure 1. The author collected articles from several studies both qualitative and quantitative, to describe the effective implementation of telenursing in readmission among

patient with heart failure

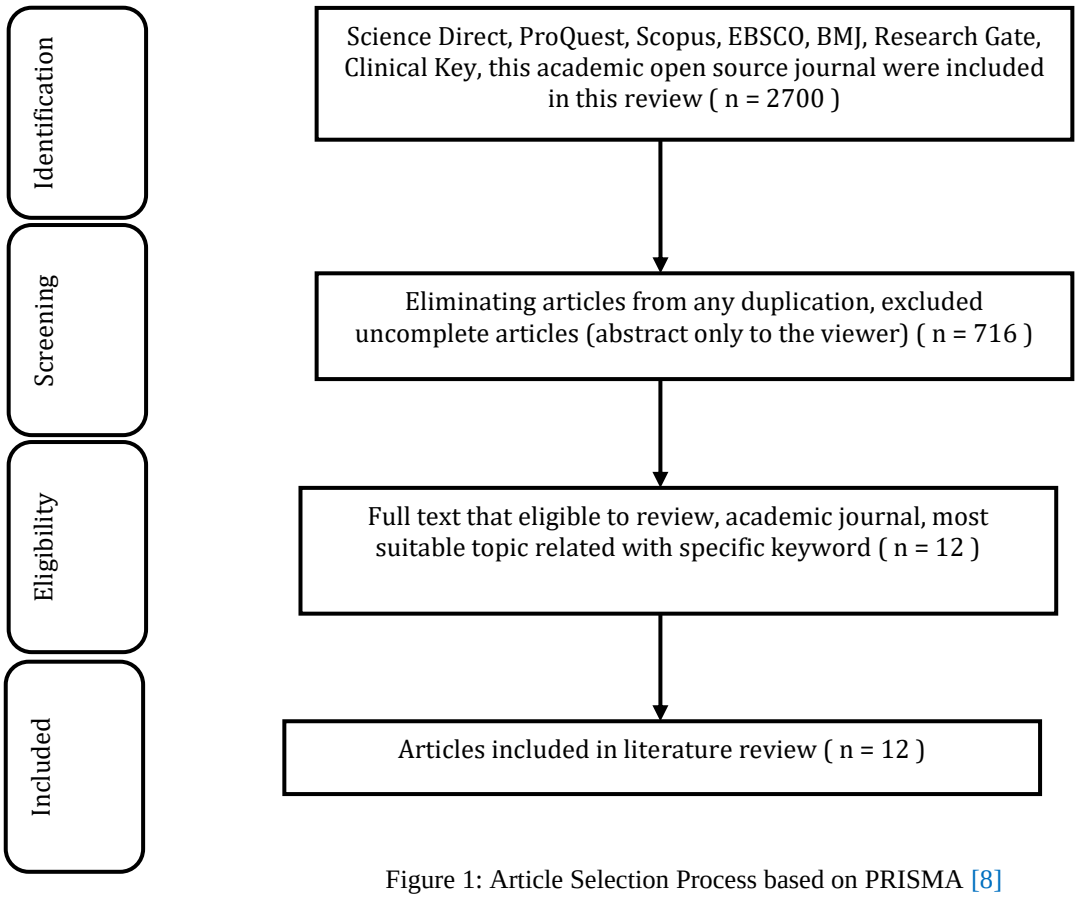

Figure 1: Article Selection Process based on PRISMA [8]

RESULTS

Study Description

Figure 1 above explains the process of article selection in this study. From eleven databases were found 2700 references articles that had relating topics based on the keyword. Because there were duplication and uncompleted articles, the author has to eliminate those articles and chose a full text that eligible to review, came from an academic journal, and most suitable topic related to a specific keyword. Finally, twelve full-text articles were reasonable to be considered. This article then explored in finding what method is most effective in preventing readmission after discharge from the hospital.

The History of Tele-Nursing Development

The word "tele" came from the Greek term "telos," which means distance. Telehealth originated as telemedicine and was firstly used in 1960 by the National Aeronautics and Space Administration (NASA). This telemedicine allows physiological measurement of the astronauts at spacecraft and space units. Nowadays, the telehealth concepts have expanded quickly, and lots of disciplines widen in usage through it. Nursing services are one of the professional health care providers using this way of remote networks to provide nursing care through distance. The delivery of nursing service with this communication technology was named telenursing. This way of remote care delivery wasn't well establishing and needs more of an evidence-based study on how it may best fit to deliver, but it has been an innovative method in providing home-

based care. In America, about 40% of home services are using tele-health, and tele-nursing has replaced half of the nurses' home visits [9]. Until now, tele-nursing still being developed for further benefits of care

Determinant Factor Related in Readmission Among HF Patients

Adherence to medication and self-care behavior is the most influential factor for patients with HF to avoid exacerbation and readmission. While readmission is attributed by the client's lack of knowledge about the disease process, inadequate symptom recognition, and incapacity to make prompt and appropriate decisions to manage symptoms and the lack of continue follow-up with a health care provider. Some of the challenges reported by participants in one among the study were associated with maintaining fluid restrictions, participating in daily physical activity, and problem getting a follow-up appointment inside the recommended time [10].

To overcome this, the client needs communication technology to provide services like education and counseling to the client with HF remotely. Tele-nursing is a tele-monitoring method that can increase the accessibility of home-based follow-up needs. It could provide clinical guidance, supervision, and coaching that previously been limited to hospital-based service [11]. The previous study had advised that a telephone follow-up at seven days interval continuing discharge might escalate participation [12]. Monitoring on a scheduled range of time, ought to be provided to the patient before discharge to minimize the difficulties that might happen on the client's as they were adjusting to their daily routine at home. Also, nurses might use evidence-based teaching strategies to reinforce the patient's comprehension of conferred education.

Effective Implementation of Tele nursing in HF Patients

The time of tele nursing implementation studies varies from 7 days following until 180 days after discharge. Early initiate of tele nursing contact can be held as soon as the patient delivered home. Three until five days post-discharge was assumed to be the right timing to start [13]. With 5 to 10 minutes of monitoring and consultation session using video conference. These approaches of technology provide favorable outcomes with monitoring capability of therapy management, health, and preventive behavior management, daily life management, and acute event management [14]. Takeda et al. (2012) found that remote patient monitoring and follow up by HF specialized nurses can reduce HF readmission after 12 months follow up. Tele monitoring by a nurse can improve the quality of life in HF patients during 180 days of the period.

Nevertheless, it still can't reduce the rate of readmission for 30 days and the rate of mortality in 180 days. It can happen because of a lack of direct contact and as a reason for the low adherence rate of 55% at the end of 6 months [15]. It was consistent with a previous study showed that nurse role and the optimal balance of human and technological resources could reduce readmission rates among patients with HF [16]. Tele nursing could not be done alone without real direct contact or a home visit from nurse practitioners. The most extensive RCT study named BEAT-HF by Black et al., (2014) giving three components of intervention: pre-discharge HF education, regularly scheduled telephone coaching, and home tele monitoring of patient's weight, blood pressure, heart rate, and HF symptoms [17]. It means tele nursing can be started before patient discharge to provide an introduction to the transition process before discharge from the hospital. This series of tele nursing process can reduce the total number of the rate of HF-related readmission 19% and lower the mean cost for hospitalization [18]

Table 1: The Implementation of Tele nursing in Heart Failure Patients

No.	Author	Method	Setting	Objective	Findings
1.	Negarandeh et al. (2019) [10]	Randomized Clinical Trial	Iran	To assess the effects of monitoring through telephone (tele monitoring) on self-care behaviors and readmission of patients with heart failure after discharge.	This study proved that tele monitoring improved self-care behaviors in patients with HF but did not reduce their readmission rates (control group have a higher percentage in readmission than the intervention group, but not significantly in statistic)
2.	Awoke et al. (2019) [9]	Quasi-experimental Study	United States	To evaluate the impact of nurse-led heart failure patient education on knowledge, self-care behaviors, and all-cause 30-day hospital readmission	The significant difference showed at seven days in knowledge, self-care maintenance, and management in clients after receiving intervention based on ACC and AHA guidelines. Nurses are in suitable qualification to implement telemonitoring programs
3.	Abdelkader et.al. (2019) [18]	Randomized Control Trial	Egypt	To evaluate the efficacy of supportive educational packages on self-care among HF patients.	Statistically significant improvement in the intervention group: knowledge and self-care compared to the control group. Further recommendations to make supportive educational packages implement by nurses with comprehensive reference material.
4.	Fors etal. (2018) [19]	Randomized, open, parallel-group, controlled intervention study	Sweden	To evaluate the effects of person-centered telephone support in patients with CHF and COPD.	Person-centered telephone support reduced the risk of decreased self-efficacy without increasing the clinical events up to six months post-discharge. Person-centered communication skills, in combination with a health plan, can be used to build a professional relationship between patients and healthcare providers, also was easy to implement.
5.	Liljeroos et al. (2017) [20]	Qualitative Study	Sweden	To describe nurses' documentation in a psycho-educational intervention inspired by Stuifbergen's model addressing cognitive, supportive, and behavioral needs of the patient–partner dyads affected by HF.	Long-term support was considered as an essential factor to remain being perceived as healthy and experienced well-being. Lots of different healthcare professionals (primary care physicians and nurses, cardiologists, and HF nurses) could be involved in the care for HF patients.
6.	Najafi et.al. (2016) [21]	Non-blinded randomized controlled clinical trial	Iran	This study aimed to investigate the effect of nurse-led telephone follow-up on the level of adherence to dietary and medication regimen in patients	The level of dietary and medication adherence improved significantly in the intervention group that received the nurse-led telephone follow-up intervention.

				after Myocardial Infarction (MI).	
7.	Souza-Junior et al. (2016) [22]	Integrative literature review	USA, Europe, Italy, Asia	This study aimed to investigate the current tele nursing strategies utilized in nursing practice.	Tele nursing is an efficient strategy to help countries overcome healthcare barriers and bring information about healthcare to populations, promote primary care, enhance rehabilitation and health maintenance processes, giving integration of healthcare systems, emphasizing patients with chronic conditions experiencing more significant treatment difficulties.
8.	Baptiste et al. (2016) [11]	Longitudinal quasi-experimental design, pre-test, post-test feasibility study	USA	To assess the feasibility of an evidence-based heart failure education program.	Findings suggest that an evidence-based nurse-led HF education program focused on promoting self-care has the potential to improve self-care maintenance and self-care management scores at 30 days after hospital discharge.
9.	Moore (2016) [23]	Experimental	USA	To evaluate the efficacy of the Nurse Practitioner-led CHF pathway to reduce exacerbations of CHF symptoms and 30-day CHF readmissions.	The results of this project suggest that early post-discharge home NP assessments and early interventions are essential for reducing CHF 30-day readmissions in patients > 65 years of age. Weekly phone management and daily interactions with professional healthcare staff and access to consultative services allowed home care staff to continue monitoring and treatment for CHF patients in their homes. Prevented unnecessary emergency room visits and hospital readmissions by improved patient monitoring and early detection of patient decompensation.
10.	Spinsante (2014) [13]	Systematic overview	Italy	To provides evidence for a simple, but effective, paradigm upon which a telehealth system may be built, and highlights how such a model may successfully apply to HF management, to improve patients' quality of life after discharge, increase independence, and reduce readmissions and costs for the public health institutions	Factors that contribute to excessive hospital readmissions include service fragmentation and poor communication among and between health care settings and care providers and poorly delivered and understood discharge instructions and follow-up. By improving the coordination across the continuum of care and promoting seamless transitions from the hospital to home, skilled nursing care, or home health care, avoidable readmissions rates can be decreased.

11.	Harrison et al. (2014) [24]	Retrospective observational study	USA	To determine the specific effects of a post-discharge telephone call on all-cause 30-day readmission, and to describe the post-discharge issues addressed by the calls.	Effectiveness of post-discharge phone call programs related to whether patients can answer a phone call than to the care delivered by the phone call. Programs would benefit from improving their ability to perform phone outreach while simultaneously enhancing the care provided during the calls.
12.	Black et al. (2014) [15]	Multi-center, Randomized Controlled Trial	USA	To evaluate the effectiveness of this remote care transition intervention in reducing all-cause 180-day hospital readmissions for older adults hospitalized with HF.	Better Effectiveness After Transition-Heart Failure (BEAT-HF) is to serve as an essential resource to understand which best to use telehealth, including care transitions and hospital readmissions, also comparative effectiveness research on chronic disease management for heart failure.

DISCUSSION

While not realizing it, nurses have long been involved in tele health. Samples of telecommunication embody academic efforts in tele collaboration, receiving or sending patient records and telephone sorting. As nurse practitioners assume responsibility in primary care, tele health consultation may be thought-about as a method of communication between health care providers, their patients, and specialists, therefore increasing accessibility in health care [26]. Outpatient strategy to stop admittance will offer by tele health. Tele health has been used for years in a trial to prevent heart failure patient's readmissions. Merely declared, this noninvasive endeavor consists of telephone support provided by nurses to assess the presence of symptoms related-illness. Phone support from a health provider could improve the relationships and reinforce acceptable HF education [27].

Follow-up telephone calls 3–5 days post-discharge from the hospital was deemed to be an essential part of the tele nursing protocol. By regularly using phone contact, the nurses evaluated the improvement of the patient's health. They reminded the patient regarding his/her medication therapy, diet, and time management in meal taking, as was explained antecedently within the ward at the instant of discharge from the hospital. The nurses also gave the patient or family the chance to raise queries [13].

There's some proof that any coaching in telephone communication is needed for nurses, suggesting that telephone communication skills may be improved to fulfill patients' desires [28]. The post-discharge calls should follow the SCOTCH structure: 1) Started (ask whether or not the patient is prepared to talk); (2) Check the patient's understanding of the hospitalization; (3) Raise regarding Opportunities for the medical team to improve; (4) Ask however the transition home went; (5) Check the patient's understanding of recommendations for current care; and (6) provide to assist help as needed [29].

The purpose of the post-discharge telephone program was to spot and remedy doable problems with symptoms, medications, and follow-up care that will arise early within the time post discharge [25].

The major part targeted on rising patient's self-efficacy by distinguishing barriers, enhancing resources, increasing support, and serving to develop skills and beliefs in one's own capability to attain desired behavior changes. The program enclosed mode modification categories for eight weeks and telephone follow-up for three months [21].

Innovative technology offers a brand new path to distinguishing decompensation early enough to initiate medical care that will cut back admittance rates and improve overall coronary failure outcomes [27]. Reducing preventable readmissions has the potential to each enhances health care quality and cut back prices. Implementing evidence-based, cost-efficient interventions that improve discharge safety and cut back 30-day readmissions are going to be vital to success.

CONCLUSION

Further coaching in telephone communication is needed for nurse practitioners, indicating that telephone communication skills may be improved to match the patient's desires. Advanced communication skills, together with systematic, comprehensive monitoring, will build a knowledgeable relationship between patients and nurses, and it might be straightforward to implement. Tele nursing required an integrated system to support through tele monitoring. Thus patients' data could be stored in electronic medical records and may forthwith alarm. If there area unit signs of decompensation that may be dangerous for patients, and emergency medical response (EMR) will act immediately.

STRENGTH AND LIMITATION

This literature review has to try to collect data from the past study about what is matters relating to methods that the best suit in telenursing, include time preferred to initiate, duration, the best content of information that can be informed to a client. In addition, tools best used to follow up the client's health status and level of adherence due to prevent loss of follow-up. Authors also found there was no specific information on difficulties to compare the best implementation in telenursing because most of the articles explained in the narrative in an estimation duration rather than comparing a particular time. This study also collected manually without any help from the expert. There are possibly unidentified articles that could have correspondencies with the topic studied

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CONFLICT OF INTEREST

No potential conflict of interest that can be reported by the authors

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