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Telemonitoring and Telerehabilitation Can Improve of Health Status for Heart Failure? A Review

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ABSTRACT

This review aims to enhance the health status of patients with heart failure, this review will look into the possibilities of telemonitoring and telerehabilitation as a nursing care delivery paradigm. “Reviews of the literature are focused on problems, approaches, formulas, and suggestions for additional research. PUBMED, SAGE Journal, Wiley Online Library, Proquest, and ScienceDirect were all used to conduct extensive research on the subject. Among the telemonitoring and telerehabilitation methods found in the treatment of heart failure patients were websites, phone calls, and applications.” Telemonitoring and telerehabilitation can decrease rehospitalization and mortality in heart failure patients while enhancing health status, self-care, self-efficacy, clinical management, and education.

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1. INTRODUCTION

Heart failure is a very deadly and complex disease characterized by a decrease in the heart's ability to pump blood to meet the body's need for oxygen [1].”Although therapy and prevention have made rapid progress, the mortality and morbidity rates in patients with heart failure are still very high and the quality of life of patients is still low. An estimated 41 million people died worldwide in 2016 with the equivalent of 71% of the deaths caused by heart disease (17.9 million) [2] .”Heart disease is still the highest contributor to death worldwide; it is predicted that it will continue to increase until 2030 [2][3].

The medical goals of heart failure treatment only focus on controlling so that symptoms do not get worse [4], reduce length of stay and to maintain continuity of life, do not provide guarantees for rehospitalization patients or even improve their quality of life [5] .Heart failure patients also cannot do excessive activities but still have to do light physical exercise [6], lose weight to make it ideal [7], adhere to recommended medication [8], be given support to keep the spirit to recover [9], and must be able to do self-care [10]. So to monitor the patient's condition, one of the right choices in improving the health status of heart failure patients is by doing telemonitoring and telerehabilitation [11].

Telerehabilitation is the “provision of rehabilitation services at a distance through information and telecommunications technology [12], such as telephone [13], internet [14], or video conferencing [15] that are carried out at the patient's home as an effective and safe complementary alternative in improving the quality of life [16].”Telerehabilitation can help improve accessibility for people with heart failure starting from regular supervised physical exercise [17], “educational programs related to conditions experienced [18], increasing exercise adherence and lifestyle modifications [19], increasing adherence to taking medication [20], saving

costs [21], and reducing utilization of health facility services [22], as well as giving feedback every week regarding the condition of the patient's status [23].

2. REVIEW METHODS

2.1. Research Design

The research was conducted using a systematic review method that examines various research reports published in journals with the same focus.

2.2. Identification Problem

The practice of recognizing or listing problems is known as problem identification. “The research problem is important compared to other processes since it affects how well the research is done. Finding the search terms or keywords utilized in the literature research is beneficial when formulating problems.

2.3. Searching The Literature

Articles were searched using the PUBMED, SAGE Journal, Wiley Online Library, Proquest, and ScienceDirect databases with PRISMA Flow Diagram technique. The formulation of the search strategy includes inclusion and exclusion of criteria, keywords, and selection of research reports. The keywords used were “Heart Failure OR Cardiac Failure AND Telerehabilitation OR Telemonitoring AND Health Status”.

2.4. Eligibility Criteria

The criteria in this study is based on the PICO framework criteria:

- Patient: Heart Failure OR Cardiac Failure
- Intervention: Telerehabilitation OR Telemonitoring
- Comparison: No comparison
- Outcome: Health Status

Apart from that, the admission requirements are already pre-determined. Only multiple publications that have been accepted for publication or have been published in peer-reviewed journals are considered. Tables have been taken into account. All publications are evaluated, including opinions, perspectives, original research and reviews, without geographical, temporal or language restrictions.

3. DISCUSSION

Application of Telemonitoring and telerehabilitation is able to improve the quality of life of patients as seen from the significant differences in values before and after the implementation of the intervention [24], besides that this application is also able to improve health status [25], self care [26], self efficacy [27], clinical management [28], and educational as well as reduce rehospitalization and mortality in heart failure patients [29]. This mobile-based telemonitoring and telerehabilitation provides evidence in improving quality of life [30], clinical management [31], psychosocial status [32] and preventing rehospitalization [33]. The use of a cellphone-based system has a high level of compliance and is appropriate for patients [34] because cellphones have become a primary need for the community [35] so that this program can be used as an important additional program for health services for patients with heart failure in improving health status [36]. With a simple and intensive education [37] and self-care promotion strategy [38], this telerehabilitation program has proven to be effective and can be applied to a wider population around the world [39].

“The technology enables programmed modifications to furosemide depending on changes in each patient's body weight and can communicate with a robotic platform [40] This approach is integrally linked to selective, nurse-led, organized telephone assistance for a fraction of hospitalized patients who exhibit certain warning signs [41], such as nocturnal symptoms, medication non-adherence, or poor SMS response [42]. Patients also had the option to change the degree of the remote monitoring technique after 30 days, reducing the quantity of messages if they thought it was unreasonable to demand such stringent monitoring more [43]. This was another individualized and tailored feature of the intervention. With little human-computer interaction, this thorough and diverse strategy enabled a significant number of participants (weight and clinically stable patients adhering to recommended prescription therapy) [44]. We think that the nature of this interaction, particularly in some patients at a sensitive stage of the heart failure syndrome [45], is most likely to translate into meaningful clinical benefit because the necessary technical foundation is straightforward and

self-teachable [46]. Finally, if the approach is successful, it might be readily adopted to a larger population worldwide. The implementation of telemonitoring and telerehabilitation increased the respondents' quality of life, according to the findings of the health status analysis [47]".

"People can gain a better understanding of their health through telemonitoring or telerehabilitation, i.e. Enhanced surveillance as a placebo effect. Nurses frequently call patients who are being remotely monitored to discuss the results and advise them to repeat the test if the results are abnormal [48]. Increasing patient engagement with nurses and structured patient self-monitoring are likely what caused the effect, despite the fact that nurses were given instructions and tools to educate their patients, regardless of group [49]. Participation in hospital programs that use remote monitoring improves perceived health, including quality of life, whether the health benefits come from increased human contact or remote monitoring [50]. Remote monitoring was independently linked to an improved health status in regression models. Additionally, it was independently proven that Home Health Care (HHC) facilities with specialized Heart Failure programs had better medical results for patients [51]. This most likely reflects an increase in staff specialization and proficiency, both of which are acknowledged as being essential in the multidisciplinary approach to Heart Failure [52]. Telemonitoring and telerehabilitation might not be as successful without a team of specialists with a variety of skills. It is noteworthy that despite lower incident rates regardless of the randomization group, this agency provided fewer HHC visits. This organization reduced HHC visits while also enhancing patient outcomes. Telemonitoring is thought to be highly effective in preventing illness because it enables patients to receive early care. Telerehabilitation provided collaborative support through a nurse and other medical professionals rather than focusing solely on vital signs. Therefore, it seems that the benefit of telemonitoring comes from direct interaction with medical professionals who can plan and provide patients with comprehensive treatment [53].

4. CONCLUSION

The telemonitoring system provided quick automated assistance and allowed for professional involvement at the most advantageous time, or "teachable moments," to help patients change their lifestyle choices. For instance, numerous individuals found that their weight and blood pressure rose after eating a meal high in sodium. They would eat less salt at the succeeding meals, which would lead to a recovery of their weight and blood pressure to normal. Automatic reminders to take additional diuretic medication in response to weight gain were sent to certain patients, which further supported their decision to do so. Although the cardiologist had previously advised this particular group of patients to take additional diuretic medication in this situation, they were frequently reluctant to do so without first getting permission.

5. LIMITATION

Heart failure telemonitoring and telerehabilitation was intended to reduce hospitalization and increase patient self-care, but it had not been well applied. Lack of medical resources or protocols led to the consideration of the variables. Therefore, further investigation is needed to determine which patients are appropriate candidates for telemonitoring and to determine the optimum protocol in light of the therapeutic indications.

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