JHeS (Journal of Health Studies)
Vol. 7, No. 1 (2023), pp. (29-36)
e-ISSN 2549-3353
p-ISSN 2549-3345
10.31101/jhes.3026

Original Research Paper

Interdisciplinary homecare improves the mental health dimesion of quality of life in diabetic ulcer patients

Wantonoro[1,a], Komarudin[2,b], Dika Rizki Imania[3,c], Sigit Harun[4,d]
[1] Department of Nursing, Universitas 'Aisyiyah Yogyakarta, Mlangi Nogotirto, Jl. Siliwangi No.63, Area Sawah, Nogotirto, Kec. Gamping, Kabupaten Sleman, Daerah Istimewa Yogyakarta 55592
[2] Department of Psychology, Universitas 'Aisyiyah Yogyakarta, Mlangi Nogotirto, Jl. Siliwangi Jl. Ringroad Barat No.63, Area Sawah, Nogotirto, Kec. Gamping, Kabupaten Sleman, Daerah Istimewa Yogyakarta 55592
[3] Department of Physiotherapy, Universitas 'Aisyiyah Yogyakarta, Mlangi Nogotirto, Jl. Siliwangi Jl. Ringroad Barat No.63, Area Sawah, Nogotirto, Kec. Gamping, Kabupaten Sleman, Daerah Istimewa Yogyakarta 55592
[4] Homecare Unit of PKU Muhammadiyah Hospital Yogyakarta, Jl. KH. Ahmad Dahlan No.20, Ngupasan, Kec. Gondomanan, Kota Yogyakarta, Daerah Istimewa Yogyakarta 55122
[a] wantoazam@unisayogya.ac.id, [b] komarudin_psi@unisayogya.ac.id, [c] dikarizki@unisayogya.ac.id, [d] sigitharun@unisayogya.ac.id

Submitted: January 24, 2023 Revised: February 12, 2023 Accepted: March 22, 2023

Abstract
Various studies show that programs of homecare interdisciplinary provide benefits in health services. One of them is health services for diabetic patients. However, many homecare services, especially for diabetic patients, are only carried out by one discipline. This study aimed to identify the effect of interdisciplinary homecare programs on the mental health dimension of patients' quality of life who need long-term care services. This study was conducted with a quasi-experiment for six months of intervention on sixteen patients obtained with accidental samples for the period January-September 2022 at the homecare unit of PKU Muhammadiyah Hospital Yogyakarta. The short form 36 (SF-36) is used to evaluate the quality of life dimension. Interdisciplinary homecare significantly improved the mental health dimension of quality of life in patients with long-term care needs and diabetic ulcers ($p = 0.001$). Age and comorbidities were identified as characteristics of patients with diabetic ulcers that should be considered in their care. Interdisciplinary homecare is recommended in community settings and long-term care to improve the quality of life, especially the mental health of patients

Keywords: interdisciplinary; homecare; quality of life; patient; diabetic ulcer

1. Introduction

Coronavirus disease 2019 (COVID-19) has a global impact and affects all aspects of life, including the health care sector (Dewart et al., 2020; Gaffney et al., 2021; Ilankoon et al., 2020). In addition, COVID-19 is a disease that spreads very quickly and can be life-threatening with a higher severity, especially if the patient has comorbid diseases, one of which is diabetes or is elderly. This encourages the need for professional health services, altruism, human dignity, and patient safety that are oriented toward holistically meeting patients' health needs. One of the goals in treating patients with chronic diseases is to improve the patient's quality of life because the quality of life is a subjective parameter of the patient's condition related to the treatment of the disease he is experiencing (Samiei Siboni et al., 2019; Wantonoro et al., 2020). numerous studies reported a decrease in the quality of life of chronic patients, especially during the COVID-19 pandemic (Al Dhaheri et al., 2021; Dwyer et al., 2021; Guo et al., 2020; Lim et al., 2020; Ping et al., 2020). COVID-19 patients with comorbidities (such as hypertension, diabetes mellitus, chronic kidney failure, cancer, stroke, and degenerative diseases) have a risk of more than 70% mortality, including those in self-isolation (Cho et al., 2021; Posso et al., 2020; Surendra et al., 2021). Moreover, morbidity and complication rates are the main problems in patients

with long-term care needs due to the complexity of hospital services. More flexible service alternatives, such as home care, are needed.

The Special Region of Yogyakarta (DIY) has the highest proportion of elderly people (Badan Pusat Statistik, 2021) and is one of the provinces with a high number of COVID-19 in Indonesia. This further reinforces the urgency of the need for an adequate strategy for the sustainability of health services for patients with home care needs during COVID-19. Various studies report that homecare is an alternative service during the COVID-19 pandemic (Gaspar et al., 2020), and it has a positive effect on the dimensions of quality of life of chronic patients (Brando et al., 2018; Ortega-Pérez de Villar et al., 2020; Rencber & Terzi, 2020). Healthcare programs that prioritize patient needs and values in clinical decisions (Patient-Centered Care; PCC) (Azimzadeh et al., 2013), especially in long-term care patients during COVID-19, are very necessary. The homecare program, by implementing COVID-19 health protocols, is one of the alternative health services offered in the midst of high COVID-19 cases as an effort to prevent complications for patients who have to continue treatment at home, such as diabetic wound care in Diabetes Mellitus (DM) patients.

Various studies show that homecare and interdisciplinary care provide benefits in health care. This provides an alternative program that can be done as a form of health service by involving various health professions. However, so far, the home care program still focuses on one problem and one discipline only, so the evidence is needed as a reinforcement of interdisciplinary homecare that integrates all healthcare professions to be implemented into a standardized policy related to demographic differences and cultural backgrounds in each particular country or region. This study aims to identify the interdisciplinary homecare program as a model of integration of patient-centered, care-based health services during the COVID-19 period on the dimensions of quality of life of patients who need long-term care services in the city of Yogyakarta.

2. Research Methods

This study was conducted with a quasi-experiment, an interdisciplinary home care intervention approach for six months, following up on 16 patients who needed diabetic wound care homecare services during the COVID-19 pandemic. While the sampling was carried out using an accidental sampling approach during January–September 2022 at the homecare unit of PKU Muhammadiyah Hospital Yogyakarta. This research has received approval from the ethics committee of Universitas 'Aisyiyah Yogyakarta (No. 1940/KEP-UNISA/I/2022). This research was conducted by providing direct individual education and diabetic ulcer care carried out by professional homecare nurses from the homecare unit of PKU Muhammadiyah Hospital Yogyakarta and involving other professions in an interdisciplinary manner, namely nursing students, physiotherapy, nutrition, and psychology, who educate starting from the wound, concepts, analyzing wounds, basic wound preparation, stress management, and assistance according to patient needs, as well as educational activities carried out directly during the wound care process.

Instruments in the form of evaluation of the quality of life dimensions were conducted by face-to-face interviews by researchers on respondents in the first month and sixth month using Short form-36 (SF-36). SF-36 is specifically a dimension of health or mental status. The Indonesian version of the SF-36 has been declared valid (Cronbach's >0.70; Novitasari et al., 2016; Salim et al., 2017). Meanwhile, univariate analysis is performed to determine the dimension score. Data analysis was observed from the score of the SF-36 instrument, which has a range of 0-100. The higher the score, the better the quality of life. Dependent t-tests were used to determine differences in mental health as part of the quality of life dimension between the first and sixth months in the patients involved.

3. Results and Discussion

3.1. Characteristics of Respondents

There were 16 respondents with the main problem of diabetic ulcer wounds who followed interdisciplinary home care for up to six months of follow-up. Based on gender, there were 9 male respondents (56.3%) and 7 female respondents (43.7%). The average age was 70.56 years (with a standard deviation of 10.21). All respondents stated they had comorbidities such as hypertension, decreased vision, and osteoarthritis. Homecare services for all patients involved in this study are provided twice a week by professionals, namely nurses from the hospital's homecare unit. The characteristics of the respondents are summarized in Table 1.

Table 1. Characteristics of respondents

Characteristics	Patient (n=16)
Age (mean±SD)	70.56±10.21
Gender	
Male (1)	9 (56.3%)
Female (2)	7 (43.7%)
Comorbidity	
Comorbidity(1)	16 (100%)
No Comorbidity (2)	0 (0%)

According to the American Diabetes Association (ADA), diabetes mellitus (DM) is a metabolic disease characterized by hyperglycemia (Association, 2014; Rossi, 2010). A person is diagnosed with DM if he meets the following criteria: A1C 6.5%, blood sugar (plasma) levels of 200 mg/dL (11.1 mmol/L), or blood glucose levels during fasting (at least 8 hours) of 126 mg/dL (7 mmol/L), random plasma glucose levels of 200 mg/dL (11.1 mmol/L), or with classic symptoms of hyperglycemia (ADA, 2014). There are 4 classifications of DM, i.e., type 1 (malfunction of pancreatic β cells), type 2 (impaired insulin secretion and retention), specific type DM (genetic disorders in β cell function, such as in people with HIV/AIDS), and gestational diabetes (glucose intolerance during pregnancy) (ADA, 2014; Rossi, 2010). Many complications occur due to uncontrolled DM, especially two main complications: complications of hyperglycemia in the macrovascular system that affect the cardiovascular and cerebrovascular systems; and microvascular complications that impact nephropathy, retinopathy, and neuropathies. Advanced complications of peripheral neuropathy, peripheral arterial disease, and high-risk infections make diabetic ulcers difficult to heal (Turns, 2011).

Diabetic ulcers are complications that occur in patients who have had DM for a long duration of time (chronic). Diabetic ulcers occur due to micro-blood vessel disorders, namely neuropathy, leading to diabetic wounds. The average age in this study sample was classified as elderly who experienced DM with diabetic ulcers. Previous studies reported that the prevalence of diabetic ulcers was higher in older adults and the elderly, while the unidentified sexes showed differences in the occurrence of diabetic ulcers (Navarro-Peternella et al., 2016).

Another study reported that increasing age is an important barrier factor for DM patients' blood sugar control (Shamshirgaran et al., 2017). The presence of comorbidities, both due to complications of DM and other diseases (such as hypertension, osteoporosis, and osteoarthritis), can aggravate the condition of the wound and cause the healing process not to take place properly. This certainly adds to the need for nursing services, especially wound nursing, to support the healing process of diabetic wounds (Abdulghani et al., 2018; Mohammad Zadeh et al., 2019).

3.2. Interdisciplinary Homecare and Mental Health

Sustainable assistance can improve the patient's health status. The results of the data normality test found that the data were normally distributed (Shapiro-Wilk; 0.463; 0.298), so the parametric approach was carried out with the dependent t-test. Based on table 2, a value of p = 0.001 is obtained, meaning that interdisciplinary homecare significantly improves the mental health of patients with long-term care service needs, especially in DM patients with diabetic ulcers.

Table 2. Dimensions of mental health quality of life of DM patients

Mental Health Dimension	n	Mean	SD	p
1st Month	16	21.1	2.88	0.001
6th Month	16	25.3		

Result t-test dependent

Home care that is carried out interdisciplinary by involving various professions ranging from nursing, physiotherapy, and psychology is proven to be able to improve the quality of life of diabetics with diabetic ulcers. The results of this study are supported by previous research, which shows that support systems, including those involving health workers, can positively impact patients' mental health (Wantonoro & Rahmawati, 2020). Interdisciplinary care is a concept that focuses on process problems, sharing, and working together in a health team (Nancarrow et al., 2013). Diabetic ulcers require specific and adequate management to prevent infection and amputation (Buggy &; Moore, 2017; Rubio et al., 2014; Wang et al., 2016). Interdisciplinary homecare is an effort to provide effective and efficient care to patients with chronic health conditions with a diverse group of healthcare professionals, such as doctors, nurses, pharmacists, dietitians, and health educators, with the patients as the center of the team (Everett & Mathioudakis, 2018). The interdisciplinary homecare model provides comprehensive care that improves the management of glucose control (HbA1c) and diabetic ulcers (Nicole et al., 2019; Tan et al., 2019), which will ultimately reduce wound healing time, reduce the severity of amputation, and even prevent amputation (Buggy & Moore, 2017; Dutra et al., 2019; Everett & Mathioudakis, 2018; Rubio et al., 2014; Wang et al., 2016).

A study reports that interdisciplinary care is one of the strategies to improve the quality of life of patients through the provision of services on all dimensions of unique patient needs (Sagha Zadeh et al., 2018), such as improving the recovery of stroke patients (Clarke & Forster, 2015), patients with wound diabetes mellitus (Tulleners et al., 2019), and cancer patients (Janssen et al., 2017; Tremblay et al., 2017). At the same time, home care is a health service provided at the patient's home with direct visits (home-based care). Some other studies have also made similar recommendations that home care services can improve quality of life and patient satisfaction with health services (Pivodic et al., 2015; Aktas & Terzioglu, 2015). This increases the evidence that homecare and interdisciplinary care will improve patients' life quality, including their mental health.

2. Conclusion

Age and comorbidities of patients with diabetic ulcers are things that must be considered in the care of diabetic wounds. Interdisciplinary home care improves the health of patients with long-term care needs, such as diabetic ulcers. Interdisciplinary home care is recommended in community settings and long-term care to improve the quality of life, especially patients' mental health.

Acknowledgment

Many thanks are conveyed to the Ministry of Education, Culture, Research, and Technology (Kemendikbud-Ristek) for providing support through the Humanitarian Research Grant scheme (Productive Innovative Research Funding—eRISPRO—LPDP in 2021.

Thanks also to LPPM Aisyiyah University Yogyakarta, the TEAM Homecare Unit of PKU Muhammadiyah Hospital, the Community Service Team of Universitas 'Aisyiyah Yogyakarta, and the caregivers and patients who have been involved in this community service program.

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