

Family Empowerment Method Modern Dressing Based to Increase Diabetes Mellitus Patients with Diabetic Ulcer

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ABSTRACT

Diabetic ulcer is lower extremity illness in diabetic patients with sensory, motoric, autonomic neuropathy, and or limbs blood vessel disorder as the characteristics. Patients with diabetic ulcer often experience psychological stress as the result of the infection of the ulcer itself or the operation procedure, thus negatively affects patients' self-concept, self-worth, quality of life, physiological and psychological health, hope to recover, and their spirituality. This research aimed to recognize the effect of family empowerment method modern dressing based in inflating diabetic ulcer patients' quality of life. This research utilized pre-experimental with one group pretest-posttest design. The population and sample in this research are diabetic ulcer patients. The sampling technique used was purposive sampling with the total of 53 respondents. The instrument used was WHOQOL (The World Health Organization of Quality of Life). The research found that patient's QoL before family empowerment was given, the moderate QoL (Quality of Life) was 41 respondents (77.4%) and the good QoL was 12 respondents (22.6%). After the treatment using the aforementioned method, the good QoL increased to 28 respondents (52.8%), the moderate QoL became 7 respondents (13.2%) and the very good QoL increased as much as 18 respondents (34%). Wilcoxon analysis test resulted $p < 0,000$, meaning that there was an effect of family empowerment method modern dressing based to patients with diabetic ulcer

INTRODUCTION

Diabetic ulcer is a disease of the lower extremities of diabetic patients characterized by sensory, motor, autonomic neuropathy and/or leg blood vessel disorders. Sensory nerve disorders cause loss of taste sensation, with or without pain in the lower extremities, increasing the risk of injury. Motor disorders cause foot deformity, causing changes in the way you walk and thickening of the soles of the feet (callus). Autonomic nervous disorders result in loss of skin secretions so that the skin becomes dry and wounds are difficult to heal (Decroli, 2019). Diabetic ulcer sufferers need appropriate treatment and care because the foot wounds they experience are difficult to heal and therefore require a long process (Handaya, 2016). These complications can affect the patient's quality of life (Roifah, 2017). This shows that physiological treatment for DFU (Diabetic Foot Ulcer) alone is not enough, psychological and spiritual aspects also need to be considered so that they can improve the patient's QoL (Quality of Life). According to Mukhlis, Hamid (2020), diabetic ulcer sufferers with moderate anxiety have a low quality of life.

According to WHO (2021), there are around 422 million diabetes mellitus (DM) patients in the world and 1.5 million deaths are attributed to DM every year. The International Diabetes Federation (IDF) estimates that at least 463 million people aged 20-79 years in the world suffered from diabetes mellitus in 2019, equivalent to a prevalence rate of 9.3% of the total world population of the same age. Meanwhile, the number of Diabetes Mellitus patients in Indonesia is 10.7 million people (IDF, 2019). According to the Ministry of Health of the Republic of Indonesia (Kemenkes RI) in 2020, 463 million people aged 20-79 years in the world suffer from diabetes with a prevalence rate of 9.3%. The results of the Basic Health Research (Riskesdas) of East Java Province in 2018 showed that the prevalence of diabetes mellitus based on doctor's diagnosis in residents aged ≥ 15 years in Madiun City (4.22%) was the highest prevalence of several cities/districts including, Mojokerto, Sidoarjo, Probolinggo, and Gresik. The prevalence rate of diabetic ulcers in Indonesia reaches 7.3-24% (Yususf et al, 2019). According to Salome et al (Mukhlis, Hamid 2020) as many as 64% of patients suffer from moderate depression and 10% suffer from severe depression with the most common symptoms including self-hatred, hopelessness, distorted perception of one's own body (body image), and decreased libido.

LITERATURE REVIEW

Diabetic ulcer sufferers often experience psychological stress due to the ulcer infection itself or the surgical procedure. This will increase blood sugar levels and can trigger diabetic ketoacidosis and hyperglycemia. Emotional stress has a negative impact on good blood sugar control. Increased stress hormones can affect blood sugar levels (Honan, 2019). The long recovery process and increasing costs of ulcer disease will cause emotional, psychological and financial stress. If amputation becomes an option for surgery, this will not only have a bad aesthetic impact, but also reduce self-confidence as a consequence. Patients also experience physical problems such as pain when walking, which interferes with their activities, and experience social problems because they feel embarrassed by other people because of their diabetic ulcers. (Lemone et al, 2017). One of the nurse intervention strategies that is seen as an important element in health promotion programs that provides information about self-care to DM patients is through family empowerment interventions. DM sufferers need the involvement of their families such as husbands, wives and children to help

them carry out self-care in an effort to prevent complications. However, in reality, not all sufferers receive effective help from their families in managing their illness. Efforts to improve sufferers' ability to carry out self-care are by empowering families (Malini et al., 2018).

Family empowerment is a nursing intervention used by nurses to help families in caring for and providing assistance to family members with chronic illnesses and is seen as the most important element for successful treatment. Nurses should also advocate and encourage families in planning self-care management for sufferers with DM (Kashaninia et al., 2018). Factors that can influence family support are cultural and social, economic, educational, spiritual and emotional backgrounds that can influence a family in providing optimal support. Based on the factors mentioned above, maintaining family health and supporting them to make every effort to provide treatment should be a normal thing for diabetic ulcer patients.

METHODOLOGY

Study Design

One Group Pretest-Posttest design. The sample of the research was 53 respondents, consisted of the families of diabetic ulcer patients. This research was held on October 15 2022 – November 15 2022 in Surabaya. The treatment of Family Empowerment, Modern Dressing based were given at respondents' home 3 times a week, in accordance to activity even unit. After the treatment was given 3 times a week, the researcher held a posttest to the respondents using interview.

RESULTS

The Description of Respondents' Characteristic

Table 1. Description of Respondents' Characteristic

Characteristics	Sum	Percentage
Jenis Kelamin		
Male	14	26,4
Female	39	73,6
Age		
20 - 40 tahun	1	1,9
41 - 60 tahun	49	92,5
>60 tahun	3	5,7
Occupation		
Housewife	31	58,5
Private employee	15	28,3
Civil servant	1	1,9
Self-employed	5	9,4
Unemployed	1	1,9
Education Level		
College	4	7,5
Senior School	High 37	69,8

Characteristics	Sum	Percentage
Junior High School	11	20,0
Elementary School	1	1,9
No school	0	0
Marital Status		
Married	15	28,3
Widower / widow	38	71,7
Residence Status		
In-law	15	28,3
Other family	38	71,7

From 53 respondents, 39 (73.6%) were female, 49 (92.5%) respondents were by the age of 41-60, as many as 31 (58.5%) respondents were working as white collar worker, 37 (69.8%) of them finished Senior High School. According to marital status, 15 (28.3%) were married and 38 (71.7%) were widow/widower. Based on residence status data, 38 (71.7%) lived with big family.

The Description of Respondents' Characteristic

Table 2. The Description of Respondents' Characteristic Based the Length of Diabetes Mellitus

Length of DM	Frequency	Percentage
1-2 Year(s)	16	30,2 %
'> 3 Years	37	69,9 %
Total	53	100 %

The data showed from 53 respondents, 37 (69.9%) had suffered from DM for more than 3 years.

Table 3. The Level of Diabetic Ulver Patients' Quality of Life Before and After Given Family Empowerment Method Modern Dressing Based

Quality of Life	Before	(%)	After	(%)
Very good	0	0	18	34
Good	12	22,6	28	52,8
Moderate	41	77,4	7	13,2
Poor	0	0	0	0
Total	53	100	53	100
		%		%

The data showed that from 53 respondents before the treatment, the QoL of 41 respondents (77.4%) was moderate, and the good QoL was 12 respondents (22.6%). After the treatment, 28 respondents (52.8%) had good QoL, moderate QoL as many as 7 respondents (13.2%) and 18 respondents (34%) had very good QoL.

Table 4. Analyzing the Effect of Family Empowerment Method Modern Dressing Based in Increasing Diabetic Ulcer Patients' Quality of Life

Quality of Life	Mean	SD	P Value
QoL Before	3,23	0,423	0,000
QoL After	4,21	0,661	

Based on the table, the mean before given the treatment was 3.23 with standard deviation 0.423 and after given the treatment was 4.21 with standard deviation 0.0661. From the result of statistical analysis, it was known that ρ value 0.000 with $\alpha = 0,05$ which meant there was an effect of *family empowerment method modern dressing* based to diabetic ulcer patients' quality of life.

DISCUSSIONS

The Level of Diabetic Ulcer Patients' Quality of Life Before and After Given Family Empowerment Method Modern Dressing Based

The result of the research showed that the QoL changed to the better. It could be seen from 53 respondents before the treatment that the QoL of 41 respondents (77.4%) was moderate, while after given the Family Empowerment method, the QoL of most respondents as many as 28 (52.8%) was good and 18 respondents (34%) was very good.

Diabetes Mellitus (DM) is heterogenous disorder that features postprandial increase in blood glucose or hyperglycemia, atherosclerotic, microangiopathy, and neuropathy (Price, 2013). The impact of Diabetes Mellitus cannot be underestimated. Unmanaged DM can cause complication to every organ in the body, from head to toe, to wherever the high glucose level flows (Pranadji, 2014).

Diabetic Ulcer is one of chronic complications of type 2 Diabetes that is commonly known and the main cause of the hospitalization of diabetic patient. The characteristic is the neuropathy of sensory, motoric, autonomic, and/or limbs blood vessel disorder. Sensory nerves disorder causes numbness, with or without pain on the lower extremity, this increases the risk of injury and can cause the hindrance of patients to live normally. Ita Wa et al (2018) stated that every individual has different level of QoL depends on how the individual responds to the problem that occur to himself. If he/she faces a problem with positive attitude the QoL will be good, but if he/she responds negatively then the QoL will exacerbate. Quality of life is a complex aspect of health and multifactorial that can be affected by various aspect of health and well-being. Quality of life combines two dimensions of objective (such as working condition, health, and standard of living), and the increase of welfare (Rahayuningsih, 2014). According to Moons, Marquet, Budst, & de Greest (in Salsabila, 2012) QoL of DM patient can be affected by gender, age, education, marital state, income, occupation and physical health.

The result of the research showed that most of the respondents as many as 49 (92.5%) were at the age between 41-60. According to (Masters, 2014) diabetic patient at the age of 60-74 has worse health state compared to age 25-39. Naturally, as the age increases there will be physiological, psychological, and intellectual changes. Aging, especially in the elderly, will cause changes in anatomy, physiology, and bio-

chemistry. This will cause vulnerability to disease and can result to a failure on maintaining homeostasis against stress. The failure to maintain homeostasis can lead to the decrease body's tenacity to live and results in the increase the easiness of disorders to appear on an individual. While in type 2 diabetes patient, the changes that occur will impact on the increase of glucose-tolerance disorder and insulin resistance. This will have an impact on a number of problems physiologically, psychologically, and socially. Hence will cause various limitations that can affect QoL (Nurhayati, 2022).

Sorting by gender, as many as 39 respondents were female, and 14 were male. Based on occupation, 31 worked as private sector employee. Both gender male and female possessed the equal skill in problem solving. Both genders acted and behaved appropriately as expected in managing the illness. Thus, even if the gender was different, the measure in treating type 2 DM patients was proper, hence the QoL of the patients was taken care of adequately. Another factor that could be influential from this research was the activity. Most of the respondents were private sector employees, self-employed, and civil servants that ignored recess and meal schedule for the sake of their occupation. As the result, they were exhausted and nutritionally deficient, this caused patients' glycemic level to be unmanaged and their health state were often neglected.

Based on the education level, 37 respondents graduated Senior High School. Their education was not considered high, thus their awareness in their own illness was minimal. The result of the research showed that the respondents who had suffered from DM ulcer for 3 years are 37 patients. In the case above, it was possible that their condition caused them to find it difficult in doing daily routines, disheartened to enjoy life, finding life meaningless, and despair to ever recover. The inadequate support from family exacerbated by the lack of awareness causes patient to have not been able to treat themselves properly at home without relying heavily on medical personnel hence they cannot recover from the illness (Roifah, 2017). An individual with chronic condition in prolonged amount of time will be affected by his experience and knowledge in medication. The decrease of QoL on patients can be caused by the characteristics of the chronic illness itself, hence can affect the ongoing therapy and medication (Rahmat, 2010).

After given the family empowerment method, the QoL increased. Family Empowerment is a process to grow awareness and willingness of the family in taking care and increasing patient's health state (Notoatmojo, 2014). The escalation of knowledge and awareness on how to support, taking care of, and improving health was the first step of health empowerment to then resulted in a willingness and whim to perform medical action thus the family could perform and behave towards healthy lifestyle. Through Family Empowerment as a persuasive attempt, the family was expected to sufficiently support and act in treating and improving patients' health.

Giving additional education to patient and the family in patient empowerment activity can escalate their knowledge and comprehension on protocols in managing diabetic ulcer. The level of awareness and knowledge is a strong indicator in behavior and self-management. Knowledge itself is one of the predictors of behavioral changes. According to Thought and Feeling theory, knowledge can be acquired from experience or through others. Someone's experience in self-treatment will give him the knowledge on how to do the action. An individual with prolonged DM has to do

self-treatment as long as he suffers the illness. This makes his experience to enrich as the knowledge is adding. Through this activity, it is expected to make changes in behavior as the result of experience and interaction process between individual and the environment that materialized in the form of knowledge, manner, and action thus a state of balance is obtained between the force of the pusher and the force of the bracer. An individual's manner could shift if an imbalance or change on both of the forces in one's self have happened (Maulana, 2013)

4The Effect of Family Empowerment Method Modern Dressing Based in Increasing Diabetic Ulcer Patients' Quality of Life

According to the statistical analysis, the QoL after the treatment increased as shown by p value 0.000 which meant that there was an effect regarding family empowerment method modern dressing based towards diabetic ulcer patients' QoL.

The family empowerment method modern-dressing based treatment was given in respondents' home 3 times a week while the respondents were given pretest questionnaire regarding QoL beforehand. The treatment was given in 3 stages. The first stage was to do a study and anamneses about QoL and how was DM patients' condition regarding their illness to then plan on the subsequent action and studying patients' wound. The second stage was giving education towards the patients and their family regarding QoL, DM, and the activity event unit. The third stage gave the patients and their family an understanding on how to treat wound utilizing modern dressing method to then be evaluated.

The treatment of diabetic wound can be done with conventional and modern technique. The management of wound treatment using conventional method, the wound is to be cleaned with normal saline or NaCl 0.9% solution then closing it with dry gauze (Damsir, 2018). This causes the gauze to stick to the wound and damage new cells during the next wound treatment, this causes unnecessary pain on the client. Hence the appropriate wound treatment method is necessary to optimize the recovery process (Handayani, 2016). Current research explained that wound treatment using moist balance method or wound dressing is proven to be more effective because the tissue can grow at a faster rate at the right humidity and temperature (Meilin, Sidabutar, Patty, & Simanjuntak, 2019). The development of the modern wound care is improving at a fast rate in medical field. The currently advancing wound treatment method is wound care using moisture balance principle, maintaining the wound in a moist condition (Maryunani, 2013). The given treatment gives warmness and moist environment to the wound (Sumara, 2018). Moist condition on the skin surface can improve the wound, prevent tissue dehydration and the death of the cells. This condition can also improve the interaction between cells and growth factors (Handayani, 2016). Maintaining the wound in moist condition can help recovery up to 45% and can decrease the complication of infection risk so it does not spread to the other organs (Kusyati, 2016).

In the treatment using family empowerment method modern dressing method, patients and the family were given the necessary knowledge on how to treat DM patients with ulcer and given the understanding on treating wound using modern dressing method. The researchers utilized guidance method, counseling, and behavior intervention to improve the knowledge on diabetes and to improve individual and family's skill in managing DM thus it was expected that there would be changes in

patients and family' behavior so DM with ulcer patients' QoL could be elevated. The family role was crucial in preserving and maintaining health (Effendy et al, 2020). The family was in the forefront in giving help if one of the members suffers from health disorder. The family was also the ones that help its every member in retaining health, such as the fulfillment of food, drink, hygiene, recess, recreation, workout, etc. Through family involvement in the family empowerment program, it is expected to improve the obedience of the DM patients towards the treatment so it can result in improving their QoL (Rahayu et al., 2014).

The involvement of respondents and the family in patients' empowerment process was an absolute necessity to grant the success in the empowerment program. Patients' independence in managing their illness in acute as well as chronic complication prevention resulted on the improvement of DM with ulcer patients' QoL. Family was the main DM with ulcer patients' support system because the family could give, provide, and prepare everything needed in daily life. Family support also further strengthen patients' QoL improvement. Family involvement in accompaniment, advising, and reminding the patients to abide towards diabetes management was an example of positive support given by family to the patients. Things that could be done by the family was support. The support here included emotional, instrumental, information, and validation support. In order to give their support, the family needed the proper knowledge, skills, and manner in improving QoL, so the family needed to be empowered to be able to help achieving optimal QoL.

CONCLUSION AND RECOMMENDATIONS

1. The result of the research is that the diabetic ulcer patients' QoL level improved after the family empowerment method modern-dressing based treatment
2. There is an effect regarding family empowerment method modern dressing based in improving diabetic ulcer patients' QoL.

The researchers hope that accompaniment programs can be formed to help monitoring health, especially on patients with DM ulcer.

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