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RESEARCH ARTICLE

# QUALITY OF LIFE OF PATIENTS WITH DIABETIC FOOT ULCER ON RECOVERING

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## Abstract

Diabetic ulcer is a dangerous complication of diabetes mellitus associated with adverse consequences and high costs. Diabetic ulcers have a significant impact on quality of life. It is related to activity restriction, disabilities and the loss of mobility. Diabetic foot ulcers also lead to body image impairment and limitation of interaction with others. The purpose of this study was to identify the quality of life of patients with diabetic foot ulcer. This study used a descriptive method among 35 patients who had foot diabetic ulcer graded 2, 3, and 4. Findings of the study revealed that diabetic ulcer affects physical health, psychological health, social relationship and environment of 54.3%, 54.3%, 85.7% and 60%, respectively. Therefore, it is suggested that healthcare providers, their families, and the community give motivation, support, and education on patients with diabetic foot ulcer to achieve higher levels of quality of life.

***Keywords:*** Quality of life, diabetic foot ulcer

## Introduction

Diabetic Mellitus is a degenerative disease that has a significant influence on the patient's quality of life, with 18% of them going through an amputation stage (LeMone et al., 2011). An average of 25% of patients with diabetes have increased risk of lower-extremity (Almeida, 2016). The diabetic ulcer has three characteristics, which are neuropathic, ischemic, and septic. There is a significant difference between the coronary patient's and non-ischemic patient's experience in feeling healthier in terms of their wound healing process. A diabetic has various types of complications, one of them is atherosclerosis that rapidly spreads to the whole lower limb artery particularly below the knee (ischemia distal) (Asmadi, 2008). Since diabetic ulcer revascularization has a difficult healing process, causing the distribution of multiple stenosis and occultation in the whole lower extremity artery, it causes a few patients to get their body parts amputated(Ji, Bai, Sun, & Wang, 2016).

The diabetic ulcer is a peripheral vascular disease, which influences lower extremity infection and (or) an inner tissue damage (Ji et al., 2016). The prevalence rates of the effect of diabetic ulcers ranges from 1.0% - 4.0% for lower extremity infections and 5.3% - 10.5% for inner tissue damages. Around 20% - 30% of diabetic ulcers are located in the lower limbs (Ji et al., 2016). The acceleration process of protein absorption, which is then stored in micro caviller, results in micro vascular *lesions,* such as hyperplasia of *endothelial* cell. It also enhance es nutrition and local oxygenation, which, when not attended to, can contribute to a longer process for diabetic wound healing (Hicks, Selvarajah, & Mathioudakis, 2010). Not only can microcirculation lead to diabetic ulcer patient complications, it can also cause peripheral neuropathy, which becomes the main cause of diabetic ulcer(Stoekenbroek, 2014).

The death of Diabetes Mellitus occurs not directly due to hyperglycemia, but is rather associated with other complications that arise (Dieber-rotheneder, Beganovic, Desoye, Lang, & Cervar-zivkovic, 2012). Symptoms often included frequent tingling pain in the legs such as burning, senseless tissue damage (necrosis), decreased perfusion of oxygen on tissues, atrophied legs, and cold thickened dry skin (Rohmayanti, 2017). High blood sugar, for a long time, can also reduce the function of cellular immunity and the formation of antibodies, causing the existence of a culture or a healthy medium for bacterial proliferation(Sriyani et al., 2016).

Some insights reveal that diabetes mellitus is a chronic illness described as a state of elevated blood glucose which may lead to death. This disease occurs when the beta cells in the pancreas fail to produce enough hormone insulin, or the body cannot efficiently use the insulin produced (International Diabetes Federation, 2013). The result of Basic Health Research found that the proportion of identified causes of diabetes mellitus death in the age group of 45 to 54 years in an urban area was ranked second (14.7%), and rural area was ranked sixth (5.8%)

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(International Diabetes Federation, 2013).Health care system as Diabetic Foot Ulcer (DFUs) counted 20% of hospital visitors diagnosed with Diabetes Mellitus. It was also found out that 8-10% of amputations not caused by accident were from people with Diabetes Mellitus, and 85% of them were amputations caused by Diabetic Ulcers(Lin et al., 2017).

Quality of life can be viewed both subjectively and objectively. Subjectively, it refers to a feeling of well-being and over-all satisfaction. Objectively, it is the fulfillment of the demands of material well-being, social status and physical perfection(Hicks et al., 2010). In patients with Diabetes Mellitus, a decrease in the physical function will indirectly affect their psychological state, such as the emergence of feelings of anxiety, depression, and frustration on the client(Schadendorf et al., 2017).

## Methodology

This research is a descriptive research that used cross-sectional study design. Respondents in this study were patients with diabetic ulcers who visited/consulted Public Health and Wound Clinic Magelang. 35 patients were included using sequential sampling method. The inclusion criteria were diabetic ulcer patients with grade 2 and above. Data collection was conducted in July - August 2017.

The questionnaire used consisted of two surveys namely Demographic Data Questionnaire and Quality of Life Questionnaire (KKH). KKH was adopted by the investigators from standard questionnaires World Health Organization Quality of Life-Bref (WHOQoL-Bref, 2004) (WHOQoL-Bref, 2004). KKH consists of two parts namely the first part of the quality of life and health in general and the second part is a quality of life consisting of 24 questions. WHOQoL-Bref consists of 4 combined dimensions of physical health, psychological health, social relations and environmental dimensions. All items use a five-point (1-5) Likert scales are the most broadly used method for scaling responses in survey studies. Survey questions that ask you to indicate your level of agreement, from strongly agree to strongly disagree, use the Likert scale. Likert data seem ideal for survey items, but there is a huge debate over how to analyse these data. The general question centre's on whether you should use a parametric or nonparametric test to analyze Likert data. The data in the worksheet are five-point Likert scale data for two groups. The level of the intensity response refers to the degree to which the status or situation experienced by the individual. The range of capacity response refers to the capacity of feelings, conditions or behaviors(WHOQoL-Bref, 2004).

## Result and Discussion

The characteristics of the participants are presented in Table 1. Participants were almost equal in terms of sex, coming from the 40-50 year old group (40%), having reached elementary level (13%) and primary level (13%), work as employees (34.3%), with 1-3 months wound healing (48.6%) and with improved wound condition (74.3%).

The four dimensions of quality of life is presented in Table 2 then summarized in Table 3, respectively.

***Table 1***. Demographic data of respondents (n=35)

| No | Demographic data | F | % |
|---|---|---|---|
| 1 | Sex | | |
| | • Male | 17 | 48.6 |
| | • Female | 18 | 51.4 |
| | Total | 35 | 100.0 |
| 2 | Age | | |
| | • 40-50 Years | 14 | 40 |
| | • 51-60 Years | 9 | 25.7 |
| | • 61-70 Years | 6 | 17.1 |
| | • >71 Years | 6 | 17.1 |
| | Total | 35 | 100.0 |
| 3 | Graduates School | | |
| | • Elementary S | 13 | 37.1 |
| | • Primary HS | 13 | 37.1 |
| | • Junior HS | 4 | 11.4 |
| | • Diploma | 2 | 5.7 |
| | • Bachelor | 3 | 8.6 |
| | Total | 35 | 100.0 |
| 4 | Work | | |
| | • Government | 3 | 8.6 |
| | • Private | 6 | 17.1 |
| | • Farmer | 8 | 22.9 |
| | • Employees | 12 | 34.3 |
| | • No Work | 6 | 17.1 |
| | Total | 35 | 100.0 |
| 5 | Wound Healing | | |
| | • 1-3 Months | 17 | 48.6 |
| | • 3-6 Months | 12 | 34.3 |
| | • 12 Months | 2 | 5.7 |
| | • 1-2 Months | 3 | 8.6 |
| | • >2 Months | 1 | 2.9 |
| | Total | 35 | 100.0 |
| 6 | Wound Conditions | | |
| | • Improved | 26 | 74.3 |
| | • Deteriorated | 9 | 25.7 |
| | Total | 35 | 100.0 |

The results shown in Table 2, reveal that the quality of life of patients viewed from the dimensions of physical health is poor, which corresponds to 24 respondents (68.6%). This is consistent with the cross-sectional research of Schadendorf in 2016 on patient's quality of life with lower extremity ulcers that was performed on 33 patients with diabetic ulcers. The results show that patients complain about limitations in mobility that requires adaptation to different lifestyles (Hudha, Anshori, Widayati, & Ardiana, 2014). Diabetic ulcers have a significant impact on quality of life. It causes loss of mobility that can affect a patient's ability to perform simple movements, daily tasks and participation in all activities (Utami & Karim, 2014). Their quality of life is also

***Table 2***. Dimensions of Quality of Life (n=35)

| No | Dimensions | f | % |
|---|---|---|---|
| 1 | Physical Health | | |
| | • Good | 11 | 31.4 |
| | • Poor | 24 | 68.6 |
| | Total | 35 | 100 |
| 2 | Psychological Health | | |
| | • Good | 16 | 45.7 |
| | • Poor | 19 | 54.3 |
| | Total | 35 | 100.0 |
| 3 | Social Relationships | | |
| | • Good | 30 | 85.7 |
| | • Poor | 5 | 14.3 |
| | Total | 35 | 100.0 |
| 4 | Environment | | |
| | • Good | 14 | 40 |
| | • Poor | 21 | 60 |
| | Total | 35 | 100.0 |

***Table 3***. Dimensions of Quality of Life (n=35)

| No | Distributions Quality of Life overall | f | % |
|---|---|---|---|
| 1 | Good | 12 | 34.3 |
| 2 | Poor | 23 | 65.7 |
| | Total | 35 | 100.0 |

Source: Primary Data (2017)

influenced by the presence of pain due to diabetic ulcers and mobility impairment(Ariani Yesi, 2011).

The physical health of patients with diabetic ulcers is poor due to the pain condition they experience, and fatigue that causes difficulties in performing daily activities. Also, pain in the ulcer also disrupts their sleeping patterns, so they often complain of not being satisfied with their quality of sleep. The result in Table 2 also shows that the quality of life of respondents viewed from the dimensions of psychological health is in the lesser category with 19 people (54.3%). This result is in line with a study conducted by Kindmon et al. (2003) which showed that psychological health affects the quality of life of diabetic ulcer patients (Kinmond K1, McGee P, Gough S, 2003). They also often feel worried about the disease, which inhibits their activities. They are often feeling lack or loss of motivation that can affect their psychological health (Muros et al., 2017). The mental condition of respondents is in the fewer categories because they cannot accept the physical changes that they currently experience. Their expectations of healing can also cause them to be unmotivated to keep going. Also, low-income family or environmental support makes them feel lonely, desperate, anxious, and depressed. The results in Table 2 shows that the quality of life of respondents regarding social relationships is in good category of 30 respondents (85.7%).

Table 3 shows that the quality of life of patients with diabetic ulcers is poor (65.7%). Diabetic ulcers are associated with reduced mobility and deficits related to daily activities. Qualitative studies have shown clinical observers that diabetic ulcers have significant adverse psychological and social effects, such as reduced social activity, increasing tension for the patient's family including caregivers or partners, limited work and financial difficulties .

Several studies have described self-living (as well as widows or widowers), lower educational level, and poor glycemic control indirectly degrade the quality of life . The higher a person's education or knowledge of healthiness, the better health control they have, such as control of glycemic levels higher than those with low education, including a desire to maintain a healthy lifestyle and exercise .

## Conclusions and Recommendations

In general, the diabetic ulcer has effects on physical health (54.3%), psychological health (54.3%), social relationship (85.7%) and environment (60%). The investigator recommends patients who have diabetic ulcers to continually control blood sugar levels regularly, maintain diabetic dietary regimen, regular activities, and keep the wounds of diabetic ulcer clean and maintain cleanliness of the environment. Adhering to these measures will regain their health and prevent undue complications to improve quality of life.

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