

**DOES DIABETES SELF MANAGEMENT EDUCATION (DSME)
HAVE AN INFLUENCE ON THE QUALITY OF LIFE
OF TYPE 2 DIABETES MELLITUS PATIENTS?**

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ABSTRACT

This study aims to determine the effect of diabetes self-management education (DSME) on the quality of life of patients with type 2 diabetes mellitus. This study used pre experimental design with one group pre and posttest with 15 respondents. The result analysis there were mostly 8 (53,3%) who were 56-70 years old, most of them were 14 (93,3%) female, mostly 8 (53,3%) who had junior high school education, most of whom were 9 (60.0%) who 1-5 years suffering from diabetes, before DSME did the lowest quality of life score was 86 and the highest was 99, the average was 90.93, People after the DSME lowest life quality score was 88 and the highest was 105, the average was 98.67. The average quality of life after treatment has increased with the difference in the mean score of quality of life by using DSME ($p = 0,000$) in Bengkulu City Pasar Ikan Puskesmas Working Area. In Conclusion, There is an influence of Diabetes Self Management Education (DSME) on the quality of life of type 2 diabetes mellitus patients in the work area of the Pasar Ikan Health Center, Bengkulu City.

Keywords: Self Management Education (DSME), Quality of Life

INTRODUCTION

Diabetes Mellitus (DM) is a clinical syndrome of metabolic disorders caused by the inability of the pancreas to produce sufficient insulin, and/or body cells are resistant to insulin, resulting in increased blood glucose levels (World Health Organization, 2023). Based on the WHO report, India now has the highest number in the world with more than 32 million diabetes mellitus patients, and this number is expected to increase to 79.4 million by 2030 (Harsismanto et al., 2021; Tiong et al., 2019). Diabetes mellitus is currently developing into a global health challenge. The International Diabetes Federation (IDF) noted that the prevalence of DM in the world from 371 million cases in 2012 increased by 55% to 592 million in 2035 (Setyawati; 2020; Ramadhani & Mahmudiono, 2018). In 2021, the global prevalence of diabetes for the 20-79 age group was around 10.5% (536.6 million people), and is expected to increase to 12.2% (783.2 million) by 2045 (Sun et al., 2023).

Diabetes Mellitus (DM) is one of the most common chronic diseases experienced by the population worldwide. One of the most common variants of DM disease experienced by the world's population is type 2 DM (85-95%), which is DM disease that occurs due to impaired insulin secretion and insulin resistance (Selano et al., 2020). Indonesia is a developing country with a fairly high incidence of type 2 DM. In 2010, the number of people type 2 DM in Indonesia reached 8.4 million people, and is estimated to increase to 21.3 million people by 2030 (Irwansyah & Kasim, 2020).

Management of Diabetes Mellitus (DM) aims to reduce the risk of acute complications and improve quality of life (Okaniawan & Agustini, 2021). Therefore, knowledge and skills are needed in carrying out good and proper self-care management (Wasalamah et al., 2024; Hailu et al., 2019). One of the DM management programs that can be carried out is Diabetes Self-Management Education (DSME) consisting of education, diet, physical exercise, pharmacological interventions, blood glucose checks, and diabetic foot care (Wijayanti, 2024). Proper DM management can alleviate some of the physical and mental consequences of this disease. Diabetes symptoms can be reduced and long-term complications can be avoided if blood glucose levels are maintained within a healthy range. Lifestyle modifications, including a healthy diet and regular exercise, are the cornerstone of diabetes management. Self-management refers to a person's capacity to take control of their health and reduce the effects of chronic disease. When patients can take control of their own health care while still receiving help from their health care team, this is known as self-management (Yusnita et al., 2021). Self-management has a significant impact on the course and outcome of disease management (Asrindo et al., 2024). Self-management has a significant impact on the course and outcome of disease management (Sari et al., 2020).

Management of Diabetes Mellitus (DM) aims to reduce the risk of acute complications and improve quality of life (Okaniawan & Agustini, 2021). Therefore, it is very important to have the knowledge and skills to carry out good and proper self-care management (Wasalamah et al., 2024; Hailu et al., 2019). One of the DM management programs that can be carried out is Diabetes Management Independent Education (DSME) which includes education, diet, physical activity, drug intervention, blood glucose testing, and diabetic foot care (Wijayanti, 2024).

Effective DM management can reduce some of the physical and mental impacts of this disease. Diabetes symptoms can be minimized and long-term complications can be avoided if blood sugar levels remain within healthy limits. Lifestyle changes, such as a healthy diet and regular exercise, are the basis of diabetes management. Self-management refers to an individual's ability to control their health and minimize the impact of chronic disease. When patients can manage their own health care while still getting support from the health team, this is called self-management (Yusnita et al., 2021). Self-management has a major influence on the process and outcome of disease management (Asrindo et al., 2024). Self-management has a major influence on the process and outcome of disease management (Sari et al., 2020).

DM patients who receive outpatient care feel bored and frustrated because they have to undergo the same medical therapy over and over again but do not see any improvement in their health. Type 2 DM patients experience poor sleep patterns because they often wake up to urinate, dream about their illness, and have difficulty sleeping due to anxiety and emotions negative feelings. The worries experienced are similar to the fear of a disease that does not heal. This clearly indicates that the quality of life of type 2 diabetes patients is affected. The results of interviews with a number of nurses at the fish market health center in Bengkulu City showed that no health workers had offered education on Diabetes Self Management Education (DSME) self-management, usually only advice or understanding was given when clients consulted the health center. An initial survey conducted by researchers on the number of Diabetes mellitus patients at the fish market health center in Bengkulu City on 5 respondents found 2 respondents with moderate quality of life and 3 respondents with low quality of life.

METHODS

This study is a quantitative study with a pre-experimental experimental design with a one group pre and posttest design. The number of samples is 15 patients with type 2 diabetes mellitus who have visited the fish market health center in Bengkulu city. Sampling using purposive sampling. Using primary and secondary funds with data analysis using the T-dependent test.

Results

Univariate Analysis

Table. 1
Frequency Distribution of Respondents' Characteristics Based on Occupation in 2017

No	Job	Frequency	Percentage
1	IRT	11	73,3
2	Pedagang	3	20,0
3	Buruh	1	6,7
	Jumlah	15	100,0

From table 1 shows that out of 15 respondents, most of them are 11 people (73.3%) who work as housewives.

Table. 2
Frequency Distribution of Respondent Characteristics Based on the Length of Diabetes Suffering

No	Length of Suffering from Diabetes (Years))	Frequency	Percentage (%)
1	1-5 Year	9	60,0
2	6-10 Year	6	40,0
	Amount	15	100,0

From table 2 shows that from 15 respondents, most of them are 9 people (60.0%) who have suffered from diabetes for 1-5 years.

Table 3
Frequency Distribution of Respondent Characteristics Based on Age Years

No	Age	Frequency	Percentage (%)
1	45-55 Year	7	46,7
2	56-70 Year	8	53,3
	Jumlah	15	100,0

From table 3. shows that out of 15 respondents, most of them are 8 people (53.3%) aged 56-70 years and 7 people (46.7%) aged 45-55 years.

Table 4
Frequency Distribution of Respondent Characteristics Based on Gender

No	Gender	Frequency	Percentage (%)
1	Man	1	6,6
2	Woman	14	93,3
	Jumlah	15	100,0

From table 4 shows that from 15 respondents, most of them are 14 people (93.3%) who are female and 1 person (6.6%) who are male.

Table 5
Frequency Distribution of Respondent Characteristics Based on Last Education

No	Education	Frequency	Percentage (%)
1	SD	3	20,0
2	SMP	8	53,3
3	SMA	4	26,6
Amount		15	100,0

Table 5 shows that out of 15 respondents, most of them are 8 people (53.3%) who have junior high school education.

Bivariate analysis

Table. 6
Analysis of Average Improvement in Quality of Life Before and After DSME on Quality of Life of Type 2 Diabetes Mellitus Patients

Quality of Life	N	Mean	Std.Devi ation	Std. Error Mean	P
Before	15	90,93	4,079	4,079	0,000
after	15	98,67	5,447	5,447	

Based on the results of the Paired samples test, the t value was obtained = -6.236 with $p = 0.000 < \alpha = 0.05$ which means significant, meaning that there is an effect of Diabetes Self Management Education (DSME) on the quality of life of type 2 diabetes mellitus patients in the Pasar Ikan Health Center work area, Bengkulu City.

DISCUSSION

Frequency distribution of Respondent Characteristics Based on Occupation

Most diabetes mellitus patients in the Pasar Ikan Health Center Work Area are Housewives (IRT). In line with the research conducted by Rizkifani & Perwitasari (2014) the results obtained were that the number of housewives was greater with a percentage of 7 people (29%). Work affects a person's quality of life because generally housewives have many burdens at home and many responsibilities to take care of the household, thus encouraging motivation to live healthier or recover from their illness. The quality of life of DM patients is influenced by various factors, including demographic factors such as age, gender, education level, occupation, socioeconomic status, and medical factors including complications and duration of the disease (Amalia et al., 2024; Claudia et al., 2022).

The findings of the study by Sitorus et al., 2024 showed that there was a significant relationship between the occupation of diabetes mellitus patients and quality of life at the Royal Prima Medan Hospital ($p=0.036$; $p<0.05$). The findings of the study by Arania et al., (2021) showed that respondents who had professions had a higher risk of experiencing DM. In contrast to the study by Resti & Cahyati (2022), most DM sufferers in the work area of the Pasar Rebo District Health Center, East Jakarta City, were individuals who did not have jobs. Work can affect the risk of DM. Work with light physical activity will result in low energy burning by the body, so that excess energy will be stored in the form of fat which can cause obesity (Sitorus et al., 2024; Arania et al., 2021).

Frequency distribution of Respondent Characteristics Based on the Length of Time Suffering from Diabetes

It can be seen that most respondents have had diabetes for 1-5 years. In line with previous research conducted by Roifah (2017) the results of the study showed that most respondents had a high quality of life, as many as 42 respondents (51.9%). This is because respondents have been suffering from the disease for a long time so they have a desire to live better, The longer a person suffers from DM, the greater the opportunity to understand the disease and become more skilled in dealing with various problems that arise due to this condition (Tombokan & Salibana, 2024; Setyorini & Wulandari, 2017).

Frequency distribution of Respondent Characteristics Based on Age

It can be seen that most respondents are 56-70 years old. This is because patients over 45 years old are more serious about living better than those at a younger age. In line with previous research conducted by Desni, et al (2014) it was found that most respondents were aged 55-60 years with a percentage of 17 people (56.7%). The results of the analysis of the relationship between age and quality of life of DM patients were that most respondents aged 55-60 years had a high quality of life (pvalue: 0.000). This study shows that there is a significant relationship between age and quality of life of DM patients.

Wikananda's (2017) research shows that poor quality of life is related to the age group >70 years, male gender, low education level, single or widow/widower status, unemployed, low monthly income, and the presence of >2 chronic diseases. Nurses contribute to improving the quality of life of DM patients through preventive measures, consisting of primary prevention, secondary prevention, and tertiary prevention. The longer a person experiences DM, the higher the risk of other health problems due to the decreased ability of pancreatic beta cells to produce sufficient insulin for the body's needs, this condition can certainly reduce the quality of life (Nisa & Kurniawati, 2022).

Frequency distribution of Respondent Characteristics Based on Gender

In line with the research conducted by Rizkifani & Perwitasari (2014) with the research title 'Measurement of the quality of life of diabetes mellitus patients at PKU Muhammadiyah Bantul Hospital', the results showed that most of the female gender with a percentage of 58%. Gender, women are more at risk of experiencing cognitive decline than men. This is due to the role of endogenous sex hormone levels in changes in cognitive function. Estrogen receptors have been found in areas of the brain that play a role in learning and memory functions, such as the hippocampus. Decreased general cognitive function and verbal memory are associated with low levels of estradiol in the body.

Frequency distribution of Respondent Characteristics Based on Last Education

It can be seen that most respondents have junior high school education. Not in line with the research conducted by Rizkifani & Perwitasari (2014) the results of the study showed that the frequency of elementary school education was higher than other levels of education, this is shown in the results of the study as many as 11 people (46%) elementary school graduates, 5 (21%) people junior high school, 5 high school graduates (21%), and only 1 person (9%) in college, besides that there are also 1 person who did not go to school (3%). Meanwhile, the results of the study obtained that most of the education of type 2 diabetes mellitus patients in the Pasar Ikan Health Center Work Area are junior high school graduates with a percentage of 53.3%. This is due to differences in research areas. The Pasar Ikan Health Center work area, most of the population has received education from the lowest to college. There is an

influence of education on quality of life, this is because the insight of those with junior high school education is broader in knowledge than those with elementary school education.

The influence of diabetes self-management education (DSME) on the quality of life of type 2 diabetes mellitus patients

There is an influence of Diabetes Self-Management Education (DSME) on the quality of life of type 2 diabetes mellitus patients in the Pasar Ikan Health Center Work Area, Bengkulu City work of Pasar Ikan Health Center, Bengkulu City. In line with previous research conducted by Rahayu et al., (2014) the results of the study showed a significant change in the quality of life of type 2 diabetes mellitus patients in the Baturraden Health Center work area after being given education with the DSME approach. Quality of life (QOL) is an individual's perception of their position in life in the context of the culture and values in which they live and in relation to life goals, expectations, standards and concerns. WHOQOL-BREF is a measurement that uses 26 question items. Where this measuring instrument uses four dimensions, namely physical, psychological, environmental and social. All questions are based on a five-point Likert scale (1-5) and four types of answer choices.

DSME is an ongoing process that aims to help patients gain knowledge, skills, and abilities to manage their own disease (Banerjee et al., 2020). The implementation of DSME activities is very important in comprehensive diabetes care (Davis et al., 2022). DSME is an ongoing education to support the knowledge, skills, and abilities of individuals with type II DM, so that they can manage themselves in controlling their disease (Banerjee et al., 2020). Currently, it can be stated that the implementation of DSME activities plays an important role in the comprehensive management of DM (Davis et al., 2022). Previous studies have shown that individuals with DM experience decreased quality of life in physical, social, mental, general health, discomfort/pain, and role changes caused by physical and emotional problems due to the disease (Maâ & Palupi, 2021).

CONCLUSION

There is an influence of Diabetes Self Management Education (DSME) on the quality of life of type 2 diabetes mellitus patients in the work area of the Pasar Ikan Health Center, Bengkulu City.

SUGGESTION

For Other Researchers So that the results of this study can be used as reference material for further researchers who are interested in conducting research on the quality of life of type 2 DM patients with different variables.

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