

# RELATIONSHIP OF SELF-CARE MANAGEMENT WITH QUALITY OF LIFE OF DIABETES MELLITUS PATIENTS IN THE BANJARBARU SELATAN COMMUNITY HEALTH CENTER AREA

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## Abstract

**Background Behind:** Diabetes mellitus is a chronic disease characterized by increased blood sugar levels due to insulin resistance. Treatment of diabetes mellitus can be done by prevention and control through self-care management to prevent complications that have an impact on reducing quality of life. Self-care management includes diet, physical activity, blood sugar monitoring, drug therapy, and foot care. **Objective:** Determine the relationship between self-care management and patients' quality of life with diabetes mellitus in the Banjarbaru Selatan Health Center area. **Method Study:** This study uses quantitative methods with a cross-sectional design. The research sample was 40 respondents selected using a simple random sampling technique. Data collection was carried out using a questionnaire. Data were analyzed using Pearson correlation. **Results:** The results of this study obtained a p-value of  $0.078 > 0.05$  and a Pearson correlation of 0.282. It can be concluded that there is no relationship between self-care management and quality of life in patients with diabetes mellitus in the Banjarbaru Selatan Health Center area. **Conclusion:** Poor self-care management, such as diet, physical activity, monitoring blood sugar levels, drug therapy, and foot care, will have an impact on the quality of life of patients with diabetes mellitus. It is hoped that patients with diabetes mellitus can maintain and improve their self-care management to minimize the occurrence of complications.

**Keywords:** *Diabetes Mellitus, Quality of Life, Self Care Management*

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## Introduction

Diabetes Mellitus is a major health problem in society. Diabetes mellitus is a chronic disease that causes acute and chronic complications if left untreated.(Indriani et al., 2019). Diabetes mellitus can cause death and is a major cause of blindness, heart disease, kidney failure, skin, digestive tract, and nerves. (Parman, 2021). The International Diabetes Federation (IDF) organization in 2021 had around 537 million adults with a prevalence of 10.5%, which was an increase from 2019 to around 463 million with a prevalence of 9.3%. The number of diabetes is expected to increase in 2030 to around 643 million. Indonesia is among the 10 largest countries in terms of the number of diabetes mellitus sufferers. In 2019, Indonesia was ranked seventh with 10.7 million sufferers (Ministry of Health of the Republic of Indonesia, 2020) and 5th in 2021 with 19.5 million diabetes mellitus sufferers(IDF, 2021). The number of diabetes mellitus sufferers in South Kalimantan in

2018 was 23,915 people. The number of people with diabetes in Banjarbaru City was 1,457 (Risksdas 2018). Based on data obtained from the Banjarbaru City Health Office, there were 536 diabetes mellitus sufferers in the South Banjarbaru Health Center area in 2021, and there was an increase of 545 in 2022. Based on data obtained from the South Banjarbaru Health Center in 2023, in January-April, there were 255 diabetes mellitus sufferers.

Diabetes mellitus has a risk of complications(Sulistria, 2013). Complications experienced include eye damage, kidney damage, heart disease, high blood pressure, stroke, and even gangrene.(Meidikayanti & Wahyuni, 2017). Treatment of diabetes mellitus can be done through prevention and control through diabetes self-care management to prevent complications.(Asnaniar & Safruddin, 2019).

*Self-care management* is the implementation of individual activities related to improving health, preventing disease, and

maintaining health.(Dedefo et al., 2019). Self-care diabetes management includes regulating diet, physical activity, monitoring blood sugar levels, drug therapy, and foot care.(Asnaniar & Safruddin, 2019). Diabetes mellitus is included in long-term care diseases. If not done properly, complications can disrupt the quality of life. (Luthfa & Fadhilah, 2019). A good quality of life can be seen from physical and psychological satisfaction with carrying out activities, resting, and socializing in daily life. (Princess, 2021).

From the results of a preliminary study in the Banjarbaru Selatan Health Center area on May 15-20, 2023, interviews with 2 out of 7 diabetes sufferers said they were still not regular in maintaining their diet and consumed foods high in fat. As many as 7 people exercised, such as walking, and some took special gymnastics training. As many as 1 in 7 people said they did not check their blood sugar at a health facility due to a lack of knowledge. As many as 7 diabetes sufferers did not know about diabetic foot care. As many as 7 people took diabetes medication regularly.

Meanwhile, 7 people said that knowledge about diabetes mellitus is an important factor that needs to be improved in terms of quality of life. As many as 2 out of 7 people feel that diabetes limits the patient's career. As many as 4 out of 7 people said their sleep was disturbed. They had difficulty sleeping and woke up in the middle of the night. As many as 3 out of 7 people said that sometimes they feel sick and their activities are slightly disturbed due to diabetes, and it interferes with the physical comfort of the respondents. This is because there are comorbidities such as hypertension and cramps in the legs, so it is difficult to do daily activities.

## Method

This study uses a quantitative research type with a correlational research design and a cross-sectional approach. The population in this study were diabetes mellitus sufferers at the Banjarbaru Selatan Health Center in January-April 2023. The sampling technique used in this study was probability sampling with a simple random sampling type. The inclusion criteria in this study were diabetes mellitus sufferers registered in the Banjarbaru Selatan Health Center area who could communicate well. The exclusion criteria in this study were diabetes mellitus sufferers who had died and moved house and diabetes mellitus sufferers who were unwilling to be research respondents. The respondents in this study were 40 people.

The measuring instrument used in this study was the SDSCA (The Summary of Diabetes Self-Care

Activities) questionnaire to determine self-care management consisting of 14 questions. It used the DQOL (Diabetes Quality of Life) questionnaire to determine the quality of life of diabetes mellitus sufferers, consisting of 12 questions.

The univariate analysis used respondent characteristics using descriptive statistics in tables, including gender data, level of education complications, type of work displayed in the distribution table, frequency, and percentage. The age and duration of suffering data use descriptive statistics, which aim to show the mean, median, min-max, and standard deviation. The normality test used is the Shapiro-Wilk test. Bivariate analysis uses the Pearson correlation test.

Researchers provide informed consent to respondents as a statement of willingness to become research respondents. This study has obtained ethical approval from the Health Research Ethics Commission (KEPK) of the Faculty of Medicine and Health Sciences, Lambung Mangkurat University (No. 432/KEPK-FK ULM/EC/XI/2023)

## Results And Discussion

**Table 1.** Distribution of Respondents Based on Characteristics of Respondents with Diabetes Mellitus in the South Banjarbaru Health Center Area (n=40)

Respondent Characteristics	Frequency	Percentage	Mean	Min-max	Std. Deviation
Age	-	-	59.48	31-80	10,402
Long Suffering	-	-	5.58	1-32	6,524
Gender					
Man	13	32.5 %	-	-	-
Woman	27	67.5 %	-	-	-
Level of education					
No school	1	2.5%	-	-	-
SD	14	35.0 %	-	-	-
Junior High School	4	10.0 %	-	-	-
Senior High School	14	35.0 %	-	-	-

Pt	7	17.5 %	-	-	-
Work					
civil	4	10.0 %	-	-	-
servant					
Private	6	15.0 %	-	-	-
Doesn't	2	5.0%	-	-	-
work					
Housewife	23	57.5 %	-	-	-
Other	5	12.5 %	-	-	-
Complicati ons					
There is	26	65.0 %	-	-	-
There isn't	14	35.0 %	-	-	-
any					

Based on Table 1, the results of this study indicate that of the 40 respondents studied, diabetes mellitus sufferers in the South Banjarbaru Health Center Area mostly suffered by the age group with an average of 59.48 years with the lowest age value being 31 and the highest age being 80. Most respondents were female, as many as 27 people (67.5%). As many as 14 people (35.5%) had a history of elementary school and high school education, as many as 14 people (35.5%), and as many as 23 people (57.5%) worked as housewives. Based on the duration of suffering, most had suffered from diabetes mellitus for an average of 5.58 years, with the lowest total score being 1 and the highest score being 32. More respondents experienced complications, as many as 26 people (65.0%).

**Table 2.** Relationship Analysis *Care Management* with the Quality of Life of Diabetes Mellitus Patients in the South Banjarbaru Health Center Area (n=40)

	Me an	Medi an	Stand ard Deviat ion	Mi n- Ma x	P Val ue	Pearson Correla tion
<i>Self-care manage ment</i>	4.9 4	5.10	1.06	2.8 -7	0.0 78	0.078
Quality of life	44. 52	44.0 0	5.61	32- 56		

Table 2 shows that the average self-care management behaviour of diabetes mellitus sufferers in

the South Banjarbaru Health Center area is 4.94 days, the lowest number of days is 2.8 days, and the highest is 7 days. Based on the Quality of Life, the average quality of life of diabetes mellitus sufferers in the Banjarbaru Selatan Health Center area is 44.52, with the lowest total score of 32 and the highest score of 56. Based on the results of statistical tests using the Pearson correlation test, the results show  $p\text{-value} > \alpha$  ( $0.078 > 0.05$ ) and Pearson correlation ( $r$ ) of 0.282, so it can be concluded that there is no relationship between self-care management and the quality of life of diabetes mellitus sufferers in the Banjarbaru Selatan Health Center area with a positive relationship direction, which means that when self-care management increases, the quality of life of diabetes mellitus sufferers will also increase and vice versa.

Respondent characteristics are based on age; the average age of respondents suffering from diabetes mellitus in the South Banjarbaru Health Center area is 59.48 years. The age range of respondents was 31-80 years. Wang & Shius (2004) (Kusniawati, 2011) explained that diabetes mellitus sufferers over 60 years old have better diabetes self-care. This is because as age increases, the level of maturity of a person's rational thinking will increase about the benefits obtained if they do self-care regularly for everyday life. Researchers assume that as age increases, the understanding and experience of each diabetes mellitus sufferer will increase in self-care management behaviour.

The results of the study on gender showed that most of the diabetes mellitus sufferers were female, as many as 27 people (67.5%). Women physically have the opportunity for an increasing body mass index (BMI), which can reduce the sensitivity of insulin response. Research by Ningrum et al. (2019) stated that men have better self-care management skills than women. This is because a man is responsible for checking on the disease he is experiencing, and women must pay attention to maintaining their health. When someone is enthusiastic and motivated to control self-care activities in everyday life, this behaviour will become a habit. (Herwanti & Lalang, 2022).

Based on the level of education obtained, 14 people (35.5%) each had their last education at elementary school and high school. In line with the research of Yulisetyaningrum et al. (2018), the number of research respondents was 38. It was stated that most respondents with diabetes mellitus had an elementary school education of 13 people

(34.2%), and 12 (31.6%) had a high school education. A high level of education has a high level of knowledge and awareness in maintaining health.(Pahlawati & Nugroho, 2019). Effective self-care management can be achieved if a person has the skills and knowledge to manage diabetes mellitus independently.(Falah et al., 2023). According to researchers, the higher a person's education level, the easier it is for them to receive information to understand self-care behaviour well.

Most respondents work as housewives, as many as 23 people (57.5%). The results of the study Fitrina et al. (2022) stated that the majority of respondents worked as housewives (IRT), as many as 48 people (53.3%). Diabetes mellitus often occurs in homemakers due to various causal factors, including unhealthy lifestyles, lack of knowledge about the disease, non-compliance with diabetes management, and lack of physical activity or exercise.(Agustina, Meldy Rika et al., 2017). The type of work done daily also affects a person's busyness, which affects self-care activities. High busyness will affect the inaccuracy of meal times and medication intake, lack of time to exercise, and even prevent someone from checking blood sugar levels regularly. In addition, dense work can trigger a person's stress, affecting health patterns in dealing with complications caused by diabetes mellitus(Adimuntja, 2020). Researchers assume that work can affect someone's self-care management behaviour. Suppose a homemaker is busy with work at home. In that case, it will affect self-care management, such as forgetting to take medicine, not regulating diet, not having time to control blood sugar, and rarely exercising.

Based on the duration of suffering, most have suffered from diabetes mellitus for an average of 5.58 years, with the lowest duration of suffering being 1 year and the highest duration of suffering being 32 years. Research results Mildawati et al. (2019) stated that the average duration of suffering from diabetes mellitus is 5 years, with the lowest duration of suffering being 1 year and the highest being 12 years. The longer the patient suffers from diabetes mellitus, the higher the risk of complications.(Mildawati et al., 2019). In line with research said that the longer you suffer from diabetes mellitus >5 years, the more likely you are to experience complications if you have bad lifestyle habits. So that people with diabetes mellitus can do self-care management or self-care independently to control blood sugar levels within normal limits. Research results Febriana (2022) stated that there is a significant relationship between the duration of suffering and self-care management of diabetes

mellitus sufferers. Sufferers who have had diabetes mellitus for a long time have good self-care management. This is because they understand the importance of self-care management behaviour for diabetes mellitus sufferers.

The majority of respondents experienced complications, as many as 26 people (65.0%), and those who did not experience complications were 14 people (35.0%). In line with the research by Hariani et al. (2020), most respondents had complications of diabetes mellitus, as many as 32 people (56.1%), from a total of 57 respondents. Complications are a decline in a person's health, which is characterized by various medical conditions that have the potential to cause death or higher levels of disability later on.(Yamin et al., 2018). From the results of the study, it was found that the complications experienced by diabetes mellitus sufferers are hypertension, heart attacks, cholesterol, kidney failure, and stroke. According to research conducted by Hartono (2019), complications are related to self-care management, where complications are influenced by the sufferer's good or bad self-care management. Diabetes mellitus sufferers who have good self-care management will have a decreased risk of complications, and vice versa. If they do not have good self-care management, the risk of complications will increase. (Fadilla et al., 2023).

Diabetes mellitus is a chronic disease that requires treatment, self-care education, and ongoing support to prevent acute or chronic complications that can affect the quality of life of sufferers.(Hastuti et al., 2019). Prevention is done by applying the basic principles of diabetes management, including lifestyle changes, changing unhealthy lifestyles to healthy ones through regulating eating patterns (diet), physical activity or exercise, monitoring blood sugar, foot care, and compliance with antidiabetic drugs.(Asnanar & Safruddin, 2019).

Based on the analysis results in Table 3, the average self-care management of diabetes mellitus in the Banjarbaru Selatan Health Center area from 40 respondents was 4.94 days, with the lowest average total value of self-care being 2.8 days and the highest being 7 days. Self-care is a behaviour that emphasizes the role and responsibility of individuals in managing their illness.(Galuh & Prabawati, 2021). The study's results on self-care showed that respondents regulated their diet, medical therapy, and foot care. However, in terms

of physical activity and blood sugar monitoring, respondents were still lacking in doing so.

Physical activity found that the average diabetes mellitus sufferers in the South Banjarbaru Health Center area did physical activity in the last week for 20-30 minutes/day, which is 2.30 days/week. This shows that as many people have not done this physical activity, as many as 15 (37.5%). Researchers assume that physical activity can help maintain blood sugar within normal limits. The effect of physical activity or exercise is directly related to the increase in the rate of muscle glucose recovery (how much muscle absorbs glucose from the blood). During exercise, muscles use glucose stored in the muscles, and if glucose levels are low, muscles take glucose from the blood to fill the gap. This will result in lower blood sugar levels and improved blood sugar control.(Purnama & Sari, 2019).

Blood sugar monitoring found that the average number of diabetes mellitus sufferers in the Banjarbaru Selatan Health Center area who checked their blood sugar at health services or independently at home was 2.6 days/week. Diabetes mellitus sufferers rarely check their blood sugar levels due to not having their blood sugar testing equipment at home and paying less attention to their health. So, it is not uncommon for people living with diabetes to only check their blood sugar levels at health services when their body condition worsens. For blood sugar monitoring, diabetes mellitus sufferers must know that regular blood glucose monitoring is very important for diabetes mellitus sufferers. Glucose monitoring is the cornerstone of diabetes care that can ensure patients maintain themselves or achieve and maintain certain glycemic targets.(Rahman et al., 2023). According to researchers, self-care management is very important to be understood and carried out by diabetes mellitus sufferers to maintain blood glucose within normal limits to prevent complications.

The implementation of self-care is certainly influenced by various factors that affect a person's compliance in carrying out self-care. Factors that influence the implementation of self-care management in people with diabetes mellitus are a person's ability to understand and obtain information and obtain the health services they need and, of course, get support from family members during the implementation process.(Sabil et al., 2019). Researchers assume that knowledge about self-care is very important for people with diabetes mellitus. Because diabetes mellitus is a chronic disease that can only be optimized with good knowledge, management in the care of diabetes mellitus patients can be carried out optimally.

Quality of Life is an individual's perception of the situation they are experiencing and refers to mental, physical, and social health.(Pranata et al., 2022). The quality of life of diabetes mellitus sufferers is satisfaction and happiness, especially for diabetes mellitus sufferers.(Yudianto et al., 2008). In research Irawan et al. (2021) stated that the factors that influence the quality of life of diabetes mellitus sufferers are gender, length of suffering, knowledge, anxiety, stress, and self-care.

Table 2 shows that the average quality of life of diabetes mellitus sufferers in the Banjarbaru Selatan Health Center area from 40 respondents is 44.52, with the lowest total answer score of 32 and the highest total answer score of 56. The decrease in quality of life in diabetes mellitus sufferers is caused by sufferers not consistently carrying out self-management, which can affect physical health, psychosocial health, and relationships with the surrounding environment. (Luthfa & Fadhillah, 2019). Many studies have shown that self-care improves the quality of life by reducing pain, anxiety, and fatigue, increasing patient satisfaction, and reducing the use of healthcare facilities by reducing the number of doctor visits, home visits, medication use, and length of hospital stay.(Asnanian & Safruddin, 2019).

The research results on the quality of life of diabetes mellitus sufferers in the South Banjarbaru Health Center area were obtained using the Diabetes Quality of Life (DQOL) questionnaire, which consisted of satisfaction, impact, and concerns. The quality of life of diabetes mellitus sufferers is based on the sub-item of respondent satisfaction. Sufferers still sometimes eat foods that diabetes mellitus sufferers should not eat. Food is one of the factors of glycemic response to the type of food, its processing, production process, and the nutritional composition contained in daily food portions, be it carbohydrates, protein, and fat. Therefore, regulating diet is an important pillar in treating and preventing diabetes(Suciana & Arifianto, 2019). During the interview, respondents said that they sometimes still like to eat foods high in sugar and fat.

According to the author, physical activities such as daily and regular physical exercise 3-4 times a week for approximately 30 minutes are among the steps in managing diabetes mellitus. It is said that moderate physical activities include gardening, brisk walking, leisurely cycling, and regular swimming. Heavy physical activities

include soccer, stairs, jogging, swimming, and uphill cycling.

Quality of life of diabetes mellitus patients based on sub-items of disease impact. Diabetes patients sometimes feel physically ill. This is because some diabetes mellitus patients also have complications. Sometimes, feeling physically ill, such as joint pain in the feet and tingling, are the impacts of high blood sugar levels. Respondents realize this if they forget their medication schedule and do not maintain their diet. To overcome this, diabetes mellitus patients need to grow compliance in taking medication and compliance in maintaining their diet.

The effects of the disease felt by sufferers disturb their sleep quality. Sufferers cannot fall asleep quickly, so they sleep late at night and wake up at dawn. This results in fatigue during activities due to lack of sleep. Other impacts felt are joint pain and tingling in the feet, making them uncomfortable. Researchers assume that if self-care management is carried out properly, it can improve the quality of life of diabetes mellitus sufferers, where sufferers will feel satisfied and happy. Self-care carried out properly, correctly, and regularly can prevent complications affecting their quality of life.

Self-care management can be a burden for people with diabetes mellitus due to lifestyle changes and adjusting to changes in daily activities.(Rantung et al., 2015). According to(Sabil et al., 2019), factors influencing self-care management are health literacy, family support, and self-efficacy. The study shows no relationship between self-care management and the quality of life of diabetes mellitus sufferers. The results of this study indicate that several factors that influence self-care and quality of life are education and psychological levels. Istianah, 2020, conducted research titled The Relationship between Self-care and the Quality of Life of diabetes mellitus patients in the Karang Pule Health Center work area, Mataram City. The results show several factors influencing self-care abilities: age, knowledge, occupation, and duration of suffering. The factors that influence the quality of life of diabetes patients are age, type of education, and duration of suffering. Patients in the elderly age category have a good quality of life because they can adapt to their illness. The higher the education, the higher the rationality. The longer you have diabetes, the more complications it triggers(Anggraini & Prasillia, 2021).

Several aspects can affect the quality of life; these aspects are the existence of special needs that are

continuously ongoing with diabetes mellitus care, what symptoms may appear when blood sugar levels are unstable, complications that arise as a result of diabetes, and sexual dysfunction.(Chaidir et al., 2017). Diabetes mellitus sufferers carry physical and psychological burdens related to having feelings of helplessness, discomfort, and anxiety, even to the point of despair and depression and diabetes mellitus sufferers it is very important how they manage the disease and maintain their health in the long term to see the level of anxiety they have to achieve a good quality of life.(Wahyuni et al., 2013)

The process of the disease suffered by respondents affects their quality of life, where the disease that has been suffered from year to year causes despair in carrying out treatment for the disease accompanied by complications that can hurt their quality of life. In addition, low knowledge causes respondents to lack understanding of the treatment needed, making them feel despair(Roifah, 2017).

The researcher assumes that self-care is very important for people with diabetes mellitus to control blood sugar within normal limits. Their lack of perception of self-care management is because in carrying out self-care management, there are still sufferers who do not carry out several components of self-care, such as physical activity and blood sugar control. And other factors cause self-care not to be carried out regularly, including lack of family support and self-motivation.

## Conclusion

The conclusion of the results of this study related to the relationship between self-care management and the quality of life of diabetes mellitus patients in the Banjarbaru Selatan Health Center area is that self-care management in 40 respondents with diabetes mellitus obtained an average value of 4.94 days with the lowest number of days being 2.8 days. The highest number of days is 7 days. The quality of life of 40 respondents with diabetes mellitus obtained an average value of 44.53, with the lowest value of 32 and the highest of 56. There is no relationship between self-care management and the quality of life of diabetes mellitus patients in the Banjarbaru Selatan Health Center area.

## Suggestion

Suggestions for respondents to maintain and improve good self-care management by regulating diet, physical activity, monitoring blood sugar levels, drug therapy, and foot care so as not to cause complications that can worsen diabetes mellitus sufferers. It is hoped that families will play a more active role in supporting respondents so they stay enthusiastic.

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