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RELATIONSHIP BETWEEN QUALITY OF LIFE AND SELF-MANAGEMENT IN TYPE 2 DIABETES MELLITUS PATIENTS

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ABSTRACT

Background: Type 2 Diabetes Mellitus (T2DM) is a chronic disease requiring lifelong self-management to achieve optimal glycemic control, prevent complications, and improve quality of life. Effective self-management is considered a cornerstone of diabetes care; however, patients' adherence to self-care behaviors remains inconsistent. Therefore, investigating the relationship between self-management and quality of life is essential for improving patient-centered diabetes care. **Methods**: A quantitative analytical study with a cross-sectional design was conducted among 50 patients with Type 2 Diabetes Mellitus selected using purposive sampling. Self-management was assessed using the Summary of Diabetes Self-Care Activities (SDSCA) questionnaire, while quality of life was measured using the Diabetes Quality of Life (DQOL) questionnaire. Data were analyzed using Spearman's rank correlation test with a significance level of 0.05. **Results** : Most participants demonstrated a moderate level of self-management (56.0%) and a moderate quality of life (60.0%). Spearman's rank correlation analysis revealed a statistically significant positive relationship between self-management and quality of life (Spearman's rho = 0.575; $p < 0.001$). The moderate positive correlation indicates that patients with better self-management behaviors tend to report a better quality of life. **Conclusion:** Self-management is significantly associated with quality of life among patients with Type 2 Diabetes Mellitus. Strengthening diabetes self-management education, continuous nursing support, and family involvement may improve patients' self-management abilities and contribute to better quality of life.

Keywords: Diabetes Mellitus, Self-management, Quality of Life, Type 2 DM

INTRODUCTION

Type 2 diabetes mellitus (DM) is a non-communicable disease that poses a major public health challenge worldwide. This disease is characterized by chronic hyperglycemia due to insulin resistance and/or progressive insulin secretion disorders. If not properly managed, type 2 DM can lead to various microvascular and macrovascular complications, such as retinopathy, nephropathy, neuropathy, coronary heart disease, and stroke, which result in increased morbidity and mortality, and increased healthcare costs(Journal & Clinical, 2023); World Health Organization [WHO], 2024). It has become a major global public health issue, particularly among the elderly population. The prevalence of diabetes continues to increase globally, with older adults being disproportionately affected due to age-related physiological changes, including decreased insulin sensitivity and pancreatic beta-cell function (Federation International Diabetes, 2025)

According to the International Diabetes Federation (IDF), the global number of diabetes cases reached 589 million, with 215 million in the Western Pacific region, including Indonesia. The prevalence of diabetes in Indonesia is projected to reach 11.3% by 2024, with the number of adult cases reaching 20,426,400 (International Diabetes Federation, 2025). The IDF estimates that Indonesia has approximately 20.4 million adults aged 20–79 with diabetes in 2024, with an age-standardized prevalence of around 11.3%; Indonesia ranks fifth globally in

terms of the number of adults with diabetes (International Diabetes Federation, 2025). Meanwhile the estimated number of diabetes sufferers in East Java aged 15 years and older is 882,315, consisting of 882,315 people (East Java Health Office, 2024). The prevalence of diabetes in Bojonegoro Regency was 25,280 in 2024, while it reached 24,598 in 2023, indicating an increase in diabetes cases (Bojonegoro, 2024).

Diabetes mellitus management focuses not only on controlling blood glucose levels but also on maintaining the patient's quality of life. Quality of life is an individual's perception of their physical, psychological, social, and environmental conditions throughout their life. In patients with type 2 diabetes, quality of life often declines due to activity limitations, dependence on long-term therapy, the emergence of complications, anxiety about the disease, and lifestyle changes that must be addressed throughout life. This decline in quality of life not only impacts physical health but also affects productivity, psychological well-being, and the economic burden on patients and their families (WHO, 2024; Teli et al., 2023).

The capacity to practise self-management is one of the elements that significantly contributes to the improvement of diabetes patients' quality of life. Self-management is the capacity of an individual to independently manage their illness through nutrition, exercise, medication compliance, blood glucose monitoring, foot care, and disease-related problem-solving techniques. For patients with type 2 diabetes mellitus, effective self-management has been demonstrated to improve glycaemic control, increase drug adherence, lower the risk of complications, and improve quality of life (American Association of Diabetes Care & Education Specialists, 2023; Polsook et al., 2024).

Even though self-management is an essential part of managing type 2 diabetes mellitus, patients' ability to use it effectively continues to be a problem in the management of chronic illness. Previous research suggests that self-management practices may be connected to a number of patient outcomes, such as quality of life and glycaemic control. However, due to the influence of variables like population characteristics, the type of intervention, the particular self-management domains addressed, and the healthcare context, research findings regarding the impact of—or relationship between—self-management and quality of life are not totally consistent. Various studies have shown that self-management has a positive relationship with various health outcomes in diabetes patients. A systematic review and meta-analysis conducted by Polsook et al. (2024) showed that diabetes self-management programs significantly impacted self-care behaviors, blood glucose control, and patients' quality of life. Similarly, a systematic review conducted by Teli et al. (2023) reported that the quality of life of diabetes patients is influenced by various factors, including sociodemographic characteristics, disease complications, family support, self-efficacy, and self-management behavior. These research results indicate that self-management is an important determinant in improving health-related quality of life in patients with type 2 diabetes mellitus.

However, research on the relationship between self-management and quality of life in diabetes patients in Indonesia still produces mixed results. Most studies focus on the effect of self-management on blood glucose control or self-efficacy, while research specifically evaluating the relationship between self-management and quality of life in local populations is relatively limited. Furthermore, sociocultural characteristics, education levels, access to health services, and family support vary across regions, leading to variations in research results.

Findings from other regions may not be generalizable to the population in Bojonegoro Regency (Suniyadewi et al., 2023)

Dr. R. Sosodoro Djatikoesoemo Regional General Hospital in Bojonegoro is a referral hospital that treats a significant number of patients with type 2 diabetes mellitus each year. Patients undergoing treatment at the hospital have diverse clinical and social characteristics, requiring scientific evidence on the relationship between self-management and quality of life as a basis for developing more effective educational programs and nursing interventions. This information is expected to assist healthcare workers, particularly nurses, in developing self-management-based educational approaches to improve the quality of life of patients with type 2 diabetes mellitus.

Additionally, the growing prevalence of diabetes in Indonesia highlights the significance of a strategy that emphasises patients' capacity to autonomously manage their condition. According to the 2023 SKI data, 11.7% of people aged 15 and older had diabetes based on blood glucose measurements, which is far greater than the 2.2% prevalence based on medical diagnoses. This circumstance draws attention to a deficiency in the community's detection and treatment of diabetes. Given that successful diabetes care depends not only on attaining metabolic control but also on the patient's capacity to sustain everyday functioning and well-being, it is imperative to comprehend the relationship between self-management and quality of life.Based on the description, there is still a research gap regarding the relationship between self-management and quality of life in type 2 diabetes mellitus patients in the local population in Indonesia. Therefore, this study aims to analyze the relationship between self-management and quality of life in type 2 diabetes mellitus patients undergoing outpatient treatment at Dr. R. Sosodoro Djatikoesoemo Regional General Hospital, Bojonegoro

METHODS

This study employed a quantitative research design with a correlational analytical approach through a cross-sectional design. This approach was used to analyze the relationship between self-management as the independent variable and quality of life as the dependent variable at a single measurement point. Before conducting the research, an ethics test was carried out at the Faculty of Nursing, Universitas Airlangga to obtain *ethical approval* with the code of ethics 5/2/R/2024

Diabetes self-management was assessed using the *Summary of Diabetes Self-Care Activities* (SDSCA). The instrument evaluates the frequency of diabetes self-care activities performed during the previous seven days, including general diet, specific diet, physical activity, blood glucose testing, and foot care. Smoking behavior is assessed separately. Responses for most items are recorded as the number of days (0–7 days) on which the activity was performed, with higher scores indicating better adherence to self-care activities. SDSCA scores are generally evaluated according to their respective domains/subscales. The original instrument does not provide universally established cut-off points for categorizing diabetes self-management as good, moderate, or poor.

Health-related quality of life was assessed using the 46-item Diabetes Quality of Life (DQOL-46) questionnaire. The instrument consists of 46 items across four domains: satisfaction with

diabetes-related quality of life (15 items), diabetes-related impact (20 items), diabetes-related worries (4 items), and social/vocational worries (7 items). Each item is rated on a 5-point Likert scale, resulting in a total score ranging from 46 to 230. In contrast to the SDSCA, a lower DQOL score indicates better quality of life, whereas a higher score indicates poorer quality of life.

The study was conducted at the Internal Medicine Polyclinic of Dr. R. Sosodoro Djatikoesoemo Regional Hospital, Bojonegoro, East Java. Data collection began in June 2025. The study population consisted of all outpatients with type 2 diabetes mellitus (DM) at the Polyclinic of Dr. R. Sosodoro Djatikoesoemo Regional Hospital, Bojonegoro. The sampling technique used purposive sampling, selecting respondents based on specific criteria established by the researcher. A total of 50 respondents met the inclusion criteria. Inclusion criteria included: patients diagnosed with type 2 diabetes mellitus based on medical records, 18 years or older, undergoing outpatient treatment, able to communicate effectively, willing to participate by signing an informed consent form. A total sampling approach was used in this study. All patients with diabetes mellitus who met the predefined inclusion and exclusion criteria during the study period were invited to participate. A total of 50 eligible patients were identified and included in the study; therefore, the final sample consisted of 50 participants.

RESULTS

A total of 50 type 2 diabetes mellitus (DM) patients who met the inclusion criteria participated in this study. The analysis of the study results included respondent characteristics, distribution of self-management, distribution of quality of life, and the relationship between self-management and quality of life.

Table 1. Table of respondent characteristics

Characteristics	Frequency (n)	Persentage (%)
Age		
40–45 years	24	48,0
46–60 years	15	30,0
>60 years	11	22,0
Occupation		
Private	28	56,0
Teachers/Civil Servants	10	20,0
Traders	7	14,0
Farmers	5	10,0
Long-term DM suffering		
1–5 years	12	24,0
6–10 years	24	48,0
>10 years	14	28,0
Education		
Elementary School	14	28,0
Junior High School	19	38,0

Characteristics	Frequency (n)	Persentage (%)
Senior High School	10	20,0
Bachelor's degree	7	14,0

Based on Table 1, the majority of respondents were in the 40–45 age group (24 respondents (48.0%). Based on occupation, the majority of respondents worked in the private sector (28 respondents (56.0%). The longest duration of diabetes was in the range of 6–10 years (24 respondents (48.0%). Based on education level, the majority of respondents had junior high school education (19 respondents (38.0%)

Table 2. Table of Distribution of Self-Management of Type 2 DM Patients

Self-management	Frequency (n)	Persentage (%)
Good	15	30,0
Moderate	28	56,0
Poor	7	14,0

The results of the study showed that the majority of respondents had a sufficient level of self-management, namely 28 respondents (56.0%), while 15 respondents (30.0%) were in the good category and 7 respondents (14.0%) were in the poor category.

Table 3. Table of Distribution of Quality life of Type 2 DM Patients

Quality of Life	Frequency (n)	Persentage (%)
Good	13	26,0
Moderate	30	60,0
Poor	7	14,0

Most of the respondents had a quality of life in the sufficient category, namely 30 respondents (60.0%), followed by a good category of 13 respondents (26.0%) and a poor category of 7 respondents (14.0%).

Table 4. The Relationship Between Self-Management and Quality of Life in Type 2 DM Patients

			The Quality of life			
			Good	Moderate	Poor	Total
Self-Management	Good	Count	7	8	0	15
		% of Total	14%	16%	0%	30%
	Moderate	Count	6	20	2	28
		% of Total	8%	44%	4%	56%
	Poor	Count	0	2	5	7
		% of Total	0%	4%	10%	14%
Total		Count	13	30	7	50
		% of Total	22%	64%	14	100.0%

Spearman Rho test ρ value = 0,000 (α < 0,05) r : 0,575

Analysis using the Spearman Rank test showed a value of r = 0.575 with p < 0.001. These results indicate a statistically significant relationship between self-management and the quality of life of type 2 Diabetes Mellitus patients. The correlation coefficient value of 0.575 indicates

a positive relationship with moderate correlation strength, which indicates that the better the self-management a patient has, the better the patient's quality of life tends to be.

DISCUSSION

The present study found that more than half of the respondents (56.0%) demonstrated a moderate level of diabetes self-management. This finding indicates that although most patients have adopted several recommended self-care behaviors, their adherence remains insufficient to achieve optimal diabetes management. Effective self-management requires consistent implementation of multiple components, including dietary regulation, regular physical activity, medication adherence, blood glucose monitoring, and foot care. Failure to perform these behaviors consistently may contribute to poor glycemic control and increase the risk of long-term complications.

The moderate level of self-management observed in this study may be explained by several demographic and psychosocial characteristics of the participants. Most respondents had completed only junior high school education, worked in the private sector, and had lived with diabetes for six to ten years. Educational attainment plays an essential role in improving health literacy, enabling patients to understand disease management recommendations and make appropriate health-related decisions. Likewise, occupational demands may reduce the time available for physical exercise, meal planning, and routine medical follow-up, thereby limiting patients' ability to perform adequate self-care behaviors.

These findings are consistent with the study conducted by Ningrum et al. (2019), which reported that diabetes self-management is influenced by educational level, knowledge, motivation, and family support. Patients with higher educational backgrounds generally possess better health literacy and are more capable of implementing recommended lifestyle modifications. Furthermore, a systematic review by Polsook et al. (2024) concluded that structured diabetes self-management interventions significantly improve self-care behaviors, glycemic control, and overall health outcomes among patients with type 2 diabetes mellitus.
Another possible explanation is the long duration of diabetes experienced by many respondents. Although patients who have lived longer with diabetes may accumulate greater experience in disease management, prolonged treatment can also lead to treatment fatigue, reduced motivation, and declining adherence to self-care activities. Therefore, continuous education and regular reinforcement from healthcare professionals remain essential to maintain patients' motivation and adherence throughout the course of the disease.

Quality of Life Among Patients with Type 2 Diabetes Mellitus

This study demonstrated that most respondents (60.0%) reported a moderate level of quality of life. Diabetes mellitus is a chronic disease that affects multiple aspects of an individual's life, including physical functioning, emotional well-being, social relationships, and daily activities. Consequently, quality of life has become one of the most important indicators for evaluating diabetes management beyond glycemic control alone.

Several factors may explain the moderate quality of life observed among participants. Most respondents were middle-aged adults and had been diagnosed with diabetes for more than five years. Aging is associated with progressive physiological decline, increased insulin

resistance, and a higher prevalence of diabetes-related complications, all of which may negatively affect physical functioning and psychological well-being. Furthermore, living with a chronic illness requires continuous lifestyle adjustments and long-term medication adherence, which may contribute to emotional stress and reduced life satisfaction.

The findings are consistent with the systematic review conducted by Teli et al. (2023), which identified demographic characteristics, disease duration, complications, self-efficacy, and self-management behaviors as major determinants of health-related quality of life among individuals with type 2 diabetes mellitus. Similarly, Suniyadewi et al. (2023) reported that glycemic control, family support, diabetes education, and self-care practices are among the strongest predictors of quality of life in Indonesian patients with diabetes.

From a nursing perspective, quality of life should not be viewed solely as a consequence of clinical outcomes but also as a multidimensional indicator reflecting patients' adaptation to chronic illness. Healthcare professionals should therefore integrate psychological support, family involvement, and patient-centered education into routine diabetes care to enhance overall well-being. In another aspect, these results are in line with research conducted by Alfaqih (2026), regarding blood sugar levels and sleep quality in DM patients, which states that sleep quality can be influenced by uncontrolled blood glucose levels, this is also a predisposing factor for self-management and quality of life in DM patients.

Relationship Between Self-Management and Quality of Life

The principal finding of this study is the significant positive correlation between diabetes self-management and quality of life (Spearman's rho = 0.575, $p < 0.001$). This result indicates that patients who demonstrate better self-management behaviors tend to experience a better quality of life. The correlation coefficient suggests a moderate positive relationship, emphasizing that self-management represents an important determinant of patients' perceived well-being.

Several mechanisms may explain this association. Effective self-management promotes better glycemic control, reduces the occurrence of acute and chronic complications, improves physical functioning, and enhances psychological confidence in managing the disease. Patients who actively participate in their own care are more likely to perceive greater control over their health, resulting in reduced anxiety and improved emotional well-being. Consequently, improvements in self-management behaviors may positively influence multiple domains of quality of life.

The present findings are consistent with previous studies. Prastyo (2021) reported a significant association between diabetes self-management and quality of life among patients receiving primary healthcare services. Likewise, Luthfa and Fadhilah (2019) demonstrated that patients with higher levels of self-management exhibited significantly better quality of life. More recently, Susilowati et al. (2024) highlighted the important contribution of family support in strengthening diabetes self-management, which subsequently improved patients' quality of life.

The findings also support the theoretical framework proposed by the American Association of Diabetes Care and Education Specialists (ADCES), which identifies healthy eating, physical activity, medication adherence, blood glucose monitoring, healthy coping,

problem-solving, and risk reduction as the seven essential self-care behaviors for successful diabetes management. Consistent implementation of these behaviors contributes not only to improved metabolic outcomes but also to better psychosocial adaptation and life satisfaction. From a clinical perspective, these findings suggest that nursing interventions should focus on strengthening patients' self-management competencies through structured diabetes self-management education (DSME), individualized counseling, motivational interviewing, and family-centered interventions. Regular educational programs and continuous follow-up may improve patients' confidence, adherence, and self-efficacy, ultimately leading to sustainable improvements in quality of life.

One of the strengths of this study is the use of validated instruments (SDSCA and DQOL) to evaluate both self-management and quality of life among patients with type 2 diabetes mellitus. Nevertheless, several limitations should be acknowledged. The cross-sectional design prevents causal inference, the relatively small sample size limits generalizability, and data were collected from a single hospital, which may not represent the broader diabetic population. Future longitudinal and multicenter studies involving larger samples are recommended to confirm these findings and explore additional factors, such as family support, diabetes distress, self-efficacy, and health literacy, that may influence the relationship between self-management and quality of life.

CONCLUSIONS

This study demonstrated a significant positive relationship between self-management and quality of life among patients with type 2 diabetes mellitus. Most participants exhibited moderate levels of self-management and quality of life, indicating that diabetes self-care practices have not yet been optimally implemented. The findings suggest that patients who perform better self-management behaviors tend to experience a higher quality of life. These results emphasize the importance of strengthening diabetes self-management as a fundamental component of comprehensive diabetes care. Continuous education, individualized counseling, regular follow-up, and family involvement should be integrated into nursing interventions to improve patients' self-management skills and promote better long-term health outcomes.

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