

# THE IMPACT OF SELF-CARE MANAGEMENT IMPLEMENTATION ON QUALITY OF LIFE IN INDIVIDUALS WITH TYPE 2 DIABETES

## *Implementasi Self-Care Management dan Pengaruhnya Terhadap Kualitas Hidup Pada Individu Dengan Diabetes Mellitus Tipe 2*

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### ABSTRACT

*Type 2 Diabetes Mellitus (T2DM) is a non-communicable disease that is becoming widespread worldwide, particularly in Indonesia. This illness might diminish patients' quality of life due to complications and treatment challenges. A crucial approach in the management of type 2 diabetes mellitus is self-care management, which includes food restriction, physical activity, blood glucose monitoring, medication adherence, and foot care. This study is to examine the correlation between self-care management practices and the quality of life in persons with type 2 diabetes mellitus. The study used a cross-sectional design with 58 individuals in the Chronic Disease Management Program (Prolanis) at Fauziah Clinic, Makassar. The instruments used included the Summary of Diabetes Self-Care Activities (SDSCA) questionnaire for evaluating self-care behaviour and the Diabetes Quality of Life (DQOL) instrument for assessing patients' quality of life. The results revealed that 55.2% of individuals demonstrated proficient self-care management, whereas 56.9% assessed their quality of life as excellent. Bivariate analysis demonstrated a significant association between self-care management and quality of life ( $p$ -value = 0.005). This study suggests that proficient self-care management significantly improves the quality of life for individuals with type 2 diabetes mellitus. Health education, familial support, and consistent monitoring services are crucial for enhancing patient compliance with self-management.*

**Keyword:** *diabetes mellitus type 2; health education; quality of life; self-care management*

### ABSTRAK

Diabetes Mellitus tipe 2 (DM tipe 2) merupakan penyakit tidak menular yang jumlahnya meningkat secara global, tidak terkecuali di Indonesia. Diabetes mellitus dapat mempengaruhi kualitas hidup pasien akibat komplikasi yang timbul dan tantangan dalam pengelolaannya. Salah satu pendekatan penting dalam penanganan DM tipe 2 adalah self-care management, yang mencakup pengaturan diet, aktivitas fisik, kontrol gula darah, kepatuhan dalam mengonsumsi obat, serta perawatan kaki. Tujuan penelitian ini yaitu untuk menganalisis hubungan antara penerapan manajemen perawatan diri dan kualitas hidup pasien DM tipe 2. Penelitian ini adalah penelitian cross-sectional dengan 58 responden yang mengikuti Program Pengelolaan Penyakit Kronis (Prolanis) di Klinik Fauziah, Makassar. Instrumen yang digunakan termasuk kuesioner Summary of Diabetes Self-Care Activities (SDSCA) untuk mengukur perilaku perawatan diri, dan Diabetes Quality of Life (DQOL) untuk menilai kualitas hidup pasien. Didapatkan 55,2% responden memiliki manajemen perawatan diri yang baik, dan 56,9% melaporkan kualitas hidup yang baik. Analisis



bivariat menunjukkan adanya hubungan signifikan antara manajemen perawatan diri dan kualitas hidup (nilai  $p = 0,005$ ). Penerapan manajemen perawatan diri yang baik secara signifikan berkontribusi terhadap peningkatan kualitas hidup pasien DM tipe 2. Edukasi kesehatan, dukungan keluarga, dan pemantauan rutin diperlukan untuk mendorong kepatuhan pasien dalam pengelolaan diri..

**Kata Kunci** : diabetes mellitus tipe 2; edukasi kesehatan; kualitas hidup; manajemen perawatan diri

## INTRODUCTION

Type II Diabetes Mellitus is a metabolic condition that profoundly affects worldwide public health. This disease is defined by the body's incapacity to control glucose metabolism, resulting from insulin resistance and a gradual deterioration of pancreatic beta cell function. According to the International Diabetes Federation (IDF), in 2021, over 537 million persons globally were diagnosed with diabetes, with projections indicating an increase to 783 million by 2045 (Fahed et al., 2020).

The incidence of Type II Diabetes Mellitus (DM) in Indonesia has markedly escalated in recent years. The Basic Health Research report (Ministry of Health of the Republic of Indonesia, 2019) indicates a 3% increase in type II diabetes prevalence compared to 2016, revealing that one in ten adults in Indonesia is affected by diabetes, either diagnosed or undiagnosed. This growth is attributable to several causes, including deteriorating lifestyle choices, fast

urbanization, and an aging demographic. This exacerbates the rising incidence of this condition. Moreover, insufficient public understanding on the significance of diabetes prevention and management substantially contributes to this problem (Sumah, 2018). The rise of type II diabetes adversely impacts both individual health and the healthcare and economic systems in Indonesia, given the considerable expense associated with treating this condition. In 2020, Indonesia ranked second in Southeast Asia for diabetes prevalence, with roughly 18 million patients (Trisnawati et al., 2022).

Type II Diabetes Mellitus is significantly affected by lifestyle variables, such as poor dietary choices, insufficient physical exercise, and obesity. The rise in diabetes incidence directly affects individuals and exerts considerable strain on the global healthcare system. Studies demonstrate that a diet rich in fats and sugars, along with insufficient physical exercise, elevates the risk of obesity, which is



intricately associated with the onset of type II diabetes (Hariawan et al., 2019; Suwinawati et al., 2020; Zulkarnaini et al., 2023). If inadequately handled, this illness may result in increased medical expenses and deteriorate the patient's quality of life (Masrul, 2018; Meilawati, 2020).

The prevalence of Type II Diabetes Mellitus (DM) in Makassar, South Sulawesi, is exhibiting an upward trend, aligning with the national pattern. Data from the Makassar City Health Office in 2020 indicates a continual annual rise in the incidence of type II diabetes, attributed to lifestyle modifications among urban people, characterized by decreased physical activity and increased consumption of high-calorie foods. These findings indicate a change in lifestyle habits that contribute to the increasing prevalence of obesity and diabetes within the urban population (Azrimadaliza et al., 2022; Masrurroh, 2018). This difficulty is getting progressively intricate for local governments in delivering sufficient healthcare services and enhancing public awareness regarding the significance of diabetes prevention, encompassing modifications in dietary habits and physical exercise (Sumarni et al., 2024).

An essential component of controlling type II diabetes mellitus is self-care management. Self-care management encompasses a series of measures undertaken autonomously by individuals to regulate their condition, including improved food planning, regular physical exercise, blood sugar regulation, stress management, and adherence to medication (Coşoreanu et al., 2024). Self-care encompasses not only the therapeutic management of the condition but also enhances patients' quality of life in physical, psychological, and social dimensions. Education and assistance for self-care management have demonstrated efficacy in enhancing patients' metabolic control, including reductions in HbA1c levels and the prevention of long-term problems (Mehrarvar et al., 2016).

A vital element in the management of Type II Diabetes Mellitus (DM) is self-care management. Self-care management encompasses a series of autonomous behaviors that individuals do to regulate their condition, which includes adopting a nutritious diet, enhancing physical activity, monitoring blood glucose levels, controlling stress, and complying with medicines (Diani et al., 2024). Research indicates that



comprehensive knowledge and education on diabetes self-management are crucial for enhancing patients' quality of life (Farida, 2018). In addition to clinical factors, self-care management enhances patients' physical, psychological, and social well-being. Research by Noviyanti et al. (2021) indicates that a diabetes management education program enhances self-care behaviors and fosters a better comprehension of home self-management, thereby leading to a reduction in healthcare facility readmission rates. This suggests that educational support and interventions in self-care management can enhance metabolic control, evidenced by reduced HbA1c levels, and avert long-term complications, corroborated by findings that demonstrate a positive correlation between diabetes knowledge and self-care behavior (Iriana, 2022; Mutmainah et al., 2021).

Type II Diabetes Mellitus (DM) adversely influences both the physical health of individuals and their entire quality of life. Common consequences of diabetes, including neuropathy, nephropathy, and cardiovascular disease, can markedly diminish quality of life, exacerbated by psychological disorders such as sadness and anxiety (Al Rofi'i & Su'udi, 2023). Research

indicates that increased depression levels in type II diabetes mellitus patients correlate with diminished perceptions of their quality of life (Ulfani et al., 2021). A comprehensive and unified strategy for managing type II diabetes is essential for enhancing patients' quality of life, encompassing not only the physical care of the condition but also the psychological and social dimensions (Khairunnisa et al., 2021; Sepang & Lainsampetty, 2022). Targeted educational initiatives, encompassing psychoeducation on stress management and enhanced physical activity, have demonstrated efficacy in enhancing the quality of life for individuals with diabetes (Taufiq, 2018; I. Trisnawati et al., 2020).

Although several worldwide studies illustrate the efficacy of self-care management in enhancing the quality of life for persons with diabetes, targeted research in Indonesia remains scarce. Implementing therapies that align with the cultural and social aspects of the local community is essential for enhancing illness management results. This study is to investigate the implementation of self-care management and its effects on the quality of life of patients with type II diabetes mellitus. This project



aims to enhance evidence-based intervention options tailored to patient requirements, specifically at the Fauziah Clinic, to improve their quality of life. This research primarily aims to enhance sustainable public health initiatives, particularly for those diagnosed with type II diabetes mellitus.

## METHODS

### Design, location, time

This research is a cross-sectional study including a group of type 2 diabetes patients under the Fauziah Makassar Clinic's jurisdiction in Manggala District, comprising 58 respondents enrolled as participants in Prolanis (Chronic Disease Management Program). The investigation was conducted over a duration of one month, namely in September 2024. Data collection was conducted via direct interviews.

### Sample size and sampling method

The research population comprises prolanis patients attending check-ups at Klinik Fauziah. The study's inclusion criteria were: individuals diagnosed with Type 2 diabetes mellitus by a physician, aged over 18 years, capable of effective

communication, enrolled as Prolanis participants at Klinik Fauziah, and ready to participate by signing informed permission and completing the research procedures. The designated exclusion criteria are the use of diuretic medication and the presence of chronic renal disease. Sampling was conducted by purposive sampling. The chosen sample comprised 58 respondents.

### Types and methods of data collection

This study was carried out through the implementation of direct interviews. The research employed the Indonesian adaptation of the Summary of Diabetes Self-Care Activities (SDSCA) questionnaire to assess self-care management practices. This instrument comprised 17 inquiries addressing dietary regulation, physical activity, blood sugar monitoring, adherence to medication, and foot care. The evaluation employs a scoring system ranging from 0 to 7 to assess daily activities over the course of one week. A score of 37 or higher signifies effective self-care management behavior, whereas a score below 37 reflects suboptimal behavior. Furthermore, the Diabetes Quality of Life (DQOL) questionnaire, developed by the Diabetes Control & Complications Trial



Research Group in 1988, was employed. This questionnaire was conceived in the early 1980s and continues to be employed in contemporary research concerning patients with type 1 and type 2 diabetes. The DQOL assesses patients' experiences concerning diabetes care and treatment through a comprehensive set of 46 questions, categorized into four distinct subscales: satisfaction (15 items), impact (20 items), concerns regarding diabetes (4 items), and social and work-related concerns (7 items). The assessment of scores employs a 5-point Likert scale, wherein the overall score is determined by calculating the average score, dividing it by the maximum score, and subsequently multiplying the result by 100%. The evaluation criteria are classified as excellent (76-100%), adequate (56-75%), and unsatisfactory ( $\leq 55\%$ ).

The Indonesian adaptations of the Summary of Diabetes Self Care Activities (SDSCA) and the Diabetes Quality of Life Questionnaire (DQOL) have demonstrated both validity and reliability for application within the Indonesian population affected by type 2 diabetes. Winanda Rizki et al. (2024) indicated that the Indonesian version of the SDSCA possesses a Content Validity Index

(CVI) of 0.98 and an internal consistency (Cronbach's  $\alpha$ ) of 0.72, thereby reinforcing the instrument's reliability as a measurement tool for evaluating self-care behavior among DM patients in Indonesian health centers.

The Indonesian adaptation of the Asian DQOL, as conducted by Permana et al. (2021), revealed that each item of the instrument exhibited a significant correlation with the overall score ( $r$  ranging from 0.496 to 0.956;  $p \leq 0.05$ ). Furthermore, the test-retest reliability assessment demonstrated robust correlations ( $r = 0.830-0.975$ ), and Cronbach's  $\alpha$  was found to be  $\geq 0.70$  across all domains.

Moreover, Farahdina (Bogor,  $n = 161$  elderly with DM2) demonstrated through confirmatory factor analysis (CFA) that the Indonesian version of the DQOL instrument possesses a unidimensional structure, thereby affirming its construct validity. The evidence presented indicates that the Indonesian adaptations of the SDSCA and DQOL serve as both viable and valid psychometric tools for application in research and clinical settings, specifically for assessing self-care behaviors and quality of life among individuals with diabetes..



## Data analysis

Data processing include the phases of editing, coding, processing, cleansing, and tabulation. Data analysis was performed utilizing univariate and bivariate methods with the aid of SPSS version 26. The Chi-Square test was used as the bivariate analytic method in this study because both primary variables under examination, self-care management and quality of life, consist of categorical data that are nominal and ordinal. This test assesses if a statistically significant relationship exists between two independent variables represented in a contingency table.

## RESULTS AND DISCUSSION

This study included 58 participants with diverse demographic and clinical attributes (Refer to Table 1). The age distribution indicates that the predominant demographic of respondents was elderly, with the largest segment belonging to the Late Elderly category (56–65 years), with 20 individuals (34.50%), followed by the Early Elderly group (46–55 years) with 18 individuals (31.03%). The Senior age group

(>65 years) comprised 15 individuals (25.90%). The adult demographic exhibited lower numbers, specifically Early Adults (26–35 years) with 3 individuals (5.17%) and Late Adults (36–45 years) with 2 individuals (3.40%).

Female responders predominated, accounting for 31 individuals (53.45%). According to employment status, 35 respondents (60.36%) indicated unemployment, whilst 23 respondents (39.65%) confirmed active employment. The predominant educational attainment among respondents was secondary education, with 22 (37.94%) high school graduates and 20 (34.50%) junior high school graduates.

The majority of respondents (n=52; 89.66%) had complications related to diabetes, whereas just 6 (10.34%) did not suffer any issues. Concerning the length of diabetes, the majority of respondents (n=47; 81.04%) indicated they have been afflicted with the condition for 1–5 years. Seven respondents (12.07%) had experienced it for 3–12 months, but only four (6.89%) had experienced it for over 5 years.



**Table 1. Respondent Characteristics**

<b>Respondent Characteristics (N=58)</b>	<b>N</b>	<b>Percentage (%)</b>
<b>Age</b>		
Early adult (26-35 Tahun)	3	5,17%
Late adult (36-45 Tahun)	2	3,40%
Early elderly (46-55 Tahun)	18	31,03%
Late elderly (56-65 Tahun)	20	34,50%
Senior age (>65 Tahun)	15	25,90%
<b>Gender</b>		
Male	27	46,55%
Female	31	53,45%
<b>Employment Status</b>		
Active employment	23	39,65%
Unemployment	35	60,36%
<b>Education</b>		
Never	2	3,43%
Secondary education	11	18,96%
Junior High School	20	34,50%
Senior High School	22	37,94%
College	3	5,17%
<b>Complications related to DM</b>		
Do not have complications	6	10,34%
Have complications	52	89,66%
<b>Length of DM</b>		
3-12 months	7	12,07%
1-5 years	47	81,04%
>5 years	4	6,89%

According to the statistics in Table 2, the majority of respondents exhibit proficient self-care management skills, with 32 respondents, constituting around 55.20% of

the total. Simultaneously, 26 respondents (44.80%) exhibited inadequate self-management skills.

**Table 2. Self-care Management and Quality of Life**

<b>Variabel (N=58)</b>	<b>n</b>	<b>Percentage (%)</b>
<b>Self-Care Management</b>		
Adequate	32	55,20%
Inadequate	26	44,80%
<b>Quality of Life</b>		
Good	33	56,90%
Average	25	43,10%

Table 3 indicates that 30 respondents (51.72%) exhibited proficient dietary management, whereas 28 respondents

(48.28%) were classified as deficient. The majority of respondents (n=36; 62.06%) were noted to engage in physical activity



effectively. Thirty-seven responders (63.79%) exhibited commendable foot care behaviors. Concerning medicine or insulin adherence, 35 responders (60.34%) exhibited good compliance, whereas 23 responders (39.66%) were classified as non-

compliant. Blood glucose monitoring had the highest compliance level, with 41 respondents (70.68%) demonstrating proficient monitoring, while just 17 respondents (29.32%) were classified as deficient.

**Table 3. Self-Care Management**

Self-Care Management (N=58)	n	Percentage (%)
<b>Diatery management</b>		
Sufficient	30	51,72%
Deficient	28	48,28%
<b>Physical activity</b>		
Sufficient	36	62,06%
Deficinet	22	37,94%
<b>Foot care behavior</b>		
Good	37	63,79%
Average	21	36,21%
<b>Medicine or insulin adherence</b>		
Good compliance	35	60,34%
Poor compliance	23	39,66%
<b>Blood glucose monitoring</b>		
Proficient monitoring	41	70,68%
Poor monitoring	17	29,32%

Table 4 indicates a substantial correlation between self-care management and the quality of life in individuals with type 2 Diabetes Mellitus. Among the 32 respondents, 55% reported a good quality of life, with the majority, specifically 22 individuals (70%), demonstrating effective self-care management. Of the 26 respondents,

45% reported a satisfactory quality of life; however, only 9 individuals, or 30%, exhibited effective self-care management, while 17 individuals, or 60%, demonstrated inadequate self-care management. The statistical analysis results, with a p-value of 0.005, demonstrate that this link is statistically significant.

**Table 4. Correlation Between Self-Care Management and the Quality of Life**

		Quality of Life				p-value
		Good		Average		
		n	%	N	%	
Self-Care Management	Adequate	22	70	9	30	0,005
	Inadequate	10	40	17	60	



	Quality of Life				p-value
	Good		Average		
	n	%	N	%	
Total	32	55	26	45	

This study identified two predominant age categories: Late Elderly (56–65 years) and Early Elderly (46–55 years), which correspond to the demographic distribution of diabetic mellitus (DM) in Indonesia, where prevalence is elevated in both age groups. This corresponds with studies indicating that older adults are at an elevated risk of experiencing diabetes-related problems, such as insulin resistance and cardiovascular impairment (Kurniawati et al., 2021; Silalahi et al., 2021).

About 89.66% of respondents encountered complications attributable to diabetes mellitus, including neuropathy, retinopathy, and cardiovascular disease, which are prevalent among diabetes patients, particularly those without adequate management (Septiani et al., 2020; Syafei & Darmaja, 2019). This issue is becoming increasingly alarming in Indonesia due to the health system's insufficient focus on factors affecting diabetes management (Noviyanti et al., 2021; Wahyudi et al., 2022). Research indicates that a comprehensive diabetes education strategy can enhance health

outcomes, especially in self-management and the prevention of complications (Fakhriatul et al., 2022; Lee et al., 2020).

Good self-management was observed in 55.20% of respondents who indicated proficient self-management skills. Research indicates that diabetes self-management education (DSME) significantly enhances self-management behavior, affirming that effective education positively influences self-care (Karingga et al., 2023). In this setting, it is essential to ensure access to comprehensive health education across Indonesia, enabling diabetes patients to control their illness more successfully.

This study's results indicated that the management of nutrition, physical activity, and medication adherence greatly affects the quality of life of diabetes patients. The investigation indicated that over fifty percent of the respondents exhibited effective food control and engaged actively in physical exercise (Kassaming et al., 2022). This evidence reinforces the assertion that nutritious dietary practices and consistent physical activity are crucial factors in



efficient diabetes treatment (Zhu et al., 2016).

Compliance metrics for medicine and insulin utilization indicated favorable results, with 60.34% of participants reporting adherence to the prescribed treatment protocol. Adherence to treatment is directly correlated with blood glucose regulation and has beneficial effects on the prevention of problems (Kim & Kim, 2017). Numerous studies have indicated that compliance with diabetes medication can enhance long-term health outcomes and increase patients' quality of life (Fadli et al., 2024).

Blood glucose monitoring, an essential component of diabetes management, exhibited a significant adherence rate of 70.68% among respondents. This indicates that diabetes patients are becoming cognizant of the significance of blood glucose monitoring and its influence on their health outcomes (Mehravari et al., 2016). In Indonesia, despite obstacles in accessing and comprehending technologies pertinent to glucose management, enhanced knowledge in this domain can be crucial for effective diabetes care (Platis et al., 2020).

The study determined a substantial correlation between quality of life and self-

care management in individuals with type 2 diabetes mellitus. The majority of participants exhibiting a high quality of life also had proficient self-management skills. This corresponds with earlier research indicating that proficient self-care management can enhance the quality of life for diabetic patients (Casegas, 2024; Iriana, 2022). Highlighting educational activities centered on self-management is essential within Indonesia's diabetic healthcare framework to enhance patient outcomes. Effective diabetes management, encompassing diabetes self-management education (DSME), is essential, particularly in underdeveloped nations where access to healthcare resources remains problematic (Hailu et al., 2019; Nistiandani et al., 2021). The collaboration among patient education, social support, and sufficient healthcare resources is essential for enhancing health outcomes for individuals with diabetes mellitus in Indonesia.

This study possesses multiple limitations that warrant consideration. The limited sample size ( $n = 58$ ) may restrict the generalizability of the findings to the wider community, particularly considering the varied clinical and socioeconomic attributes



of diabetes patients in Indonesia. A cross-sectional design permits examination of associations at a singular time point, precluding any inference of causation between self-care management and quality of life. This study did not conduct an in-depth analysis of other variables that may affect quality of life, including psychological status, social support, or the severity of diabetes complications. Consequently, more research employing a longitudinal methodology, an expanded sample size, and broader geographical representation is strongly advised to enhance the evidentiary and external validity of this study's findings.

## CONCLUSION

The quality of life of individuals with type 2 diabetes mellitus is significantly impacted by self-care management, according to this study. The quality of life was higher for those who practiced effective self-care management than for those who did not. The illness can be controlled and complications can be avoided with the use of practices including blood sugar monitoring, food control, regular exercise, medication adherence, and foot care. Additionally, a p-

value of 0.005 was found, suggesting a strong correlation between patients' quality of life and their degree of self-care management. Strengthening the Chronic Disease Management Program (Prolanis) is one of the primary recommendations, particularly by boosting the frequency of health education and routinely observing patients' self-care practices. More uniform instructional modules and the use of digital media to reach a larger patient base are two ways to strengthen this. Involving families and health cadres in the patient education and support process is also crucial, particularly in areas with low health literacy. As a result, training for community-based health cadres is necessary to enable them to assist self-care management by acting as change agents.

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