



Self-Efficacy and Adherence as Predictors of Quality of Life in Patients with Type 2 Diabetes Mellitus: A Cross-Sectional Study at Jemursari Islamic Hospital, Surabaya

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A B S T R A C T

Type 2 diabetes is associated with a progressive decline in patients' quality of life (QoL). Self-efficacy and adherence are critical behavioral determinants that influence disease management and outcomes. This study examines the correlation between self-efficacy and adherence to quality of life in patients with type 2 diabetes mellitus. This study used a correlational analytic research design with a cross-sectional approach. The study was conducted at Islamic Hospital Jemursari, Surabaya, from August to October 2024. The population consisted of 307 patients with diabetes, and 174 respondents were selected through purposive sampling. Data were collected using validated questionnaires: the Diabetes Management Self-Efficacy Scale (DMSES), the Adherence to Diabetes Questionnaire (ADQ), and the Diabetes Quality of Life (DQOL) questionnaire. Data analysis was the Spearman's Rank correlation test. The results showed that nearly half of the respondents reported low self-efficacy, most had low adherence, and 60.3% experienced poor QoL. Spearman analysis demonstrated a significant correlation between self-efficacy and QoL ($r = 0.647$; $p < 0.000$), and between adherence and QoL ($r = 0.684$; $p < 0.000$). In conclusion, self-efficacy and adherence are strong predictors of quality of life in patients with type 2 diabetes mellitus at Jemursari Islamic Hospital, Surabaya. Future research should investigate interventions to enhance self-efficacy and adherence, particularly among patients with a poor quality of life, to develop more effective strategies for supporting diabetes care.

INTRODUCTION

The phenomenon of diabetes mellitus in society today shows a significant increase and has become a serious health issue. Its main impact is a decrease in the patient's quality of life. Quality of life is a measure of an individual's overall well-being, encompassing four primary dimensions: physical, psychological, social, and environmental. In patients with diabetes mellitus, quality of life is often affected by physical conditions such as chronic complications, psychological disturbances due to stress and anxiety, social limitations in participating in family or community activities, and environmental barriers such as limited access to healthcare services (Zatihulwani *et al.*, 2024).

One of the main problems commonly found in patients with unhealthy lifestyles is high blood glucose levels. It can result from insulin resistance or the body's inability to produce insulin adequately, leading to chronic metabolic diseases such as diabetes mellitus (Ratnasari, Andayani and Endarti, 2019). It can be caused by poor diabetes management, including an improper diet, non-compliance with medication, and a

lack of physical activity (Almaini and Heriyanto, 2019). Poor diabetes management not only affects physical health but also impacts the patient's quality of life, especially when blood glucose levels are uncontrolled (Zilfan Andhika Gea, Sukarni, and Suriadi, 2022).

Every year, the prevalence of diabetes mellitus continues to rise significantly. Based on data from the Health Development Policy Agency (*Badan Kebijakan Pembangunan Kesehatan* or BKPK) in 2023, the prevalence of diabetes mellitus, as diagnosed by doctors, among all age groups in Indonesia reached 877,531 people. Its prevalence in East Java was recorded as 130,683 (BKPK, 2023). More specifically, its prevalence in Surabaya reached 104,262 (Dinas Kesehatan Provinsi Jawa Timur, 2023). Preliminary data collected in November at Jemursari Islamic Hospital, Surabaya, through interviews with 10 patients with diabetes mellitus showed that 80% respondents were still unable to avoid high sugar and fat foods. 70% of them failed to comply with medical advice to avoid sweet and fatty foods. They reported disturbing feelings in following dietary restrictions. They also experienced frustration, sadness, and guilt when they did not follow food restrictions.

The decline in quality of life in patients with type 2 diabetes mellitus begins with metabolic disorders that lead to insulin resistance and chronic hyperglycemia. Persistently high blood glucose levels damage both small and large blood vessels, triggering complications such as retinopathy (vision impairment), nephropathy (kidney failure), neuropathy (nerve damage causing tingling sensations), and heart disease. These complications affect body function and patient mobility, limiting their ability to perform daily activities (Suciana *et al.*, 2019).

Diabetes complications potentially can result in psychological disorders among individuals with diabetes, such as depression and anxiety, arising from physical limitations and strict diabetes management. Fluctuations in blood glucose levels can affect mood, while neurological complications may lead to cognitive dysfunction. The emotional pressure, combined with dependence on medication and significant lifestyle changes, reduces patients' sense of freedom and flexibility, ultimately decreasing their quality of life (Ma'ruf and Palupi, 2021).

One effort to improve the quality of life for people with diabetes is to enhance self-efficacy and adherence to treatment. Previous studies demonstrated that high self-efficacy encourages individuals to take action in diabetes management, thereby improving the quality of life for people with diabetes (Usman *et al.*, 2021). Good adherence to medical treatment also contributes to successful disease management and an improved quality of life (Mutmainah, Al Ayubi,. Patients who have confidence in diabetes management and adhere to medical recommendations, such as diet control, blood glucose monitoring, and prescribed therapies, are more likely to achieve better blood glucose control. Thus, it can reduce the risk of chronic complications, common threats to individuals with diabetes, such as neuropathy and retinopathy (Istiyawanti *et al.*, 2019).

Furthermore, improved self-efficacy has a positive impact on mental health. Patients who are more confident in dealing with their illness tend to have lower levels of stress and anxiety and are less likely to suffer from depression. Adherence to medication and a healthy lifestyle also contributes to improved mood and emotional well-being. Therefore, increasing self-efficacy and adherence can help individuals with diabetes mellitus have a better quality of life (Rosalinda and Nugraheni, 2023). A recent international study in Saudi Arabia reported that low self-efficacy was significantly associated with poor quality of life and reduced well-being among diabetic patients (Alshaikhi *et al.*, 2025).

This finding highlights that self-efficacy plays a central role in improving quality of life, yet research in Indonesia, particularly in hospital-based populations in Surabaya, remains limited. In addition, only a few studies have simultaneously examined self-efficacy and adherence in relation to quality of life among patients with type 2 diabetes mellitus. Therefore, this study examines the correlation between self-efficacy and adherence to quality of life in patients with type 2 diabetes mellitus at Jemursari Islamic Hospital, Surabaya.

METHOD

This study used a correlational analytic research design with a cross-sectional approach. The study was conducted at Islamic Hospital Jemursari, Surabaya, from August to October 2024. The population consisted of 307 patients with type 2 diabetes mellitus registered at the hospital during the study period. The sample comprised 174 patients who met the inclusion criteria, determined using a purposive sampling technique. The inclusion criteria were: (1) patients diagnosed with type 2 diabetes mellitus, (2) aged 18 years or older, (3) able to communicate verbally, and (4) willing to participate by providing informed consent. Exclusion criteria included patients with severe complications, cognitive impairment, or those unwilling to participate. Purposive sampling was chosen because not all members of the population met the required study characteristics. The instruments used three standardized and widely used questionnaires; the Diabetes Management Self-Efficacy Scale (DMSES) to assess self-efficacy across various domains, including diet, physical activity, glucose monitoring, medication use, and general self-care, the Adherence to Diabetes Questionnaire (ADQ) to measure adherence, including aspects of diet planning, insulin use, health monitoring, physical activity, and medical instruction compliance, and The Diabetes Quality of Life (DQOL) questionnaire to evaluate patients' quality of life in terms of physical, psychological, and social well-being. These instruments have been tested for validity and reliability in previous studies and were considered appropriate for use in this research. The validity and reliability tests showed acceptable results (Cronbach's $\alpha > 0.7$). Data analysis was conducted using SPSS version 25 for Windows. Descriptive statistics were used to present respondent characteristics and the distributions of variables. Before hypothesis testing, data assumptions, including normality and linearity, were examined. Because the data

were ordinal and not normally distributed, the Spearman Rank correlation test was applied to determine the relationship between self-efficacy, adherence, and quality of life. This paper used a significance level of $\alpha = 0.05$, with $p < 0.05$ considered statistically significant. This study received ethical approval from the Health Research Ethics Committee of Islamic Hospital Jemursari Surabaya, with certificate number No. 007/KEPK-RSISJS/I/2025. All respondents provided informed consent, and confidentiality of personal information was strictly maintained throughout the research process.

RESULTS

Table 1 reveals that the majority of respondents, 174 in total, consisted of 91 females (52.3%), while the male respondents numbered 83 (47.7%). In addition, nearly half were categorized as late elderly (56–65 years), totaling 63 individuals (36.2%), followed by the older adults (>65 years) with 46 individuals (26.4%), and early elderly (46–55 years) with 43 individuals (24.7%). These data indicate that the majority of respondents in this study were older adult females.

Table 1. The Characteristics of Respondents by Gender and Age

The Characteristics of Respondents		Frequency (n)	Percentage (%)
Sex	Male	83	47.7
	female	91	52.3
	Total	174	100
Age	Late Adolescence (17–25 years)	1	0.6
	Early Adulthood (26–35 years)	3	1.7
	Middle Adulthood (36–45 years)	18	10.3
	Early Elderly (46–55 years)	43	24.7
	Late Elderly (56–65 years)	63	36.2
	Older Adults (>65 years)	46	26.4
	Total	174	100

Nearly half, 74 respondents (42.5%), had low self-efficacy. Additionally, the majority of respondents (53.3%) reported low adherence levels. Moreover, the majority—105 respondents (60.3%)—had a low quality of life (Table 2).

Table 2. Self-Efficacy, Adherence, and Quality of Life in patients with type 2 diabetes mellitus at Jemursari Islamic Hospital

Variables	Frequency	Percentage
	(n)	(%)
Self-Efficacy		
High	64	36.8
Moderate	36	20.7
Low	74	42.5
Adherence		
High	83	47.7
Low	91	52.3
Quality of Life		
High	69	39.7
Low	105	60.3

Among the 64 respondents with high self-efficacy, most—47 respondents (73.4%)—experienced a high quality of life. Among the 36 respondents with moderate self-efficacy, the majority—20 respondents (55.6%)—had a high quality of life. In addition, out of 74 respondents with low self-efficacy, almost all—72 respondents (97.3%)—had a low quality of life. The statistical analysis, using Spearman's Rank correlation test, showed a correlation coefficient (r) of 0.647 with a significance value of $p < 0.000$. Since $p < 0.05$, H_0 was rejected, and H_1 was accepted, indicating a significant relationship between self-efficacy and quality of life among patients with type 2 diabetes mellitus at Islamic Hospital Jemursari. The correlation coefficient of 0.647 indicated a strong relationship, suggesting that the higher a patient's self-efficacy, the higher their perceived quality of life tends to be (Table 3).

Table 3. Cross Tabulation and Statistical Analysis between Self-Efficacy and Quality of Life in Patients with Type 2 Diabetes Mellitus at Islamic Hospital Jemursari, Surabaya.

		Quality Of Life			Spearman's Rank correlation test
		High	Low	Total	
Self Efficacy	High	47 (27%)	17 (9.7%)	64 (36.7%)	$p < 0.000$ $r = 0.647$
	Moderate	20 (11.5%)	16 (9.2%)	36 (20.7%)	
	Low	2 (1.1%)	72 (41.5%)	74 (42.6%)	
Total		69 (39.6%)	105 (60.4%)	174 (100%)	

Among the 83 respondents with high adherence, the majority—62 respondents (74.7%)—had a high quality of life. Meanwhile, out of 91 respondents with low adherence, almost all—84 respondents (92.3%)—had a low quality of life. The statistical analysis, using the Spearman Rank correlation test, showed a correlation coefficient (r) of 0.684 with a $p < 0.000$. Since $p < 0.05$, H_0 was rejected, and H_1 was accepted, indicating a significant relationship between adherence and quality of life among patients with type 2 diabetes mellitus at Islamic Hospital Jemursari. The correlation coefficient of 0.684 showed a strong correlation, indicating that the higher the level of adherence to diabetes management, the higher the patient's perceived quality of life (Table 4).

Table 4. Cross Tabulation statistic analysis between Adherence and Quality of Life in Patients with Type 2 Diabetes Mellitus at Islamic Hospital Jemursari, Surabaya.

		Quality Of Life			Spearman's Rank correlation test
		High	Low	Total	
Adherence	High	62 (35.7%)	21 (12%)	83 (47.7%)	$p < 0.000$ $r = 0.684$
	Low	7 (4%)	84 (48.3%)	91 (52.3%)	
Total		69 (39.7%)	105 (60.3%)	174 (100%)	

DISCUSSION

Self-efficacy

Based on the research findings, most respondents had a low level of self-efficacy (Table 2), indicating that many patients with type 2 diabetes mellitus at Jemursari Islamic Hospital, Surabaya, still lacked sufficient confidence in their ability to manage the disease independently. This low self-efficacy may affect the patients' daily behavior, such as inconsistency in maintaining a healthy diet, not exercising

regularly, and being less meticulous in following the prescribed treatment. Self-efficacy is defined as an individual's belief in their ability to regulate and perform the actions necessary to achieve specific goals. As stated by Bandura (Sari and Firdaus, 2020), self-efficacy encompasses cognitive, motivational, and behavioral aspects in responding to various situations, including the stress associated with chronic illness. In this study, self-efficacy was measured using the Diabetes Management Self-Efficacy Scale (DMSES), which consists of five essential components: dietary management, physical activity, glucose monitoring, adherence to treatment, and general self-care. These five components comprehensively describe the patient's capability to conduct sustainable self-management.

The study conducted by Dina and Sinaga (2024) also found that most patients with diabetes had low levels of self-efficacy. It indicated that the majority of patients with diabetes lacked confidence in their ability to manage five essential aspects of diabetes management, namely managing diet, independently controlling blood glucose levels, maintaining regular treatment, and performing daily general care. This lack of confidence becomes a barrier to optimal disease management. Interventions aimed at strengthening self-efficacy in these five aspects are necessary, including balanced nutrition education, training in the use of blood glucose monitoring devices, assistance during the treatment process, and counseling on the importance of daily self-care. This low level of self-efficacy was found among elderly female respondents, who in the context of this study constituted the dominant group with low self-efficacy (Table 1). Older age may lead to decreased cognitive and physical function, which in turn reduces confidence in managing the disease. Thus, older women often experience a double psychological burden due to social roles within the family and community, making them more vulnerable to fatigue, feeling overwhelmed, and lacking focus on their own health care. In addition, there is the perception that they are not capable enough to handle their health condition independently.

Low self-efficacy observed in this study may be attributed to several factors, including limited knowledge about diabetes management, previous failures in self-care attempts, and a lack of support from the surrounding environment, such as family and healthcare providers. Furthermore, diabetes complications, feelings of helplessness, and low internal motivation can reinforce patients' negative perceptions of their ability to manage the disease. These factors indirectly form the belief that their efforts will not yield optimal results, leading patients to become passive in managing their daily health conditions.

Adherence

The study's findings showed that most respondents demonstrated a low level of adherence (Table 2), indicating that many patients with type 2 diabetes mellitus were still inconsistent in following treatment recommendations and maintaining a healthy lifestyle as advised by healthcare professionals. A preliminary study reinforces this finding. It was conducted in November 2024 at Jemursari Islamic Hospital. The authors' interviews with patients in the Endocrine Clinic revealed that most were unable to

comply with doctors' recommendations to avoid sugary and fatty foods, while only a small portion adhered to the prescribed treatment regimen. According to the Information-Motivation-Behavioral Skills (IMB) theory, developed by Fisher (2003) and further elaborated upon by Listrikawati *et. al.* (2024), adherence is formed through three main components: adequate information, strong motivation, and supportive behavioral skills. Patients who possess a sufficient understanding of their disease, internal motivation to recover, and practical abilities to follow medical instructions are more likely to adhere to treatment. In this study, adherence encompassed five key aspects: meal planning and dietary habits, insulin use and dosage management, self-monitoring of health status, regular physical activity implementation, and compliance with medical instructions from healthcare providers.

A prior investigation by Padmasari *et. al.* (2021) indicated that continuous education played a vital role in enhancing adherence among patients with diabetes mellitus (Padmasari, Azizah and Larasati, 2021). Educational interventions have been proven to help patients adjust their dietary habits, understand the correct use of insulin, and perform self-monitoring of their health. These findings emphasize that improving adherence is not solely dependent on information provision but also on skill development across the five aspects of disease management, including dietary control, insulin dosage management, health monitoring, physical activity, and compliance with medical advice. However, elderly female groups are at higher risk of low adherence due to physical limitations, heavier emotional burdens, and memory decline, all of which negatively impact their ability to follow medical instructions consistently. The author considers that the low level of patient adherence indicates that there are still numerous challenges in implementing a comprehensive healthy lifestyle. Most respondents in this investigation were not yet optimal in planning their food intake, adjusting insulin dosages, or regularly conducting health check-ups. Therefore, intensive support from healthcare professionals is crucial to enhance patients' skills and understanding in these aspects. Family involvement and the use of interactive visual educational media can also strengthen patients' adherence to medical instructions consistently, ultimately contributing to improved quality of life.

Quality of Life

This paper showed that the majority of respondents had a low quality of life (Table 2), reflecting that many patients with type 2 diabetes mellitus had not yet achieved well-being across various aspects of their lives. Physically, they frequently complained of fatigue, pain, limited mobility, and changes in appetite. Psychologically, patients showed symptoms of stress, anxiety, and hopelessness due to the chronic condition they experienced. In the social aspect, their involvement in family and community activities was limited due to concerns about their physical condition or the need to adhere to dietary and treatment regimens. In the environmental domain, several patients reported facing obstacles in accessing healthcare facilities or lacking a comfortable and safe environment for undergoing therapy. All these

factors indicate that patients' quality of life is not solely determined by medical conditions, but also by the interaction of multiple elements in their daily lives. The assessment of quality of life in this study was based on the World Health Organization Quality of Life (WHOQOL) theory, as cited in (Yusuf, 2020), explaining that quality of life refers to an individual's perception of their position in life, influenced by culture, value systems, goals, expectations, standards, and concerns. In the context of patients with type 2 diabetes mellitus, quality of life is viewed through two main components: the level of satisfaction with illness and treatment, and the impact experienced as a result of the disease. Patients who are satisfied with their treatment outcomes, such as achieving normal glycemic levels and accessing quality healthcare services, tend to have a better quality of life. Conversely, when the impact of the disease, such as complications, pain, limitations in activity, and emotional stress, is not well managed, patients' perception of their quality of life tends to decline. The four WHOQOL domains—physical, psychological, social, and environmental—serve as a fundamental framework for evaluating how well patients can live a meaningful and balanced life amid health challenges.

A previous study by Safitri and Syafiq (2022) showed that the quality of life of patients with diabetes mellitus tended to be low when they felt dissatisfied with the treatment received and experienced psychological burdens caused by the disease. In the study, many patients reported disruptions in daily activities, decreased self-confidence, and social limitations resulting from the need for continuous disease management. This research emphasizes the importance of a holistic approach to enhance patient satisfaction with treatment and mitigate the adverse effects of illness by improving the physical, emotional, social, and environmental aspects of life. Furthermore, older female groups are more likely to experience a decline in physical function, chronic fatigue, and social limitations. Combined with psychological pressure and high support needs, this group is more vulnerable to a decrease in quality of life.

The author believes that the quality of life for patients with diabetes mellitus can be improved when they are satisfied with their treatment and can manage the disease's impact in a positive manner. Efforts that can be undertaken include providing psychosocial support, facilitating healthy social interactions, and creating an environment that fosters patient independence and comfort. In addition, quality of life enhancement can also be focused on two main blueprints: improving patients' perception of their ongoing treatment, and assisting them in coping with the physical and emotional consequences of the disease through educational approaches, regular mentoring, and integrated support from family and healthcare providers.

The Correlation between Self-Efficacy and Quality of Life

This study revealed that respondents with low self-efficacy mainly had a low quality of life. In contrast, those with high self-efficacy were generally found to have a high quality of life. Thus, the lower a person's

self-efficacy, the lower their perceived quality of life tends to be. The Spearman's Rank Correlation test also revealed a strong correlation between self-efficacy and quality of life among patients with type 2 diabetes mellitus (Table 3).

These findings align with a prior study conducted by Dina and Sinaga (2024), which found a significant correlation between self-efficacy and the quality of life in patients with diabetes mellitus. The study revealed that respondents with higher self-efficacy levels exhibited better disease management abilities, including maintaining a healthy diet, regularly monitoring blood glucose levels, adhering to treatment regimens, and staying physically active—all of which contributed positively to their quality of life. Those study also aligns with the characteristics of respondents in this paper; older female respondents more frequently exhibited low self-efficacy and a lower quality of life. Older women tend to experience various challenges, such as physical limitations, chronic fatigue, feelings of dependency, and greater emotional burdens, which may indirectly hinder their ability to manage the disease and sustain a good quality of life. Thus, self-efficacy plays an essential role in shaping patients' positive behavior toward diabetes management. When patients possess a strong belief in their ability to manage their diet, maintain physical activity, monitor blood glucose levels, adhere to medication therapy, and perform general self-care, they tend to be more consistent in treatment adherence. They are more likely to achieve a higher quality of life. Improvements in quality of life can be attained by strengthening the core aspects of patient self-efficacy.

The Correlation between Adherence and Quality of Life

This investigation also revealed that most respondents with high adherence levels had a high quality of life. Meanwhile, respondents with low adherence nearly all reported a low quality of life. The higher the patient's adherence to treatment and medical recommendations, the better their perceived quality of life. Conversely, low adherence was associated with a lower quality of life in patients with type 2 diabetes mellitus. The Spearman's Rank Correlation test also revealed a strong and significant relationship between adherence and quality of life in patients with type 2 diabetes mellitus (Table 4).

Those findings align with a previous study by Safitri and Syafiq (2022), which found that patients who adhered to treatment tended to have a better quality of life. The study found that adherence to dietary patterns, insulin use, health monitoring, and engagement in physical activity according to recommendations had a significant impact on the physical, psychological, social, and environmental aspects of the quality of life for patients with diabetes mellitus. The previous study also aligns with the characteristics of the respondents in this paper; older female respondents exhibited both low adherence and a low quality of life. This condition may be caused by decreased memory function, limited mobility, excessive fatigue, and dependence on family members, which hinder their ability to follow medical instructions consistently. These barriers contribute to the lower quality of life experienced by this group.

Thus, adherence plays a crucial role in improving quality of life, as it reflects the extent to which patients consistently manage their disease. When patients can maintain a healthy diet, administer insulin in the correct dosage, routinely monitor their health condition, and consistently follow physical activity and medical instructions, physical and psychological complications resulting from diabetes can be minimized. So it positively impacts patients' comfort and satisfaction with their overall life experience.

CONCLUSION

In conclusion, self-efficacy and adherence are strong predictors of quality of life in patients with type 2 diabetes mellitus at Jemursari Islamic Hospital, Surabaya. Patients with higher self-efficacy and better adherence potentially demonstrate better quality of life. So, enhancing patient self-management and adherence to improve health outcomes is critical. Future research should investigate interventions to enhance self-efficacy and adherence, particularly among patients with a poor quality of life, to develop more effective strategies for supporting diabetes care.

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