



Association between Self-Esteem and Quality of Life among Patients with Complicated Diabetes Mellitus: Evidence from a Cross-Sectional Study in North Labuhanbatu Regency

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Abstract

Diabetes mellitus (DM) with complications is not only a physical burden but also affects psychological aspects such as self-esteem, as it is crucial in determining the patients' quality of life. North Labuhanbatu Regency, in North Sumatra Province, has a significant burden of diabetes mellitus cases; thus, assessing psychosocial factors is relevant to support comprehensive disease

management. This study aims to analyze the association between self-esteem and quality of life among patients with complicated diabetes mellitus using a cross-sectional design involving 234 participants selected through accidental sampling. The instrument used for data collection was a questionnaire. Data analysis was performed using simple linear regression. The results showed that self-esteem had a positive and significant association with quality of life ($B=0.615$, 95% $CI=0.514-0.716$, $p<0.001$), indicating that an increase in self-esteem scores was followed by an improvement in quality of life scores. These findings imply that self-esteem is an important factor that needs to be considered in the comprehensive management of diabetes mellitus with complications. The Health Department is recommended to integrate the self-esteem enhancement of diabetes mellitus patients through psychosocial counseling, empowerment-based education, and family support into primary health care services.

Keywords: Diabetes mellitus, Quality of life, Self-esteem

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Introduction

Diabetes mellitus (DM) is the medical term for a metabolic disorder characterized by hyperglycemia, or high blood glucose levels, due to abnormalities in insulin secretion, insulin resistance, or both (ADA, 2022). It remains one of the noncommunicable diseases posing a global threat due to its significant impact on public health. Data from the International Diabetes Federation estimates that in 2021, approximately 537 million adults aged 20-79 worldwide, or 10.5% of the global population in these age groups, had diabetes mellitus (IDF, 2021). This number is estimated to increase to 589 million (11.1%) in 2024 and is projected to be around 853 million (13%) by 2050. In Southeast Asia, one in ten adults is reported to be living with diabetes in 2024 (IDF, 2025).

The burden of diabetes mellitus is also faced by Indonesia. Indonesia is reported to rank 7th among countries with the highest number of diabetes mellitus patients worldwide, amounting to 3.4 million people (IDF, 2025). Accordingly, national data from the Indonesian Health Survey (SKI) also shows that the prevalence of diabetes mellitus increased to 2.2% in 2023 (Kemenkes RI, 2023) from 2.0% in 2018 (Kemenkes RI, 2018). This has made diabetes mellitus the leading cause of death worldwide, although its impact varies between regions due to differences in prevalence, age distribution, and other factors contributing to mortality. Estimates indicate that approximately 3.4 million adults aged 20-79 years died from diabetes or its complications in 2024 (2.4 million deaths related to diagnosed diabetes and 1 million deaths related to undiagnosed diabetes) (IDF, 2025).

Acute and life-threatening complications of uncontrolled diabetes include hyperglycemia with ketoacidosis or nonketotic hyperosmolar syndrome. Meanwhile, long-term complications resulting from diabetes mellitus are vascular damage, both macrovascular and microvascular, along with impairment of the nervous system, or neuropathy. Macrovascular complications generally affect the heart, brain, and blood vessels, especially coronary heart disease, stroke, and peripheral artery disease, while microvascular complications can occur in the eyes and kidneys, such as diabetic retinopathy and nephropathy. Neuropathy complaints are also common among diabetes patients, including motor, sensory, and autonomic neuropathy (Perkeni, 2021). Retinopathy is associated with an increased risk of vision loss; nephropathy can progress to kidney failure; peripheral neuropathy increases the likelihood of foot ulcers (diabetic foot) and amputation; while autonomic neuropathy can manifest as gastrointestinal, genitourinary, cardiovascular, and sexual dysfunction. In addition to having a higher incidence of atherosclerotic cardiovascular disease, peripheral artery disease, and cerebrovascular disease, people with diabetes mellitus also have a greater risk of hypertension and lipoprotein metabolism disorders (ADA, 2022).



Diabetes mellitus complications lead to increased morbidity and mortality and affect not only physical but also psychological and social aspects of patients (Satyafebrianti & Santoso, 2025). Patients with complications often face limitations in their activities, changes in their social roles, and stigma, which eventually affect their psychological condition (Ozturk et al., 2022). Among the important psychological aspects is self-esteem, reflecting an individual's assessment of their own value and capabilities. Patients with complicated diabetes mellitus often have lower self-esteem due to physical limitations, dependence on others, changes in social roles, and the burden of prolonged illness (Kokoszka et al., 2022).

This decline in self-esteem can affect health behavior and motivation in self-management and impact the quality of life of patients (Rivera-Hernandez, 2014). Quality of life (QoL) is an essential indicator in evaluating the success of DM management. The quality of life of patients with chronic diseases is not only determined by glycemic control and prevention of complications but also by the mental health and psychosocial well-being of patients (Tamornpark et al., 2022; Lumanauw et al., 2025). Previous studies have shown that self-esteem contributes to patients' perceptions and adaptation to chronic diseases, including DM, in which patients with higher self-esteem tend to have a better quality of life (Rivera-Hernandez, 2014; Kokoszka et al., 2022).

In the local context, data from the North Sumatra Provincial Health Department shows that the number of people with diabetes mellitus increased from 225,587 in 2022 (Dinas Kesehatan Provinsi Sumatera Utara, 2022) to 228,551 in 2023 (Dinas Kesehatan Provinsi Sumatera Utara, 2023), some of whom have experienced chronic complications. North Labuhanbatu Regency is one of the regencies that reported a significant increase in the number of DM patients in the North Sumatra Province, from 2,909 patients in 2022 (Dinas Kesehatan Provinsi Sumatera Utara, 2022) to 3,143 patients in 2023 (Dinas Kesehatan Provinsi Sumatera Utara, 2023). This raises concerns about the issue of improving the quality of life among diabetes mellitus patients in this region, especially those who already suffer from complications, particularly due to the limited research on the quality of life of patients with complicated diabetes mellitus at the local level. Based on this background, this study specifically investigates the association between self-esteem and quality of life among patients with complicated diabetes mellitus in North Labuhanbatu Regency. The findings are expected to provide a foundation for the improvement of comprehensive diabetes management, particularly to enhance the quality of life of DM patients with complications.

Methods

This is a quantitative observational analytical study with a cross-sectional design conducted in North Labuhanbatu Regency from August to September 2025. The study population included all patients with type 2 diabetes mellitus based on a doctor's diagnosis in North Labuhanbatu



Regency. The sample size was determined using the Isaac and Michael table based on the population size of 1,735 people, with an error rate of 10%, resulting in a sample size of 234 people (Sugiyono, 2017). The number of samples taken from each district was divided proportionally to obtain a representative sample. Sampling was conducted using accidental sampling, with the following inclusion criteria: aged 18 years and above, having complications related to type 2 diabetes mellitus, living with nuclear family members (husband or wife, parents, or children aged 17 years and above), and willing to participate in the study by signing an informed consent form. Meanwhile, the sample exclusion criteria were having type 1 diabetes, gestational diabetes, or other types of diabetes, and being unable to communicate well.

The dependent variable in this study is quality of life, while the independent variable whose effect on the dependent variable will be studied is self-esteem. The DQoL (Diabetes Quality of Life) questionnaire was used to measure the quality of life variable based on three main domains, including the satisfaction, impact, and worry domains (Bujang et al., 2018). The total quality of life score range is 26–130, with an increase in score indicating an improvement in quality of life. Meanwhile, the self-esteem variable was assessed using a structured questionnaire, and the total score was calculated based on the score for each question. The total score range for the self-esteem variable is 20–100, with an increase in score indicating higher self-esteem.

The collected data were then computed and analyzed univariately to present a description of the frequency distribution of respondents based on the characteristics and variables of the study, followed by bivariate analysis to examine the association between self-esteem and the quality of life of diabetes mellitus patients. Bivariate analysis was performed using simple linear regression tests with a confidence level of 95% or significantly associated if the p-value was less than 0.05.

Results

The results of the study based on data collection from 234 diabetes mellitus patients in North Labuhanbatu Regency are explained as follows.

Table 1. Characteristics of Diabetes Mellitus Patients in North Labuhanbatu Regency

Characteristics	n = 234	% or Mean $\pm$ SD or Min, Max
Age		
Adults (18–59 years)	217	92.7
Elderly ($\geq$ 60 years)	17	7.3
Gender		
Female	161	68.8
Male	73	31.2
Occupation		
Civil servant/retired civil servant	9	3.8



Housewife	145	62.0
Entrepreneur	78	33.3
Others	2	0.9
Duration of diabetes		
< 5 years	105	44.9
≥ 5 years	129	55.1
Family caregiver		
Spouse	191	81.6
Children	43	18.4
Self-esteem		
Mean ± standard deviation (SD)		57.96 ± 12.44
Minimum, maximum		40, 89
Quality of Life		
Mean ± standard deviation (SD)		80.32 ± 12.39
Minimum, maximum		57, 109

The information in Table 1 shows that most diabetes mellitus patients are aged between 18 and 59 years (92.7%), while the rest are aged 60 years and above (7.3%). Most diabetes mellitus patients are female (68.8%), which is also reflected in their occupation, with the majority being housewives (62.0%). Based on the duration of diabetes mellitus, more respondents had suffered from diabetes mellitus for 5 years or more (55.1%) than those who had suffered for less than 5 years (44.9%). Most diabetes mellitus patients live with and are cared for by family members, that is, their husband or wife (81.6%).

The results also show that the average self-esteem score of patients with complicated diabetes mellitus in North Labuhanbatu Regency is 57.96 (± 12.44) with a median of 54.50, and the lowest score is 40 and the highest is 89, indicating a tendency toward low self-esteem. Meanwhile, the average quality of life score for people with diabetes mellitus with complications in North Labuhanbatu Regency was 80.32 (± 12.39) with a median of 76.00, and the lowest score was 57 and the highest was 109, indicating a quality of life that also tended to be poor.

Table 2. Association Between Self-Esteem and Quality of Life among Patients with Complicated Diabetes Mellitus in North Labuhanbatu Regency

Variable	Unstandardized Coefficients		95% CI		p	R	R ²	F	Sig. F
	B	Std. Error	Lower	Upper					
(Constant)	44.679	3.049	38.671	50.686	<0.001	0.617	0.381	142.915	<0.001
Self-esteem	0.615	0.051	0.514	0.716	<0.001				



Based on the results of simple linear regression analysis in Table 2, an R value of 0.617 indicates a strong correlation between self-esteem and quality of life. The R^2 value shows that 38.1% of the variation in the quality of life of patients with diabetes mellitus can be explained by the self-esteem variable, while the remaining 61.9% is influenced by other factors outside the model that were not studied. Furthermore, the F test produced an F value of 142.915 with $p < 0.001$, which means that the regression model is statistically significant. The self-esteem regression coefficient of 0.615 ($p < 0.001$) indicates that every 1-point increase in self-esteem score will increase the quality of life score by 0.615 points. The resulting regression equation is:

$$\text{Quality of life} = 44.679 + 0.615 (\text{Self-esteem})$$

Thus, self-esteem has a positive and significant effect on the quality of life of patients with complicated diabetes mellitus in North Labuhanbatu Regency, in which the higher the self-esteem of patients with complicated diabetes mellitus, the higher their quality of life.

Discussion

The results of this study indicate that an increase in self-esteem scores has a positive and significant effect on improving the quality of life of patients with complicated diabetes mellitus (DM). These findings are supported by health psychology theory, stating that self-esteem is one of the important factors in the psychological well-being and adaptive behavior of patients with chronic diseases (Townsend, 2015). Self-esteem is the result of an individual's assessment of themselves, which is manifested in positive and negative attitudes. A person's assessment of themselves will influence their behavior in daily life. Individuals with high self-esteem will demonstrate self-acceptance, self-confidence, confidence in their abilities, and assertive usefulness, therefore tending to have better motivation in carrying out self-care and being more able to adapt to physical limitations and social role changes caused by DM complications (Triwahyuningsih, 2017).

These results are consistent with previous research by Rivera-Hernandez (2014), which found that self-esteem is significantly related to self-management and quality of life in patients with diabetes mellitus in Mexico. Another study by Kokoszka et al. (2022) also reported that self-esteem, especially related to body image, is associated with subjective well-being and distress in people with diabetes. People with diabetes mellitus and complications may face physical changes, limitations, and barriers in performing daily activities; difficulties in coping with treatment and its side effects; and adjusting to a new life. Therefore, people with DM may experience psychological problems, especially changes in their self-esteem, due to perceptions of body image related to their new condition in life. They need to make various adjustments in their daily lives, particularly



regarding eating habits and other behaviors, which makes them vulnerable to difficulties related to social life. Consequently, many people with diabetes mellitus find it difficult to adapt better and overcome the difficulties inherent in the chronicity of the disease, leading to fear, stress, and imbalance that cause negligence in disease management and self-care. This reinforces the finding that self-esteem is not only a psychological aspect but also contributes to clinical outcomes and quality of life in diabetes mellitus patients (Ribeiro et al., 2017).

Moreover, research by Ozturk et al. (2022) shows that self-esteem acts as a mediator between stigma and self-efficacy in type 2 DM patients. In other words, low self-esteem due to stigma and social limitations can reduce patients' ability to manage their disease. This implication is relevant because in patients with complicated DM, physical limitations often increase the risk of lower self-esteem and quality of life. In individuals with chronic diseases such as DM, self-stigma can cause a decline in self-esteem that affects their self-efficacy in managing their disease. The stigma perceived by people with diabetes mellitus can negatively affect their diabetes management, for example, by avoiding treatment or reducing adherence to treatment, and can prevent individuals from taking action for their own self-care. This emphasizes the importance of routine assessment and intervention related to self-stigma in people with diabetes in clinical practice. Healthcare professionals who provide education for people with diabetes mellitus should focus not only on physical health but also on the psychological health of patients and encourage people with diabetes, their family members, and friends to ask questions about stigma and share their feelings to help reduce their self-stigma.

Several studies conducted in Indonesia also reported similar findings. Prahastyo et al. (2025) found that most DM patients with complications, specifically diabetic ulcers, exhibited low self-esteem and self-motivation, as well as moderate anxiety. This low self-esteem is associated with feelings of dissatisfaction with oneself, inability to complete tasks, lack of self-confidence, and feelings of worthlessness and meaninglessness arising from the condition of diabetic ulcers, which brings its own challenges such as diet management, odor from wounds, prolonged treatment, and physical changes in the body. Hence, they have lower motivation to perform optimal diabetes ulcer care and blood sugar control. This will affect the patient's self-efficacy and cause diabetes management to fail, resulting in a decline in the patient's quality of life. It means that self-esteem can indirectly affect the quality of life of people with diabetes, especially among those who have developed complications (Mardhiah & Sidabutar, 2022).

Another study conducted by Padhila (2021) found that self-esteem is also positively and significantly related to subjective well-being. This is also in line with the study by Kokoszka et al. (2022), which found that self-esteem scores have a positive correlation with subjective well-being in diabetes patients. Subjective well-being refers to an individual's positive perception of their life



experiences and is reflected in psychological well-being, implying that higher self-esteem is associated with greater psychological well-being in individuals with diabetes mellitus. Atuh et al. (2024) also reported in their study that self-esteem is significantly associated with distress in diabetes mellitus patients. Self-esteem has a significant role in physical and psychological well-being related to life satisfaction. Patients with DM often tend to feel guilty, stressed, angry, and hopeless if they cannot control their disease, such as failure to maintain blood sugar levels and poor health behaviors. DM patients with low self-esteem may experience concerns about their incurable disease, long-term treatment, and the risk of complications, as well as feelings of inability to manage their disease, which can lead to high levels of stress. High levels of emotional distress are associated with poorer self-management compared to low levels of emotional distress. This can reduce the adaptive capacity of people with diabetes mellitus in coping with chronic disease and striving for an optimal quality of life. Furthermore, this evidence supports the link between self-esteem and quality of life in people with DM, especially those who have developed complications (Irawati & Subekti, 2022).

Thus, higher self-esteem enables patients to accept their condition and complications, maintain motivation in self-care and diabetes management, and improve their overall quality of life. This indicates the importance of comprehensive DM management interventions that focus not only on clinical and medical aspects but also on psychological and social interventions to improve DM patients' self-esteem.

Conclusion and Recommendation

This study shows that there is a positive and significant association between self-esteem and the quality of life of patients with complicated diabetes mellitus in North Labuhanbatu Regency, in which the higher the self-esteem of patients with complicated diabetes mellitus, the higher their quality of life. The North Labuhanbatu Regency Health Department should include psychosocial indicators, including self-esteem, into diabetes mellitus control programs in primary health care, for example, by integrating self-esteem assessments into routine examinations of diabetes mellitus patients, especially those who have suffered complications; developing psychosocial intervention programs such as individual counseling, peer support groups, and empowerment-based education to increase patient self-esteem; and involving families in the education process to strengthen social support that can improve self-esteem and quality of life. Further research is recommended to explore other factors related to the quality of life of patients with complicated diabetes mellitus while controlling for potential confounding variables such as educational level, economic status, and social environment to provide stronger evidence of causality.



References

- ADA. (2022). Classification and diagnosis of diabetes : standards of medical care in diabetes — 2022. *Diabetes Care*, 45(1), 17–38.
- Atuh, C. F., Datak, G., Utama, N. R., & Sylvia, E. I. (2024). The relationship between self-esteem and diabetes distress in type 2 diabetes mellitus patients at Pahandut Community Health Center Palangka Raya City. *Journal of Widwifery and Nursing*, 6(1), 71–77. <https://doi.org/https://doi.org/10.35335/jmn.v6i1.4390>
- Bujang, M. A., Adnan, T. H., Mohd Hatta, N. K. B., Ismail, M., & Lim, C. J. (2018). A revised version of diabetes quality of life instrument maintaining domains for satisfaction, impact, and worry. *Journal of Diabetes Research*, 2018, 1–10. <https://doi.org/10.1155/2018/5804687>
- Dinkes Provinsi Sumatera Utara. (2022). *Profil Kesehatan Provinsi Sumatera Utara Tahun 2022*. <https://dinkes.sumutprov.go.id/unduh/downloadfile?id=2321>
- Dinkes Provinsi Sumatera Utara. (2023). *Profil Kesehatan Provinsi Sumatera Utara Tahun 2023*. <https://dinkes.sumutprov.go.id/unduh/downloadfile?id=2799>
- IDF. (2021). *International Diabetes Federation Diabetes Atlas 10th Edition* (10th ed.). <https://doi.org/10.1016/j.diabres.2013.10.013>
- IDF. (2025). *International Diabetes Federation Diabetes Atlas 11th Edition* (11th ed.). <https://doi.org/10.1111/1753-0407.12644>
- Irawati, R. S., & Subekti, H. (2022). Hubungan distres emosional dan dukungan sosial dengan kualitas hidup lansia penderita diabetes melitus di Kabupaten Sleman. *Jurnal Keperawatan Klinis Dan Komunitas*, 2(3), 125–134. <https://doi.org/10.22146/jkkk.44242>
- Kemendes RI. (2018). *Laporan Nasional Riset Kesehatan Dasar 2018*. http://labdata.litbang.kemkes.go.id/images/download/laporan/RKD/2018/Laporan_Nasional_RKD2018_FINAL.pdf
- Kemendes RI. (2023). *Survei kesehatan Indonesia (SKI) 2023 dalam angka*. <https://www.badankebijakan.kemkes.go.id/ski-2023-dalam-angka/>
- Kokoszka, A., Pacura, A., Kostecka, B., Lloyd, C. E., & Sartorius, N. (2022). Body self-esteem is related to subjective well-being, severity of depressive symptoms, BMI, glycated hemoglobin levels, and diabetes-related distress in type 2 diabetes. *PLOS ONE*, 17(2), e0263766. <https://doi.org/10.1371/journal.pone.0263766>
- Lumanauw, S. W., Pertiwi, J. M., Kaunang, E. D., Kandou, G. D., & Kaunang, W. P. (2025). Factors related to the quality of life of diabetes mellitus patients in the Matani Community Health Center Work Area, Tomohon City. *International Journal of Health and Pharmaceutical (IJHP)*, 5(3), 395–399. <https://doi.org/10.51601/ijhp.v5i3.383>
- Mardiah, & Sidabutar, R. R. (2022). The effect of patient self-esteem on the motivation to treat diabetic foot ulcers. *Caring: Indonesian Journal of Nursing Science*, 4(2), 42–51. <https://doi.org/10.32734/ijns.v4i2.10228>
- Ozturk, A., Akin, S., & Kundakci, N. (2022). Self-esteem mediates the relationship perceived stigma with self-efficacy for diabetes management in individuals with type 2 diabetes mellitus. *Saudi*



- Medical Journal*, 43(10), 1157–1164. <https://doi.org/10.15537/smj.2022.43.10.20220344>
- Padhila, R. (2021). *Hubungan harga diri dengan subjective well-being pada penderita diabetes mellitus di Kecamatan Syiah Kuala Kota Banda Aceh* [Skripsi, Universitas Islam Negeri Ar-Raniry]. <https://repository.ar-raniry.ac.id/id/eprint/18577/>
- Perkeni. (2021). *Pedoman pengelolaan dan pencegahan diabetes melitus tipe 2 di Indonesia 2021*. Jakarta: Perkeni.
- Prahastyo, A. J. F., Kurnia, A., Khoiriyah, & PS, D. N. R. (2025). What are the psychological issues of diabetic ulcer patients. *Jurnal Keperawatan Respati Yogyakarta*, 12(1), 54–60. <https://doi.org/https://doi.org/10.35842/jkry.v12i1.804>
- Ribeiro, M. de N. de S., Diniz, C. X., Perdomo, S. B., Ribeiro, J. H. de S., Barbosa, O. G., Barros, K. M. S. C. de, Silva, A. B. da, & Oliveira, E. da C. (2017). Self-esteem and resilience in people with type 2 diabetes mellitus. *O Mundo Da Saúde*, 41(2), 223–231. <https://doi.org/10.15343/0104-7809.20174102223231>
- Rivera-Hernandez, M. (2014). Depression, self-esteem, diabetes care and self-care behaviors among middle-aged and older Mexicans. *Diabetes Research and Clinical Practice*, 105(1), 70–78. <https://doi.org/10.1016/j.diabres.2014.04.017>
- Satyafebrianti, K. C., & Santoso, A. A. (2025). Relationship between health-related quality of life (HRQoL) factors in patients with diabetes mellitus. *Journal of Diverse Medical Research*, 2(3), 126–130.
- Sugiyono. (2017). Metode penelitian kuantitatif, kualitatif, dan R&D. In *Data Kualitatif*. Alfabeta.
- Tamornpark, R., Utsaha, S., Apidechkul, T., Panklang, D., Yeemard, F., & Srichan, P. (2022). Quality of life and factors associated with a good quality of life among diabetes mellitus patients in northern Thailand. *Health and Quality of Life Outcomes*, 20(1), 81. <https://doi.org/10.1186/s12955-022-01986-y>
- Townsend, M. C. (2015). *Psychiatric Mental Health Nursing Concepts of Care in Evidence-Based Practice* (8th ed.). Philadelphia: F.A. Davis Company. [https://repository.poltekkes-kaltim.ac.id/625/1/Psychiatric Mental Health Nursing Concepts of Care in Evidence-Based Practice by Mary C. Townsend DSN PMHCNS-BC \(z-lib.org\).pdf](https://repository.poltekkes-kaltim.ac.id/625/1/Psychiatric%20Mental%20Health%20Nursing%20Concepts%20of%20Care%20in%20Evidence-Based%20Practice%20by%20Mary%20C.%20Townsend%20DSN%20PMHCNS-BC%20(z-lib.org).pdf)
- Triwahyuningsih, Y. (2017). Kajian meta-analisis hubungan antara self esteem dan kesejahteraan psikologis. *Buletin Psikologi*, 25(1), 26–35. <https://doi.org/10.22146/buletinpsikologi.9382>