



The Role of Family Support and Its Effect on the Quality of Life of Diabetic Patients in Medan City in 2025

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Abstract

Medan City had an increase in the number of diabetes mellitus (DM) patients from 39,980 cases in 2022 to 43,835 cases in 2023, but only 47.76% of diabetic patients visited health facilities. The high number of diabetes mellitus cases that are not followed by treatment is worrying because it can have an impact on reducing the quality of life of diabetic patients. This study aims to determine the role

of family support and its effect on the quality of life of diabetic patients in Medan City. The research design used was cross-sectional. The sample consisted of 263 diabetic patients aged 30-60 years who were selected by accidental sampling from seven community health centers with the highest number of DM cases in Medan City. Data analysis was performed using simple logistic regression test. The results showed that family support significantly affected the quality of life of diabetic patients ($p < 0.001$). Diabetic patients with good family support had a lower risk ($OR = 0.015$; 95% CI: 0.006–0.037) of having poor quality of life compared to diabetic patients who received less family support. Families of diabetic patients are suggested to always actively support the treatment and care of diabetic patients, encourage them to adopt a healthy lifestyle, and seek information about diabetes to help them manage the disease.

Keywords: Diabetes mellitus, Family support, Quality of life

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Introduction

Diabetes mellitus (DM) has shown an alarming increase in prevalence, morbidity, and mortality and placed a huge economic burden on countries, health systems, diabetes patients, as well as their families due to associated healthcare costs over the past decades, making this chronic disease to be one of the conditions with the greatest social and healthcare impact worldwide. Analysis of Global Burden of Disease data reports that the prevalence of diabetes in 2021 has increased to 90.5% since 1990 (Ong et al., 2023). According to the International Diabetes Federation (IDF), the number of cases and deaths from diabetes increased from 463 million cases and 700 million deaths in 2019 to 537 million cases and 783 million deaths in 2021. The estimated 10.5% of the entire adult population aged 20–79 years with diabetes in 2021 is projected to increase to 11.3% in 2030 until it reaches 12.2% in 2045 (IDF, 2021).

Along with IDF data which states that Indonesia is the fifth country with the highest number of DM cases worldwide in 2021 (IDF, 2021), national data shows that the prevalence of diabetes based on doctor's diagnosis in the population aged 15 years and older increased during 2018–2023, from 2% (Kemenkes RI, 2019) to 2.2% (Kemenkes RI, 2023), and based on blood glucose level examination, it increased from 10.9% (Kemenkes RI, 2019) to 11.7% (Kemenkes RI, 2023). However, the proportion of diabetic patients who adhered to DM treatment actually decreased from 90.56% to 89.5%. In addition, only 59.2% of diabetic patients are reported to regularly visit health care facilities (Kemenkes RI, 2023). This is certainly a problem, considering that suboptimal diabetes management can lead to various disabling and life-threatening complications, such as cardiovascular disease, stroke, neuropathy (nerve damage), nephropathy (kidney damage), lower limb amputation, and eye disease (especially those affecting the retina) which can cause vision loss and even blindness. Besides the acute and chronic complications, diabetes is primarily a chronic disease that lasts a lifetime, so difficulties in adhering to treatment and self-care of the disease and the need to adjust lifestyle over a long period of time can affect the functioning and well-being and impact the quality of life of diabetic patients, especially if they have other comorbidities (Gálvez Galán et al., 2021).



Quality of life is defined as an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards, and concerns (WHO, 2012). Generally, individuals with an illness, especially chronic diseases, tend to have a poorer quality of life than those without an illness. Symptoms, complications, physical burden, psychosocial burden, functional decline, and associated disease progression are some of the factors that affect the quality of life of patients with chronic diseases (Tamornpark et al., 2022). Other than that, family support is also reported as one of the aspects that contribute to the quality of life of patients with chronic diseases, including diabetes. Family is an inseparable entity from every individual and is the main support system that can provide emotional, instrumental, informational, and appraisal support while diabetic patients are undergoing care and treatment thereby helping patients manage their disease (Mphasha et al., 2022). Improving the quality of life of diabetic patients should be a major focus in disease management as it is closely related to disease progression, duration of recovery, occurrence of complications and contributes directly to morbidity and mortality due to DM (Perkeni, 2021).

North Sumatra Province is among the provinces in Indonesia that showed an increasing trend in DM prevalence during 2022 to 2023, from 225,587 cases (Dinkes Provinsi Sumatera Utara, 2022) to 228,551 cases (Dinkes Provinsi Sumatera Utara, 2023), but of these, only 64.08% of diabetic patients were visited health care facilities. Medan City, which is located in North Sumatra Province, also reported an increase in the number of DM prevalence, from 39,980 cases in 2022 (Dinkes Provinsi Sumatera Utara, 2022) to 43,835 cases in 2023 (Dinkes Provinsi Sumatera Utara, 2023), but only 47.76% of the patients were checked at health care facilities. The high number of DM cases that are not followed by care and management of this disease raises concerns because it can have an impact on reducing the quality of life of diabetic patients. Therefore, we aimed to determine the role of family support and its effect on the quality of life of diabetic patients in Medan City that can be used as a scientific basis to improve and enhance the quality of life of diabetic patients in Medan City.



Methods

The research method used was quantitative analytic observational with cross-sectional design. The study was conducted in the working areas of seven community health centers that had the highest number of DM cases in Medan City. The number of samples representing the population was determined based on the Isaac and Michael table with an estimated population size of 7,000 and an error rate of 5%, resulting in a sample size of 263 diabetic patients. Sampling was done by accidental sampling, where the number of samples or diabetic patients taken from each community health center was divided proportionally. The sample inclusion criteria were type 2 diabetes mellitus patients aged 30–60 years who had been diagnosed by a doctor and recorded in the medical records, had no complications and were willing to become respondents in this study, while the exclusion criteria were gestational diabetes mellitus patients or other types of diabetes, and patients who could not communicate well.

The dependent variable in this study was the quality of life of diabetic patients, measured using the Diabetes Quality of Life (DQoL) questionnaire originally by the Diabetes Control and Complications Trial (DCCT) Research Group 1998, which was revised in 2018 (Bujang et al., 2018). This questionnaire contains 13 questions that assess the satisfaction, impact, and worry domain, with five answer options, which are: very dissatisfied = score 1, quite dissatisfied = score 2, neutral = score 3, quite satisfied = score 4, and very satisfied = score 5. The results are categorized into poor quality of life (if the total score is 13–38) and good quality of life (if the total score is 39–65). Meanwhile, the independent variable, that will be analyzed for its effect on the dependent variable, is family support, measured using the Hensarling Diabetes Family Support Scale (HDFSS) questionnaire (Hensarling, 2009). This questionnaire contains 29 questions that assess family support by four dimensions, which are emotional support (10 items), appraisal support (8 items), instrumental support (8 items), and informational support (3 items). There are 5 kinds of answers that can be chosen by respondents, i.e. always = score 5, often = score 4, sometimes = score 3, rarely = score 2, and never = score 1. The results were categorized into less family support (if the total score was 29–72) and good family support (if the total score was



73–145). Data analysis to determine the effect of the family support on the quality of life of diabetic patients in Medan City was conducted using a simple logistic regression test with a significance level of 95% or has a significant effect if the p value is <0.05 .

Results

Based on data collection conducted on 263 diabetic patients in Medan City, the following results were obtained.

Table 1 Characteristics of Diabetic Patients in Medan City

Characteristics	n(=263)	% (=100)
Age		
≤45 years	60	22.8
>45 years	203	77.2
Gender		
Female	190	72.2
Male	73	27.8
Occupation		
Not employed	70	26.6
Employed	193	73.4
Quality of life		
Good	135	51.3
Poor	128	48.7

The information seen in Table 1 shows that the majority of diabetic patients in Medan City who were sampled in this study were more than 45 years old (77.2%), female (72.2%) and employed (73.4%). The results also showed that most of the diabetic patients in Medan City sampled in this study had a good quality of life, 51.3%, while the other 48.7% had a poor quality of life.

Table 2 Overview of Emotional Support from Families of Diabetic Patients in Medan City

	Frequency (%)				
	Never	Rarely	Sometimes	Often	Always
My family understands when I have diabetes-related problems	51 (19.4)	52 (19.8)	55 (20.9)	64 (24.3)	41 (15.6)



My family listens when I tell them about my diabetes condition	37 (14.0)	67 (25.5)	55 (20.9)	68 (25.9)	36 (13.7)
My family wants to understand how I feel about having diabetes	40 (15.2)	64 (24.3)	58 (22.1)	59 (22.4)	42 (16.0)
I find it easy to get information from my family about diabetes	55 (20.9)	52 (19.8)	43 (16.3)	67 (25.5)	46 (17.5)
My family keeps calm and supports me even though I have diabetes	43 (16.3)	59 (22.4)	60 (22.8)	53 (20.2)	48 (18.3)
I feel that it is easy to ask my family for help in overcoming diabetes problems	48 (18.3)	52 (19.7)	50 (19.0)	65 (24.7)	48 (18.3)
My family supports me with patience and understanding regarding my diabetes condition	43 (16.3)	60 (22.8)	56 (21.3)	66 (25.1)	38 (14.5)
My family accepts and accompanies me in dealing with my diabetes	50 (19.0)	42 (16.0)	66 (25.1)	63 (23.9)	42 (16.0)
My family understands that I am sad because of my diabetes	36 (13.7)	61 (23.2)	68 (25.9)	59 (22.4)	39 (14.8)
My family understands how to help me cope with my diabetes	45 (17.1)	60 (22.8)	68 (25.9)	46 (17.5)	44 (16.7)

The results of the study in Table 2 show that only a few of the patients' families always listened if the patients talked about their diabetes (13.7%) and understood if the patients were sad because of their disease (14.8%). Most of the patients' families often provide support in the following ways: understanding when diabetic patients have disease-related problems (24.3%), listening when patients talk about their disease (25.9%), and supporting patients with patience and understanding regarding their diabetes condition (25.1%). More patients also claimed to often find it easy to get information from their families about diabetes (25.5%) and find it easy when asking for family help to overcome diabetes problems (24.7%).

On the other hand, many of the patients' families still rarely provide support, such as listening when the patients talk about their illness (25.5%), understanding how the patients feel about their condition (25.5%) and supporting the patients with patience and understanding regarding their diabetes condition (22.8%). Meanwhile, most of the patients' families only



sometimes do the following: remain calm and support the patient even though the patient suffers from diabetes (22.8%), accept and accompany the patient in dealing with his condition (25.9) and understand how to help the patients overcome their condition (25.9%). This indicates that the emotional support from the family of diabetic patients regarding their condition is still not optimal, even though good understanding and emotional support are very important in building the psychological resilience of diabetic patients to undergo treatment and manage their disease.

Table 3 Overview of Appraisal Support from Families of Diabetic Patients in Medan City

	Frequency (%)				
	Never	Rarely	Sometimes	Often	Always
My family reminds me to control my blood sugar if I forget	44 (16.7)	58 (22.1)	55 (20.9)	70 (26.6)	36 (13.7)
My family encourages me to follow my diabetes diet/meal plan with discipline and consistency	41 (15.6)	65 (24.7)	61 (23.2)	61 (23.2)	35 (13.3)
My family helps me by not eating restricted foods near me	33 (12.5)	65 (24.7)	55 (20.9)	68 (25.9)	42 (16.0)
My family reminds me to take/order my diabetes medication	43 (16.3)	66 (25.1)	58 (22.1)	47 (17.9)	49 (18.6)
My family encourages me to get my eyes checked by a doctor	39 (14.8)	71 (27.0)	55 (20.9)	64 (24.3)	34 (12.9)
My family encourages me to have my feet checked by a doctor	46 (17.5)	57 (21.7)	62 (23.5)	58 (22.1)	40 (15.2)
My family encourages me to see a doctor for dental check-ups	51 (19.4)	46 (17.5)	60 (22.8)	68 (25.9)	38 (14.4)
My family encourages me to have my health checked by a doctor	45 (17.1)	58 (22.1)	61 (23.2)	67 (25.4)	32 (12.2)

The information in Table 3 shows that only a few families of diabetic patients always provide appraisal support in terms of encouraging patients to follow the diabetes diet/meal plan with discipline and consistency (13.3%), encouraging patients to have dental check-ups (14.4%) and encouraging patients to have their health checked by a doctor (12.2%). Most of the patients' families have often provided good support, such as reminding patients to control blood sugar if



they forget (26.6%) and helping patients by not eating foods that patients shouldn't eat near them (25.9%).

In contrast, most families of diabetic patients in the study sample rarely remind patients to take/order diabetes medication (25.1%) and encourage patients to have their eyes checked by a doctor (27.0%), and only sometimes encourage patients to have their feet checked by a doctor (23.5%). This indicates that family appraisal support for diabetic patients is also still not optimal, even though this kind of support can help patients to implement healthy lifestyle arrangements, prevent diabetes complications, or detect diabetes complications early to be treated immediately.

Table 4 Overview of Instrumental Support from Families of Diabetic Patients in Medan City

	Frequency (%)				
	Never	Rarely	Sometimes	Often	Always
My family supports my efforts to exercise	44 (16.7)	59 (22.4)	54 (20.6)	71 (27.0)	35 (13.3)
My family helps me to avoid sweets	45 (17.1)	56 (21.3)	50 (19.0)	65 (24.7)	47 (17.9)
My family reminds me of the regularity of my diet	38 (14.4)	56 (21.3)	67 (25.5)	55 (20.9)	47 (17.9)
I find it easy to ask my family for help to support my diabetes care	41 (15.6)	68 (25.9)	59 (22.4)	51 (19.4)	44 (16.7)
My family provides food that suits my diet	43 (16.4)	64 (24.3)	55 (20.9)	60 (22.8)	41 (15.6)
My family supports my efforts to eat according to my diet	40 (15.2)	66 (25.1)	62 (23.5)	58 (22.1)	37 (14.1)
My family helps me when I feel anxious about my diabetes	37 (14.1)	67 (25.4)	54 (20.5)	68 (25.9)	37 (14.1)
My family helps me pay for my diabetes medication	41 (15.6)	61 (23.2)	62 (23.6)	55 (20.9)	44 (16.7)

The results in Table 4 show that most families of diabetic patients often provide instrumental support, such as: supporting patients' efforts to exercise (27.0%), helping patients to avoid sweets (24.7%), and helping when patients feel anxious about their illness (25.9%). In contrast, more patients' families rarely provided foods that were suitable for the patient's diet (24.3%) and supported the patient's efforts to eat according to the diet (25.1%). There were also more patients who rarely found it easy to ask for help from their family to support their diabetes



care (25.9%). Additionally, most of the patients' families only sometimes provided support such as reminding patients about the regularity of diet time (25.5%) and helping patients pay for their medication (23.6%). This describes family support in the instrumental dimension that is still not optimal, even though this support really needs to be a concern to help patients implement healthy lifestyle arrangements such as exercising and following the dietary arrangements of diabetic patients. Instrumental support is also important to help patients in financial terms in order to get proper diabetes treatment.

Table 5 Overview of Informational Support from Families of Diabetic Patients in Medan City

	Frequency (%)				
	Never	Rarely	Sometimes	Often	Always
My family advised me to visit the doctor	48 (18.3)	54 (20.5)	64 (24.3)	59 (22.4)	38 (14.5)
My family gave me advice to attend diabetes education programs	46 (17.5)	54 (20.5)	58 (22.1)	56 (21.3)	49 (18.6)
My family gives me new information about diabetes	45 (17.1)	66 (25.1)	59 (22.4)	55 (20.9)	38 (14.5)

Table 5 shows that only a few families of diabetic patients always advise patients to visit the doctor (14.5%) and to attend diabetes education (18.6%). In contrast, most of the families of diabetic patients in the study sample rarely provided new information about diabetes to patients (25.1%). This also indicates that the information support from the family to diabetic patients is still not optimal, even though the provision of this information support can help patients manage their disease independently.

Table 6 The Effect of Family Support on the Quality of Life of Diabetic Patients in Medan City

Family support	Quality of life				Total		p-value	OR (95% CI)
	Poor		Good		n(=263)	%		
	n	%	n	%				
Less	97	94.2	6	5.8	103	100	<0.001	0.015 (0.006–0.037)
Good	31	19.4	129	80.6	160	100		



The information seen in Table 6 shows that out of 160 diabetic patients with good family support, the majority (80.6%) had a good quality of life. Meanwhile, of the 103 diabetic patients with less family support, most (94.2%) had a poor quality of life as well. Through the analysis, a p value of <0.001 ($p<0.05$) was obtained, indicating that family support has a significant effect on the quality of life of diabetic patients. Diabetic patients with good family support were less likely ($OR=0.015$; 95% CI: 0.006–0.037) to have a poor quality of life compared to diabetic patients who received less family support.

Discussion

The results of this study showed that there was a significant effect between family support and the quality of life of diabetic patients in Medan City, where diabetic patients with good family support had a lower risk of having a poor quality of life compared to diabetic patients who received less family support ($OR=0.015$ (95% CI: 0.006–0.037); $p<0.001$). This is consistent with research conducted by Khayudin et al. (2023) who found that there was a relationship between family support and the quality of life of patients with type 2 diabetes in PROLANIS Wisma Indah Bojonegoro Health Center ($p<0.001$). Zovancha & Wijayanti (2021) in their research also stated that family support is significantly related to the quality of life of patients with type 2 diabetes in Surakarta ($p=0.041$).

Family support is a form of assistance, care, and involvement provided by family members to help individuals deal with problems, fulfill needs, and improve well-being (Friedman et al., 2010). The family is the main support system that plays a role in helping maintain physical and mental health, especially for patients with chronic diseases, including diabetes. This support helps patients to manage their disease better and motivates them to adhere to disease treatment and care, thereby reducing the risk of complications and improving quality of life (Suhailah et al., 2023).

The dimensions of family support can be grouped into emotional, appraisal, instrumental, and informational support. Emotional support involves a sense of empathy, compassion, and care for someone so that they feel better, and feel owned and loved in any condition (Friedman et al.,



2010). Living with a chronic disease, such as diabetes, often causes psychological burdens such as stress, anxiety, and depression due to disease care and treatment that must be undertaken for a long period of time. Research conducted by Jais et al. (2021) shows that emotional support provided by the family has a significant effect on the quality of life of diabetic patients ($p=0.002$). Hijriana et al. (2023) in their research also suggested that there is a relationship between family support and the quality of life of diabetic patients ($p=0.015$), where family support, specifically emotional support, can help patients feel more accepted and valued, reduce stress and increase life satisfaction. This shows that the family plays an important role in providing good emotional support to improve psychological well-being and therefore indirectly contribute to maintaining the quality of life of diabetic patients (Yuwono et al., 2023).

On the other hand, appraisal support is expressed through positive appraisal, encouragement, and approval of the individual's ideas or feelings. The appraisal support includes input, suggestions, and feedback provided by the family to help diabetic patients evaluate their condition and progress in disease management. With this support, patients can know whether the actions taken are appropriate or require improvement so that patients are more confident in making decisions regarding the management of their disease. This dimension of support plays a role in improving self-care management and patient adherence to treatment which is expected to reduce the risk of diabetes complications in the future and thus improve better quality of life for diabetic patients. This is in line with research conducted by Azizah et al. (2023) who found that there is a significant relationship between good family support and increased compliance of diabetic patients in undergoing their treatment ($p=0.003$). Another study by Della et al. (2023) also showed that family support affects the treatment compliance of type 2 diabetes patients at Panti Rini Hospital Yogyakarta ($p=0.004$). Families who play an active role in providing support by reminding patients to take medication regularly and encouraging patients to regularly check themselves are proven to increase diabetic patients' compliance in undergoing treatment so that their quality of life can be maintained properly.



Another dimension of support is instrumental support, which is manifested in the form of direct or practical assistance, such as assistance in treatment or medical consultation to health care facilities, reminding the schedule of taking medication, providing daily needs, and physical support in carrying out activities related to disease management. Research conducted by Asnanian et al. (2024) showed that there was a significant relationship between family support and dietary compliance in patients with type 2 DM at Batara Guru Belopa Hospital, Luwu Regency, South Sulawesi ($p=0.001$). Solekhah & Sianturi (2020) in their research specifically explained that instrumental support from the family, such as providing an appropriate diet every day and helping to pay for medication, had an effect on improving the quality of life of diabetic patients ($p=0.007$). Research conducted by Hisni (2019) also found that the active role of the family in providing instrumental support for diabetic patients to maintain physical health, such as accompanying patients to take a walk or do exercise, was significantly associated with diabetic patients' compliance with regular physical activity ($p=0.020$). With a more active lifestyle, diabetic patients' health conditions are expected to be better, resulting in an improvement in their quality of life.

Families can also play an active role in helping to overcome barriers faced by diabetic patients in managing their disease. For example, diabetic patients often have confusion about the right diet or disease conditions that do not improve. In this situation, families can provide informational support or help patients to find solutions to their problems so that they are able to manage their disease better. Rahmi et al. (2021) in their research revealed that family informational support was proven effective in increasing the knowledge and self-care actions of diabetic patients and had a positive impact on glycemic control ($p<0.001$). Research conducted by Jais et al. (2021) also showed that informational support from family was significantly related to the quality of life of diabetic patients ($p<0.001$). Informational support such as providing relevant information about diabetes mellitus disease, treatment, and management can help patients make the right decisions regarding their treatment and management of the disease which is expected to contribute to maintaining a better quality of life for diabetic patients.



Conclusion and Recommendation

The results of this study showed that family support has a significant effect on the quality of life of diabetic patients in Medan City, where diabetic patients with good family support have a lower risk of having a poor quality of life compared to diabetic patients who receive less family support. Families of diabetic patients are needed to actively support the treatment and care of diabetic patients, encourage them to adopt a healthy lifestyle, and seek information about diabetes to help them manage the disease. Health institutions and health workers are suggested to focus on increasing family participation in the management and control of diabetes, such as providing education about diabetes to families of diabetic patients or involving families in the activities of diabetic patients in the community.



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