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Factors Influencing Quality of Life among Patients with Type 2 Diabetes Mellitus (T2DM) at Waled General Hospital, Cirebon, Indonesia

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ABSTRACT

Background: Diabetes Mellitus (DM) is a chronic disease that requires long-term management and carries the risk of leading to other health conditions, which can result in decrease of quality of life.
Aims: To find the quality of life of patients with Type 2 Diabetes Mellitus (T2DM) and the factors affecting it at Waled General Hospital (RSUD Waled), Cirebon, Indonesia.
Methods: It was an analytic observational study with a cross-sectional approach. The study took place at RSUD Waled, Cirebon Regency, and used 96 (T2DM) patients as research samples that were chosen with simple random sampling. The source of data was primary through a questionnaire and secondary from the patient's medical record. The questionnaire used for the quality of life's variable in this research was WHOQOL-BREF. The analytical statistics used were Spearman's correlation test for the bivariate analytics, and binary logistics regression for the multivariate analytic.
Results: There were 54.2% of T2DM patients that fell into bad quality of life category and 45.8% of T2DM patients had good quality of life. Analytic statistics showed a significant relationship between glycemic control (p = 0.003 and r = 0.304), family support (p = 0.000 and r = 0.502), and self-acceptance with quality of life of T2DM patients (p = 0.000 and r = 0.606). Meanwhile types of therapy, comorbidities, and complication didn't show a significant correlation with quality of life of T2DM patients. Multivariate analysis showed the most correlated factor for quality of life of patients T2DM was self-acceptance (OR=30).
Conclusion: There were some factors that had significant correlation with quality of life of T2DM patients. Self-acceptance was the most correlated factor with quality of life of T2DM patients. Healthcare providers can incorporate educational intervention programs into routine diabetes care, emphasizing patients' psychological health, especially with regard to self-acceptance and family support techniques. In order to improve knowledge, motivation, and efficient self-management, this program may incorporate counselling, education, and the creation of support groups.

Keywords: *Quality of life; Type 2 Diabetes Mellitus; Glycemic control; Family support; Self-acceptance.*
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1. Introduction

Diabetes mellitus (DM) is a serious condition that happens when blood sugar levels increase and the body is unable to properly utilize insulin or make enough of it (International Diabetes Federation, 2021). Globally, DM affects 1 in 11 adults, with type 2 diabetes mellitus accounting for 90% of cases (T2DM) (Sapra & Bhandari, 2023). The number of people with DM increases over time and becomes a global threat with the fifth-highest incidence of DM is Indonesia. The quantity of DM cases in 2021 in Indonesia is 19.5 million and is expected to increase in 2045 to 28.6 million (International Diabetes Federation, 2021). According to the Health Profile of West Java, the number of DM patients in West Java in 2019 amounted to 848.455 people, with the incidence in Cirebon Regency at 21.981 people, then in 2020 it rose to 1.078.857 people in West Java and 22.345 people in Cirebon Regency (Dinas kesehatan Jawa Barat, 2019; Dinas kesehatan Jawa Barat, 2020). As a Type B hospital and important referral hub in the eastern Cirebon Regency, RSUD Waled was selected as the study site because it provides comprehensive care, including specialist services for long-term illnesses such type 2 diabetic mellitus (T2DM).

T2DM significantly affects a range of life factors, including social, psychological, and physical ones (Puspasari & Farera, 2021). Patients will go through five stages of the loss response after receiving an early diagnosis of type 2 diabetes: denial, anger, bargaining, depression, and acceptance (Aryanto et al., 2024). According to Hawe's research from 2021, self-acceptance and quality of life are related among type 2 diabetic patients (Hawe, 2021). A patient's poor quality of life may cause patients to take fewer care of themself, which over time may exacerbate his illness. A key consideration in T2DM care is quality of life, as it can indicate how effectively patients with the condition will be able to control it and sustain their health over time. Furthermore, quality of life serves to monitor the impact of completed treatments and gauge the burden that chronic illness-related conditions place on patients (Nisa & Kurniawati, 2022). Diabetes if not managed properly will cause various complications. Complications can be disorders of macrovascular and microvascular blood vessels that can cause various new health problems that will affect the deterioration of life quality. Therefore, ongoing treatment of DM is important to do so as to reduce complications, improve symptoms, reduce cases of death, and enhance patients' quality of life (Perkumpulan Endokrinologi Indonesia, 2021; World Health Organization, 2016). Families must assist T2DM patients in managing their condition. Patient's quality of life may be impacted by low family support since those with strong family support are more likely to modify their lifestyles for the better (Aryanto et al., 2024).

The World Health Organization defines quality of life as an individual's assessment of their place within their culture and value systems, as well as how those factors relate to their objectives, standards, expectations, and worries (World Health Organization, 1998). The WHOQOL BREF encompasses quality of life domains such as physical, psychological, social, and environmental health. The social domain is the relationship between two or more people in which individual behavior will influence one another. The psychological domain is an aspect related to the mental state of the individual. The physical health domain is everything that influences an individual to engage in physical activities. The final environmental domain is the one in which people reside and do their daily business (Puspasari & Farera, 2021). In the Puspasari and Farera study conducted in 2021 at one of the medical facilities of General Hospital West Java, in three WHOQOL-BREF domains, the physical (64.4%), psychological (53.4%), and environmental (52.1%). The majority of respondents reported having a low quality of life. In comparison to the psychological and environmental dimensions, the social domain yielded higher results, with 54.8% of respondents indicating a positive quality of life (Puspasari & Farera, 2021). Then in the Teli study et al. in 2023, the study identified several factors that were found to be predictive of quality of life, including age, marital status, gender, monthly income, education, place of residence, and religiosity; patient-centered factors (diabetes knowledge and self-efficacy); disease characteristics (comorbidities, duration of diabetes, and insulin treatment); self management behaviors (physical activity, medication adherence, and frequent glucose checks); and family support (Teli, Thato, & Rias, 2023).

In the Gupta study et al. in 2021 at two Indian health agencies, 10% had an extremely low quality of life, 13% an average level, 11% terrible, 16% good, and 50% great (Gupta, Kapoor, & Sood, 2021). Then in the study of Nissa and Kurniawati in 2022 at one of the health centers in Cilegon City, up to 74.2% of patients had a low quality of life, and there was a correlation between the illness and the length of the patients' suffering and their quality of life (Nisa & Kurniawati, 2022). Research from Sormin and Tenrilemba in 2019 at one of the health centers in Karawang District, stated that as many as 60.4% of T2DM patients had low quality of life and were related to education, social status. economic, long suffering from DM, complications, knowledge, and DM treatment with T2DM patients' quality of life (Sormin & Tenrilemba, 2019).

Concern over the effects of diabetes mellitus on patients' quality of life is growing as the condition becomes more prevalent. Identifying the causes of this deterioration is essential to creating successful treatments, especially in the local setting area, where the quality of life in diabetes mellitus is still lacking to be the subject of research despite its importance to gain a holistic management for T2DM. The goal of this study, "Quality of Life of Patients with T2DM and Factors Influencing It in RSUD Waled," is to investigate these variables and offer insights into how they impact T2DM patients' quality of life in this particular context.

2. Methods

Study design

This study used observational analytic with a cross-sectional design. Data collection was conducted at the internal medicine clinic of RSUD Waled in June-July 2024. Without knowing the size of the population, the cross-sectional formula was used to determine the sample size. A 50% proportion, a 95% confidence level, and a 10% margin of error were used, yielding the necessary sample size of 96 samples. Sampling was conducted using simple random sampling techniques based on the inclusion and exclusion criteria of the research subjects. The inclusion criteria are patients diagnosed with type 2 diabetes mellitus (T2DM), patients willing to participate in the study, and patients who are clinic patients of internal medicine at RSUD Waled. The exclusion criteria in this study are patients undergoing psychiatric treatment, pregnant women, individuals with communication disorders, and those without HbA1C data in their medical records for at least the last 3 months prior to data collection to help lessen research bias, because psychological issues that can impact a patient's impression of their quality of life are common among patients receiving psychiatric therapy(Wardani & Dewi, 2018). During pregnancy, major physiological and physical changes occur, which might have an impact on the patient's mental health (Zulaekah & Kusumawati, 2021). It can be difficult for patients with communication problems to appropriately convey their ideas, emotions, and experiences during interviews. Blood sugar averages over the previous three months are shown by HbA1c readings(Eyth & Naik, 2021).

Measurements

The independent variables in this study include the types of therapy, complications, number of comorbidities, burden of comorbidities, glycemic control, family support, and self-acceptance. The dependent variable in this study was quality of life. Data was obtained through the completion of questionnaires and patient medical records. The type of diabetes treatment data was obtained by asking the patients and confirmed through medical records. Data on complications, comorbidities, and glycemic control were obtained through medical records. Complications are classified into uncomplicated, <2 complications, and ≥2 complications. The number of comorbidities is classified into no comorbidities, <2 comorbidities, and ≥2 comorbidities. Glycemic control is classified into controlled and uncontrolled. Family support data was obtained through the Hensarling Diabetes Family Support Scale (HFDSS), which consists of 25 questions and is classified into high and low family support. This questionnaire has been modified into Indonesian by Yusra in 2011 and has been declared valid and reliable with a reliability value (Cronbach's Alpha 0.940) and a validity value (r 0.395-0.856) (Yusro, 2011). Data on self-acceptance were collected using the Diabetes Acceptance Scale (DAS), which consists of 20 questions and is classified into high and low self-acceptance. In Fatina's 2022 study, the DAS instrument was translated into Indonesian and was declared valid and reliable, having an acquired Cronbach α of 0.842 (α > 0.361) (Fatina, 2022).

The burden of comorbidity is assessed using the Charlson Comorbidity Index (CCI) based on the patient's comorbid diagnoses in the medical records and classified as mild, moderate, and severe (Charlson et al., 1987). The WHOQOL-BREF questionnaire is used to measure quality of life with a total of 26 questions, classified into poor and good quality of life. The WHOQOL-BREF questionnaire is available in Indonesian and is valid for assessing quality of life (Deborah, 2012).

Statistical techniques

Acquired data were then analyzed using univariate statistics (distribution and percentage) to summarize the data. The spearman correlation test was used to determine correlation between types of therapy, complications, number of comorbidities, burden of comorbidities, glycemic control, family support, self-acceptance, and quality of life of T2DM patients in RSUD Waled, and it was deemed statistically significant when $p < 0.05$. Next, a logistic regression test was used in a multivariate analysis to identify the factor most closely associated with T2DM patients' quality of life in RSUD Waled. Data were processed using SPSS 26 software.

Ethical Clearance

The Ethic Committee for Health Research and Development of RSUD Waled has granted ethical approval for this project with Ethical Approval No.000.9.2/063/KEPK/V/2024, and has been granted research permission by RSUD Waled under No.800.2.2.1/1297-DIKLIT/2024. The benefits, goals, and methods of the study will all be explained in detail to the participants by the researchers. Respondents are given the option to participate or not, and if they do, they will be paid. Data confidentiality for the respondents will be ensured.

3. Results

Table 1 shows that of the 96 respondents, women made up the majority (65.6%), for the most age characteristics in adults (<60 years) amounted to 66 (68.8%); the majority of respondents had married status (76%). Most of the respondents were unemployed (63.5%) and had a final elementary school (43.8%). 74% of respondents suffered from DM < 10 years. 61 (63.5%) of respondents were treated each month in the last 3 months. The type of treatment that many respondents used was ≤2 oral antidiabetic medication (45.8%). The majority of respondents had no complications (57.3%); in addition, most respondents had <2 number of comorbidities (46.9%). The burden of comorbidities that respondents had was mild (27.1%), moderate (61.5%), and severe (11.5%). Most respondents had uncontrolled glycemic control (67.7%). The respondents' family support was 50%, equal to high and low. Respondent self-acceptance was mostly high (66.7%), and the opposite for the quality of life respondents were mostly poor (54.2%).

In table 2, the distribution of the four quality of life domains is found. The average physical health domain has a poor category (68.8%), the majority of psychological domains have a good category (54.2%), the majority of social relationship domains (52.1%) fall into the poor category, and the environmental domain mostly has a good category (71.9%). The physical health domain has the highest percentage of bad categories (68.8%) among the four quality of life domains.

Table 3 indicates that respondents who report having a poor quality of life receive average forms of therapy, namely ≤ 2 oral (21.9%). A type of ≤2 oral therapy was also present in respondents with a good quality of life (23.9%). A value of $p = 0.102$ ($p > 0.05$) was obtained from the analysis of the association between treatment type and quality of life, suggesting that there was no significant relationship between the two variables for T2DM patients' quality of life at RSUD Waled.

Table 1. Distribution and Frequency Characteristic of T2DM Patient

Characteristic	N	Percentage (%)
Gender		
Male	33	34.4%
Female	63	65.6%
Age		
Adult	66	68.8%
Elderly	30	31.3%
Marital Status		
Married	73	76%
Single	1	1%
Divorce	4	4.2%
Widow/widowed	18	18.8%
Employement		
Employed	35	36.5%
Unemployed	61	63.5%
Education		
No Formal Education	8	8.3%
Elementary School	42	43.8%
Junior High School	9	9.4%
Senior High School	28	29.2%
College	9	9.4%
Long Time Suffering from DM		
<10 years	71	74%
≥10 years	25	26%
Treatment Compliance		
Obedience	61	63.5%
Disobidience	35	36.5%
Types of therapy		
≤2 Oral	44	45.8%
>2 Oral	18	18.8%
Insulin	9	9.4%
≤2 Oral + Insulin	22	22.9%
>2 Oral + Insulin	3	3.1%
Complications		
None	55	57.3%
<2	32	33.3%
≥2	9	9.4%
Comorbidities		
None	20	20.8%
<2	45	46.9%
≥2	31	32.3%
Comorbidity Burden		
Mild	26	27.1%
Moderate	59	61.5%
Severe	11	11.5%
Glycemic Control		
Controlled	31	32.3%
Uncontrolled	65	67.7%
Family Support		
High	48	50%
Low	48	50%
Self-Acceptance		
High	64	66.7%
Low	32	33.3%
Quality of Life		
Good	44	45.8%

Characteristic	N	Percentage (%)
Poor	52	54.2%

Table 2. Distribution and Frequency of T2DM Patients' Quality of Life Domain

Quality of Life Domain	N	Percentage (%)
Physical Health Domain		
Good	30	31.3%
Poor	66	68.8%
Psychological Domain		
Good	52	54.2%
Poor	44	45.8%
Social Relations Domain		
Good	46	47.9%
Poor	50	52.1%
Environmental Domain		
Good	69	71.9%
Poor	27	28.1%

Table 3. The Correlation between Treatment Types and Quality of Life

		Quality of Life		Total	*R Spearmann*	*P value*
		Good	Poor			
Types of Therapy	≤ 2 Oral	23 (23.9%)	21 (21.9%)	44 (45.8%)	0.168	0.102
	> 2 Oral	11 (11.5%)	7 (7.3%)	18 (18.8%)		
	Insulin	2 (2.1%)	7 (7.3%)	9 (9.4%)		
	≤ 2 Oral + Insulin	6 (6.2%)	16 (16.7%)	22 (22.9%)		
	> 2 Oral + Insulin	2 (2.1%)	1 (1%)	3 (3.1%)		
Total		44 (45.8%)	52 (54.2%)	96 (100%)		

Table 4 shows that the majority of respondents with low quality of life (32.3%) do not have any complications, as well as respondents with good quality of life have no complications on average (25%). There was no significant correlation found between complications and the quality of life of T2DM patients at RSUD Waled, according to the analysis of the association between complications and quality of life, which yielded a value of $p = 0.678$ ($p > 0.05$).

Table 4. The Correlation Between Complications and Quality of Life

		Quality of Life		Total	*R Spearmann*	*P value*
		Good	Poor			
Complications	None	24 (25%)	31 (32.3%)	55 (57.3%)	-0.043	0.678
	<2	16 (16.7%)	16 (16.7%)	32 (33.3%)		
	≥2	4 (4.2%)	5 (5.2%)	9 (9.4%)		
Total		44 (45.8%)	52 (54.2%)	96 (100%)		

Based on table 5, the majority of those who had a poor quality of life had fewer than two comorbidities (27.1%), as well as respondents with good quality of life mostly had <2 comorbidities (19.8%). A value of $p = 0.981$ ($p > 0.05$) was obtained from the examination of the link between the number of comorbidities and quality of life, showing that there was no significant relationship between the number of comorbidities and the quality of life of T2DM patients at RSUD Waled.

Table 5. The Correlation between Comorbidities and Quality of Life

		Quality of Life		Total	*R Spearmann*	*P value*
		Good	**Poor**			
Comorbidities	None	10 (10.4%)	10 (10.4%)	20 (20.8%)	-0.002	0.981
	<2	19 (19.8%)	26 (27.1%)	45 (46.9%)		
	≥2	15 (15.6%)	16 (16.7%)	31 (32.3%)		
Total		44 (45.8%)	52 (54.2)	96 (100%)		

Table 6 revealed that a moderate comorbidity burden was present in the majority of respondents with good (27.1%) and poor (34.4%) quality of life. A value of $p = 0.290$ ($p > 0.05$) was found from the examination of the connection between comorbidity load and quality of life, showing that the quality of life of patients with T2DM at RSUD Waled was unaffected by comorbidity burden.

Table 6. The Correlation between Comorbidity Burden and Quality of Life

		Quality of Life		Total	*R Spearmann*	*P value*
		Good	**Poor**			
Comorbidity Burden	Mild	14 (14.6%)	12 (12.5%)	26 (27.1%)	0.109	0.290
	Moderate	26 (27.1%)	33 (34.4%)	59 (61.5%)		
	Severe	4 (4.2%)	7 (7.3%)	11 (11.5%)		
Total		44 (45.8%)	52 (54.2%)	96 (100%)		

Based on table 7, most respondents who reported having a poor quality of life had uncontrolled glycemic control (43.7%). Respondents with good quality of life also have an average of uncontrolled glycemic control (24%). A substantial correlation was found between glycemic control and quality of life among T2DM patients at RSUD Waled, as indicated by the analysis of the link between glycemic control and quality of life, which yielded a value of $p = 0.003$ ($p < 0.05$). Additionally, the correlation coefficient (r) between the two variables is $r = 0.304$, indicating a unidirectional and weakly significant association.

Table 8 revealed that respondents with a poor quality of life had, on average, low family support (39.6%), whereas those with a good quality of life had, on average, strong family support (35.4%). The quality of life of T2DM patients at RSUD Waled was found to be significantly correlated with family support, as indicated by the study of the link between the two variables, which yielded a value of $p = 0.000$ ($p < 0.05$). Additionally, the correlation coefficient (r) between the two variables is $r = 0.502$, indicating a unidirectional and moderately strong association.

Table 7. The Correlation between Glycemic Control and Quality of Life

		Quality of Life		Total	*R Spearmann*	*P value*
		Good	**Poor**			
Glycemic Control	Controlled	21 (21.9%)	10 (10.4%)	31 (32.3%)	0.304	0.003
	Uncontrolled	23 (24%)	42 (43.7%)	65 (67.7%)		
Total		44 (45.8%)	52 (54.2%)	96 (100%)		

Table 8. The Correlation between Family Support and Quality of Life

		Quality of Life		Total	*R Spearmann*	*P value*
		Good	**Poor**			
Family Support	High	34 (35.4%)	14 (14.6%)	48 (50%)	0.502	0.000
	Low	10 (10.4%)	38 (39.6%)	48 (50%)		
Total		44 (45.8%)	52 (54.2%)	96 (100%)		

In table 9, it was found that most respondents with poor quality of life had low self-acceptance (32.3%), whereas 44.8% of respondents who reported having a good quality of life also showed high levels of self-acceptance. A substantial correlation was found between family support and the quality of life of T2DM patients at RSUD Waled, as indicated by the study of the association between self-acceptance and quality of life, which yielded a value of p = 0.000 ($p < 0.05$). Additionally, the correlation coefficient (r) between the two variables is r = 0.606, indicating that the association is unidirectional and very strong.

Table 9. The Correlation between Self-Acceptance and Quality of Life

		Quality of Life		Total	*R Spearmann*	*P value*
		Good	**Poor**			
Self-Acceptance	High	43 (44.8%)	21 (21.9%)	64 (66.7%)	0.606	0.000
	Low	1 (1%)	31 (32.3%)	32 (33.3%)		
Total		44 (45.8%)	52 (54.2%)	96 (100%)		

The logistic regression test results indicated that self-acceptance and family support were the variables associated with the quality of life of T2DM patients at RSUD Waled. The strength of the relationship can be seen from the value of OR (Exp(B)). The greatest strength of the relationship is self-acceptance (OR = 30), and the smallest is family support (OR = 3.74).

Table 10. Multivariate Analysis

Variable	*P-value*	Exp(B)	CI 95%	
			Lower	**Upper**
Glycemic Control	0.090	2.74	0.855	8.775
Family Support	0.021	3.74	1.222	11.433
Self-Acceptance	0.002	30	3.611	249.179

4. Discussion

The study's findings indicate that 54.2% of the respondents had a low quality of life. Similar to the research of Irawan et al. in 2021, T2DM patients have an average of T2DM patients with low quality of life (50.9%) (Irawan, A Fatih, & Faishal, 2021). The same thing was also revealed in the 2022 Nisa and Kurniawati study, the majority of DM patients (74.2%) experience a low quality of life (Nisa & Kurniawati, 2022). Patients with type 2 diabetes may experience a reduced quality of life for a number of reasons. These elements include those related to sociodemography, patient-centeredness, disease features, self-management practices, familial support, psychology, and metabolism (Teli et al., 2023). In this study, in the categories of social ties and physical health, the majority of respondents scored highly in the poor category. In the psychological and environmental domains, the majority of respondents had a high good category. In contrast to the 2021 study by Zovancha and Wijayanti, it is known that the entire quality of life domain of people with type 2 diabetes is mostly in the moderate category. The physical health domain is one of the domains that best shows the T2DM patients' quality of life (Zovancha & Wijayanti, 2021). Daily activities, reliance on medications and medical devices, energy and weariness, mobility, pain and discomfort, sleep and rest, and job capacity are all included in the category of physical health. The psychological domain encompasses thinking, learning, memory, concentration, as well as body image and appearance, good and negative emotions, self-esteem, and spirituality or personal beliefs. Sexual activity, interpersonal interactions, and social support are all included in the social relations area. Financial resources, independence, safety, and physical security, health and social security (quality of the home environment and accessibility), chances to learn new skills and information, leisure activities, the physical environment, and transportation are all included in the environmental domain (*WHOQOL-BREF*, 1996). So that a decrease in the domains of quality of life can be caused by these aspects.

The quality of life of T2DM patients at RSUD Waled was not significantly correlated with the kind of therapy, complications, number of comorbidities, or burden of comorbidities, according to this study. Contrary to the study of Teli et al. in 2023 with *a systematic review* study on the prediction of factors related to the quality of life of T2DM patients in adults, it was discovered that the use of insulin therapy and the combination of insulin and oral medications is associated with a lower quality of life (Teli et al., 2023). In the 2021 study of Irawana et al., there was no correlation found between complications and T2DM patients' quality of life (Irawan et al., 2021). In Feyisa's 2020 study, the absence of comorbidities related to DM improves quality of life (Feyisa, Yilma, & Tolessa, 2020). This may be caused by several factors, including These factors consist of aspects related to sociodemography, patient-centeredness, illness features, self-management practices, familial support, psychology, and metabolism (Teli et al., 2023).

In this study, glycemic control and T2DM patients' quality of life at RSUD Waled were significantly positively correlated with relationship strength, which is weak. Similar to the Mugi R study in 2020, patients with type 2 diabetes have a correlation between their quality of life and their HbA1c (Mugi et al., 2020). Likewise, in the Widiyati et al. research from 2023, the Spearmann test findings indicated a connection between quality of life and HbA1c levels (Widiyati et al., 2023). Abnormal HbA1c can cause an increase in oxidative stress in various body tissues so that various manifestations such as polyuria, polydipsia, and polyphagia appear that can interfere with the performance of T2DM patients. The state of hyperglycemia also causes changes in protein and fat metabolism. Increased proteolysis causes the process of gluconeogenesis to increase. This increases blood glucose levels, which is eventually reflected in an increase in HbA1c. in order for it to have an impact on both mental and physical health. Controlling perceptions about health and disease plays an important role in preventing a rise in the incidence of negative emotions that can affect quality of life (Mugi et al., 2020).

In this research, there was a significant positive correlation between family support and the life quality of T2DM patients at RSUD Waled, with relationship strength being moderate. The same thing was stated in the 2023 Zanzibar and Akbar study, which found the quality of life of T2DM patients was correlated with family support (Zanzibar & Akbar, 2023). Likewise, Zovancha and Wijayanti's 2021 studies revealed a connection between type 2 diabetics' quality of life and their family's support (Zovancha & Wijayanti, 2021). The role of the family is one of the important aspects that can affect psychological, social, and emotional health conditions for individuals. Support can help individuals with diabetes live better lives by regulating psychological processes and encouraging behavior

change. The primary source of support is family for DM patients (Zanzibar & Akbar, 2023). Family support is intimately associated with the patient's adherence to controlling blood sugar concentrations, in order for it to have an impact on life quality. Family support for people with DM provides benefits in disease management and adjustment. Family is the most crucial support system. Support provided to sick family members can increase comfort, reduce stress, and reduce anxiety so that it can enhance the quality of life of sick family members (Zovancha & Wijayanti, 2021; Zanzibar & Akbar, 2023)

In this study, T2DM patients' quality of life and self-acceptance at RSUD Waled were significantly positively correlated with relationship strength. Similar to the Hawe study in 2021, there is a connection between T2DM patients' quality of life and their level of self-acceptance (Hawe, 2021). A diagnosis of a chronic disease will affect how a person with diabetes mellitus sees and accepts his or her life, himself, and his future. A person with high self-acceptance, then has high well-being and subsequently results in high medication adherence as well (Fatina, 2022). People who are able to recognize themselves are able to recognize what they have, good and bad. This can increase self-confidence and self-esteem (Liawati, Pertiwi, & Purnairawan, 2024). In the 2021 Hawe study, there was a correlation between T2DM patients' blood sugar levels and their level of self-acceptancen (Hawe, 2021). In addition, diabetics without high self-acceptance were significantly associated with less active coping, higher diabetic pressure, and severe depressive symptoms (Hawe, 2021).

During the multivariate analysis, the greatest strength of the relationship is self-acceptance, and the smallest is family support. A diagnosis of a chronic disease will affect how the sufferer sees and accepts his or her life, himself, and his future. Self-acceptance is the ability of an individual to accept himself and his past, including the shortcomings and strengths that exist in the individual (Ryff, 1995). A key component of mental health is self-acceptance, which also includes self-actualization, maturity, and optimal functioning. Acceptance of oneself and one's past is another important aspect of life span theory. Thus, the primary attribute of positive psychological functioning is having a favorable attitude about oneself (Ryff, 1989). Ryff expresses multiple areas of psychological well-being, one of which is self-acceptance. A few aspects of psychological well-being are self-acceptance, wholesome interpersonal connections, independence, environmental mastery, setting and achieving goals in life, and personality development (Ryff, 1989, 1995). According to Ryff, when positive psychological function criteria are met, a person's psychological health is referred to as psychological well-being. Numerous factors can impact psychological well-being, such as locus of control, social support, life experience appraisal, and demographics. The term "social support" refers to the comfort, attention, gratitude, or assistance that people perceive from a variety of sources, including their family (Ryff, 1989, 1995). T2DM patients with good self-acceptance usually have lower concern about their disease because they’re already accepting the disease as their part of life while keeping up with their medical adherence. This condition can lead to increased overall well being and satisfaction with their health, hence increasing quality of life of the patients.

The family has an important role in influencing a person's psychological, social, and emotional health. Support from family can improve people with type 2 diabetes’s quality of life by helping to regulate psychological processes and encourage behavior change. Family is the main source of support for T2DM patients (Zanzibar & Akbar, 2023). This indicates that the family is a crucial psychological source in the medication process. The support provided boosts an individual's confidence, helping them survive in the face of the illness they suffer from. Family support provides a sense of comfort and motivation, allowing them to maintain the same quality of life as people in general and accept their condition more spaciously, thus making them stronger (Zanzibar & Akbar, 2023).

According to Selye, the body's reaction to any kind of stressor is known as the "generalized adaptation syndrome," which consists of three stages of physiological reactions. The first phase is known as the alarm phase, during which the body activates the sympathetic nervous system in response to stimuli. When intense emotions arise, the body releases adrenal chemicals, including norepinephrine and adrenaline. The body continues the physiological reaction that starts in the alarm phase during the resistance phase, which is when the body rejects or overcomes inevitable stressors. However, this resistance phase also increases the body's susceptibility to other stressors. The third stage is known as the exhaustion phase, during which ongoing stress depletes the body's energy, makes physical issues more likely to occur, and eventually leads to health issues (Wade & Tavris, 2007). The patient is frequently unable to maintain their own level of health if this condition persists. The body's metabolism of sugar will be disturbed as a result. Stress causes the body to produce more cortisol, which raises blood sugar levels by

increasing the synthesis of glucose (Hawe, 2021). The DM person needs to be able to embrace who they are in order to be able to acknowledge their strengths and weaknesses. (Liawati et al., 2024). Good self acceptance and family support may rise self-esteem and confidence of T2DM patients, resulting in good emotional health, thus increasing overall quality of life in T2DM patients.

Study Limitations

This study employs a cross-sectional methodology, which can only identify the association between variables without establishing causality, is one of its weaknesses. The fact that this study only collected data in one place and used a small sample size is another drawback that might limit how broadly the findings can be applied. Furthermore, the possibility of unrecorded patient data makes the use of data from electronic medical records susceptible to bias.

5. Conclusion

In this study, it was found that 54.2% of T2DM patients had poor quality of life, with influencing factors including glycemic control which had a weak relationship (p = 0.003 and r = 0.304), family support which had a strong relationship (p = 0.000 and r = 0.502), and self-acceptance which had a very strong relationship (p = 0.000 and r = 0.606). The factor that most affects the quality of life of T2DM patients is self-acceptance (OR=30). However, it is difficult to determine the causal relationship between these factors because of the cross-sectional study design. The quality of life of DMT2 patients at RSUD Waled and the factors affecting it are discussed in this study. However, because of the location's unique features and the small sample size, it should be highlighted that these results have limited generalizability to other populations or locations. The findings of this study should still be taken into account when putting health promotion or useful interventions into practice to enhance the lives of people with type 2 diabetes. With an emphasis on patients' psychological health, especially on techniques for self-acceptance and family support in patient management, healthcare providers can incorporate educational intervention programs into routine diabetic care. This program may involve education, counseling, and the establishment of support groups to improve self-management, motivation, and knowledge. (Zovancha & Wijayanti, 2021)

Suggestions for Further Researchers

The future study as a follow-up to this study could entail statistical analysis of other variables that were not included in this study but may have an impact on the quality of life of T2DM patients, such as stress, anxiety, and depression. To enable more comprehensive generalization, studies might be carried out with a bigger number and a diversified sample. a variety of research techniques. For example, employing longitudinal research to gain a deeper comprehension of cause and consequence.

Conflict of Interest

There is no conflict of interest.

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