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The Relationship Between Lifestyle and Social Capital on the Quality of Life of Patients with Type 2 Diabetes Mellitus at the Barombong Health Center in Makassar City In 2024

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Diabetes is a chronic disease that occurs when the pancreas does not produce enough insulin or when the body cannot use the insulin produced effectively. Insulin is a hormone that regulates blood glucose. Factors that can affect quality of life such as lifestyle and social capital. This study aims to determine the relationship between lifestyle and social capital on the quality of life of patients with type 2 diabetes mellitus at the Barombong Health Center, Makassar City. This study is an analytic observational study with a cross sectional approach. The population in this study was 578 people, the sample calculation used the WHO formula which resulted in a sample size of 385 people with predetermined exclusion and inclusion criteria. The sampling technique used was simple random sampling, with the chi square test. Bivariate analysis shows that there is a relationship between quality of life with physical activity (p=0.000), smoking (p=0.000), stress (0.000), diet (0.000), social network (0.000), social support (0.000), social norms (0.000), while variables that are not related to quality of life are obesity (0.498), and trust (0.964). Based on the results of the logistic regression test on multivariate analysis, there are several variables that are most dominantly associated with quality of life, namely physical activity p-value

(0.001). Stress p-value (0.000). Social support (0.000). Social norms p-value (0.000). Physical activity, stress, social support, and social norms are the most dominant variables associated with quality of life with a probability level of 84%.
Keywords: Lifestyle, social capital, quality of life, type 2 diabetes mellitus.

1. Introduction

Diabetes is a chronic disease that occurs when the pancreas does not produce enough insulin or when the body cannot effectively use the insulin it produces. Insulin is a hormone that regulates blood glucose. Hyperglycemia, also called high blood glucose or high blood sugar, is a common effect of uncontrolled diabetes and over time causes serious damage to many body systems, especially the nerves and blood vessels. Another 460,000 kidney disease deaths are due to diabetes, and high blood glucose causes about 20% of cardiovascular deaths. Between 2000 and 2019, there was a 3% increase in age-standardized diabetes mortality.

In low-middle-income countries, diabetes mortality increased by 13%[1]. Diabetes mellitus is a degenerative disease. The proportion of diabetes mellitus incidence is highest in type 2 diabetes mellitus, namely 85% - 95% of the world's population suffering from diabetes mellitus. The World Health Organization (WHO) projects that diabetes will be the seventh leading cause of death by 2030 [2].

Globally, 422 million people worldwide have diabetes, the majority of whom live in low- and middle-income countries, and 1.5 million deaths are directly attributable to diabetes each year. The number of cases and prevalence of diabetes have been increasing steadily over the past decades. The prevalence of diabetes overall has increased from 4.7% to 8.5% in the adult population, reflecting increases in risk factors such as overweight or obesity over the past decade; the prevalence of diabetes has increased more rapidly in low- and middle-income countries than in high-income countries [3].

According to the International Diabetes Federation in 2019, Indonesia was the seventh country in the world for adults aged 20-79 years with the most DM after China, India, the United States, Pakistan, Brazil, and Mexico with a total of 10.7 million sufferers. The prevalence of DM in the age group of 20-79 years is estimated at 8.4% for women and 9.1% for men with a population of 221 million men and 203.9 million women [4].

Basic health research shows the prevalence of DM is 8.5% according to blood sugar examination in Indonesia in 2018, an increase of 1.6% compared to 2013 which was 6.9% [5]. In South Sulawesi Province, Makassar City is in first place for the number of diabetes mellitus sufferers from 21 regencies and 3 cities in 2022 with 24,739 diabetes mellitus sufferers.

Data from the Makassar City Health Office for the category of Non-Communicable Diseases (PTM), diabetes mellitus ranks 2nd in the 10 highest diseases after hypertension. The Makassar City Health Office has a working area of 47 Health Centers and one of the health center areas located in the peripheral area is the Barombong Health Center which has a working area of 13 RW and 67 RT located in the coastal area of Makassar City. Cases of diabetes mellitus at the Barombong Health Center in 2022 were 324 cases, and increased in 2023 with a total of 578 cases [6].

According to the World Health Organization (WHO), Quality of Life is an individual's perception of their position in life in the context of the culture and value system in which they live and in relation to their goals, expectations, standards and concerns. WHO classifies quality of life can be measured by 6 domains including domain I physical health, domain II psychological, domain III level of independence, domain IV social relationships, domain V environment, Domain VI spiritual [7]. Throughout their lives, DM sufferers will experience physical, psychological, social and environmental problems due to the need for long and continuous DM care. DM sufferers must undergo lifestyle adjustments such as types of food, regular exercise, daily medication, and blood glucose monitoring which are demands on individuals so that they affect their quality of life.

Lifestyle and social capital can significantly affect the quality of life of DM sufferers. Where diabetes mellitus is a condition characterized by high levels of sugar (glucose) in the blood due to impaired production or use of insulin by the body. Therefore, lifestyle and social capital are emphasized in this study because they can play an important role in DM management and their influence on the quality of life of DM sufferers.

2. Materials and Methods

Research Design

This study used an analytic observational research design with a cross sectional design. Cross sectional research is a type of research that is conducted only once at one time measuring or observing data on independent variables including patient characteristics, lifestyle factors (obesity, physical activity, smoking, stress, diet) social capital factors (social networks, social support, social norms, trust), and dependent (quality of life of patients with diabetes mellitus) simultaneously without any follow-up during post measurement data. The sampling technique used was simple random sampling (SRS). for measuring quality of life with direct interviews and using the 5Q5D-5L questionnaire.

Research Location

This research was conducted at the Barombong Health Center, Makassar City in 2024.

Research Sample

This study calculates the sample size using the WHO formula.

As follows:

$n = (Z^2 \times p \times (1-p))/d^2$

Description:

n :Desired sample size

Z :Standard Z score corresponding to the desired confidence level (usually 1.96 for 95% confidence level)

p : The proportion of the population experiencing the event in this case the proportion of the population suffering from type 2 diabetes mellitus (0.5)

d : Margin of error or desired error tolerance (0.05 or 5%)

n = (Z^2 x p x (1-p))/d^2

n = (〖(1.96)〗 ^2 x 0.5 x (1-0.5))/ 〖(0.05)〗 ^2

n = (3.8416 x 0.25)/0.0025

n = 0.9604/0.0025

n = 384.16

So, the desired sample size for a population of 578 with 95% confidence level and margins of error of 0.05 is about 385. Numbers were rounded up to obtain a more conservative sample.

Data Analysis

Data analysis was performed using the STATA program, The relationship between the dependent variable and the independent variable was analyzed using the chi-square test. The multivariate analysis used was logistic regression test with 95% confidence level ($\alpha = 0.05$).

Research Ethics

This study was conducted after obtaining a certificate of ethical review from the Health Research Ethics Committee of the Faculty of Public Health, Hasanuddin University.

3. Results:

Univariate Analysis

Table 1 shows the individual characteristics of patients with type 2 diabetes mellitus at the Barombong Health Center, Makassar City in 2024, namely the proportion of patients with type 2 diabetes mellitus who are female is more numerous at 238 respondents (61.82%) than men. The age group of patients with type 2 diabetes mellitus in this study was mostly in the age group 46-65 years as many as 259 respondents (67.27%). The marital status of patients with type 2 diabetes mellitus in this study is mostly married as many as 380 respondents (98.70%). The majority of respondents in this study had elementary school education as many as 229 respondents (59.48%). The majority of respondents in this study were housewives as many as 212 respondents (55.06%). The quality of life of patients with type 2

diabetes mellitus is more likely to have a good quality of life as many as 252 respondents (65.45). Physical activity of patients with type 2 diabetes mellitus is more who do light physical activity as many as 268 respondents (69.61%). the majority of DM patients do not smoke as many as 275 respondents (71.43%). DM patients have normal stress levels as many as 238 respondents (61.82%). Have an adequate diet as many as 186 respondents (48.31%). Not obese based on BMI calculations, namely 219 respondents (56.88%). Patients with type 2 diabetes mellitus have a good social network as many as 296 respondents (76.88%). Having good social support was 270 respondents (70.13%). Having good social norms as many as 371 respondents (96.36%). Having good trust as many as 347 respondents (90.13%).

Table 1 Frequency Distribution of General Characteristics of Lifestyle, Social Capital in Patients with Type 2 Diabetes Mellitus at Barombong Health Center Makassar City in 2024

Variabel	Frequency (n)	Percentage (%)
Gender		
Male	147	38,18
Female	238	61,82
Age Group		
26-35	10	2,60
36-45	57	14,81
45-65	259	67,27
>65	59	15,32
Marital Status		
Duda/Janda	5	1,30
Kawin	380	98,70
Education Level		
No School	4	1,04
Elementary school	229	59,48
Junior high school	94	24,42
Senior high school	45	11.69
S1	12	3,12
S2	1	0,26
Jobs		
Not working	51	13,25
Housewife	212	55,06
Civil servants	6	1,56
Self-employed	15	3,90
Enterpreneurship	19	4,94
Fisherman	57	14,81
Farmers	11	2,86
Labor	11	2,86
Honorer	1	0,26
Retired	2	0,52
Quality Of Life		
Good	252	65,45
Bad	133	34,55
Physical Activity		
Mild (MET <600)	268	268
Weight (MET >2000)	117	117
Smoking		
No smoking	252	71,43
light smokers	27	7,01
moderate smokers	19	4,94
heavy smokers	64	16,52
Stres		
Normal (Skor 0-14)	238	61,82
Mild (Skor 15-18)	81	21,04
Medium (Skor 19-25)	55	14,29

Severe (Skor 26-33)	11	2,86
Eating Patterns		
Less	29	7,53
Simply	238	61,82
More	118	30,65
Obesity		
Normal (IMT 18,5-22,9)	219	56,88
At Risk of Obesity (IMT 23,0-24,9)	139	36,10
Obesity I (IMT 25,0-30)	27	7,01
Sosial Network		
Good	296	76,88
Simply	78	20,26
Less	11	2,86
Social Network		
Good	270	70,13
Simply	78	20,26
Less	37	9,61
Social Norms		
Good	371	96,36
Less	14	3,64
Trust		
Good	347	90,13
Less	38	9,87
Total	**385**	**100,0**

Source: Primary Data, 2024

Bivariate Analysis

Table 2 shows that there are 7 significant variables, namely physical activity p-value (0.000), smoking p-value (0.000), stress p-value (0.000), diet p-value (0.000), social network p-value (0.000), social support p-value (0.000), social norms p-value (0.000), while variables that are not associated with quality of life are obesity (0.498), and trust (0.964). not associated with quality of life are obesity (0.498), and trust (0.964). There are 2 variables that are not associated with quality of life, namely obesity p-value (0.498) and trust (0.964). There were 7 variables with p-value <0.25, namely physical activity, smoking, stress, diet, social network, social support, social norms. These variables were continued in multivariate analysis.

Table 2: Bivariate Analysis of Lifestyle and Social Capital on the Quality of Life of Type II Diabetes Mellitus Patients at the Barombong Health Center Makassar City in 2024

Variables	**Quality of Life**				**Total**		**p-value**
	Good		**Bad**		**n**	%	
	n	**%**	**n**	**%**			
Physical Activity							
Mild (MET <600)	157	62,30	111	83,46	268	69.61	0,000
Weight (>2000)	95	37,70	22	16,54	117	30.39	
Smoke							
No smoking	211	83,73	64	48,12	303	71,43	0,000
	8	3,17	19	14,29	27	7,01	
	9	3,57		7,52	23	4,94	

Light Smoker	24	9,52	14	30,08	32	16,62	
Moderate Smoker	190	75,40	8	75,40	238	61.82	
Heavy Smoker	30	15,87	43	15,87	81	21.04	
Stres	19	7,54	42	7,54	55	14.29	0,000
Normal (Score 0-14)	3	1,19	39	1,19	11	2.86	
Mild (Score 15-18)	20	7,94	9	6,02	28	7,27	
Medium (Score 19-25)	150	59,52	8	27,07	186	44,42	
Severe (Score 26-33)	82	32,54	36	66,92	171	48,31	
			89				0.001
	138	55,16		60,15	219	56,88	
Eating Patterns	96	37,70	81	33,08	139	36,10	
Less	18	7,14	43	6,77	27	7,01	
Simply			9				
More	201	79,76		71,43	296	76,62	0.498
	50	19,84	95	21,05	78	20,78	
	1	0,40	28	7,52	11	2,60	
Obesity			10				
Normal	196	72,78		55,64	270	70,13	0,000
At risk Obesity	46	18,25	74	24,06	78	20,26	
Obesity	10	3,97	32	20,30	37	9,61	
			27				
	250	99,21		90,98	371	96,36	
Network Social	2	0,79	121	9,02	14	3,64	0,000
Good	227	90,08	12	90,23	347	90,13	
Simply	25	9,92	120	9,77	38	9,87	0,000
Less			13				
Social Support							0.964
Good							
Simply							
Less							
Social Norms							
Good							
Less							
Trust							
Good							
Less							
Total	**252**	**100.00**	**133**	**100.00**	**385**	**100.00**	

Source: Primary Data, 2024

Multivariate Analysis

Multivariate analysis was conducted to determine which variables were most dominantly related to the quality of life of type 2 diabetes mellitus patients at the Barombong Health Center in Makassar City. Multivariate analysis was conducted using logistic regression statistical tests. The results of the analysis are explained below:

Table 3 Results of Logistic Regression Test Analysis of the Relationship between Lifestyle and Social Capital on the Quality of Life of Type 2 Diabetes Mellitus Patients at the Barombong Health Center, Makassar City in 2024

Variables	Coef	S.E	z	p-value	OR	95% CI	
						LL	UL
Physical Activity	-1,166696	0,1032607	-3,52	0,000	0,3113941	0,1625719	0,5964517
Stress	1,11307	0,4811232	7,04	0,000	3,043688	2,232794	4,149078
Social Support	1,176696	0,6447013	5,92	0,000	3,243639	2,197095	4,788684
Social Norms	3,448883	26,74741	4,06	0,000	31,46524	5,946436	166,4966
_Cons	-6,252905	0,0019894	-6,05	0,000	0,0019249	0,0002539	0,0145935

Source: Primary Data, 2024

Based on the results of the logistic regression test in multivariate analysis, there are several variables that are most dominantly associated with quality of life, namely physical activity with an OR value of 0.311, which means that individuals with better physical activity are less likely to have a poor quality of life. With a 95% CI value of LL 0.1625719 UL 0.5964517. This CI does not include the number 1 which indicates this relationship is statistically significant. Stress with an OR value of 3.043688 which means that individuals with higher stress levels have a 3.04 times greater chance of having a reduced quality of life compared to individuals with lower stress levels. With a 95% CI value of LL 2.232794 UL 4.149078. This CI does not include the number 1, indicating a statistically significant relationship. Social support with an OR value of 3.243639 which indicates that individuals with good social support have a 3.24 times greater chance of experiencing a decline in quality of life compared to individuals with lower levels of stress.

to have a better quality of life compared to individuals with less social support. With a 95% CI value of LL 2.197095 UL 4.788684. This CI does not include the number 1, indicating a statistically significant relationship. Social Norms with an OR value of 31.46524 This figure indicates that individuals who live in good social norms, have a 31.46 times greater chance of having a better quality of life compared to individuals who live in less social norms. With a 95% CI value of LL 5.946436 UL 166.4966. This CI does not include the number 1, indicating a statistically significant relationship. Based on the above interpretation, the regression equation is as follows:

Y = const + coef(physical activity) + coef(stress) + coef(social support) + coef(social norm)

Y = -6,252905+-1,16696+1,11307+1,176696+3,448883

Y = -1,680952

After getting the y value, the next step is to calculate the probability of the subject with the following formula:

P = 1/(1+exp(-y))

P = 1/(1+exp(-1.680952))

P = 0,84303055

P = 0.84303055 x 100%

P = 84%

Thus, it can be seen that if patients with type 2 diabetes mellitus do physical activity and have normal stress levels, as well as good social support and norms, then the possibility of patients with type 2 diabetes mellitus at Puskesmas Barombong Makassar City to have a good quality of life is 84%, while the remaining 16% that can affect the improvement of the quality of life of patients with type 2 diabetes mellitus is most likely influenced by other factors such as diet and smoking habits.

4. Discussion

Physical Activity

The results of the analysis in this study showed a distribution based on physical activity from 385 respondents, there were 268 respondents (69.61%) who did light physical activity, while 117 respondents (30.39%) did heavy physical activity. The results of statistical tests showed that there was a significant relationship between physical activity and the quality of life of type 2 diabetes mellitus patients at the Barombong Health Center in Makassar City with a p-value of 0.000 (p <0.5).

This study is in line with the study of [8] that the statistical analysis of the Chi-square test obtained a p value of 0.000 <0.05, which means that there is a relationship between physical activity and the quality of life of patients with type 2 diabetes mellitus. The results of this study are also supported by the research of [9] Based on the results of the Pearson chi square test, the Asymp sig (2-sided) value was obtained 0.002 <0.05, so based on the decision making above, it can be concluded that Ho is rejected and Ha is accepted.

Diabetes mellitus is a long-term disease that requires long

term therapy and can cause complications in various organs to accelerate healing, education and routine and scheduled physical activity are neede [10] The recommendation for physical activity in people with diabetes mellitus is to do physical activity in the moderate to heavy category according to the ability and condition of the patient, both in work, transportation, domestic activities, leisure activities, or while sitting for at least 10 minutes at a time. This activity should be done in the last week. In addition, it is recommended to do physical activities related to work, transportation, and domestic activities [11].

Physical activity helps improve the quality of life of diabetes mellitus patients, heart health, improve blood circulation, and reduce the risk of long-term complications.

Smoking

Based on the results of the study, the majority of respondents who did not smoke were 303 people (78.70%), there was a significant relationship between smoking and the quality of life of type 2 diabetes mellitus sufferers with a p-value (0.000).

In line with research conducted by [12] that there is a significant relationship between smoking and the quality of life of type 2 diabetes mellitus sufferers, the study showed that smoking causes a lower possibility of having a better quality of life. For smokers, the average possibility of having a better quality of life is 11.65 percent lower than when they do not smoke. However,

these results are not in line with research by [13] which shows that there is no relationship between smoking and the quality of life of type 2 DM sufferers.

In this study, there is a relationship between smoking and the quality of life of type 2 diabetes mellitus sufferers, because based on the results of the study it was obtained that the majority of respondents who did not smoke had a good quality of life. Conversely, respondents with poor quality of life on average have a smoking habit.

Stress

Based on the results of this study, there were 195 respondents (61.82%) with normal stress levels. There is a significant relationship between stress and quality of life type 2 with a p-value of 0.000 ($p < 0.05$). In line with research by [14] there is a significant relationship between stress levels and quality of life in people with type 2 diabetes where (p value 0.039 <0.05). Factors that influence stress levels are personality which has a large percentage of stress levels and quality of life of individuals with diabetes. Personality factors can worsen quality of life, both suffering caused by physical illness and complications that arise.

This study is also in line with research conducted by [15] explaining that stress affects the mental quality of patients, which then affects the overall quality of life of patients. Stress affects patients' perceptions of chronic diseases, so that their optimism in living with diabetes becomes low. This is what leads to a decrease in the quality of life.

Stress levels generally have a significant relationship with the patient's quality of life. Patients experience stress because they are not yet accustomed to new lifestyles and diets that must be adjusted to diabetes. When this stress is not handled properly, the problem will continue to develop, leading to system disorders, until clinical manifestations or complications appear. This then affects the patient's quality of life [16].

Eating Patterns

Based on the research results, there were 238 respondents (81.82%) who had an adequate diet. There is a significant relationship between diet and quality of life of people with type 2 diabetes mellitus with a p value of 0.001 ($p < 0.05$). In line with research conducted by [17] that there is a relationship between diet and quality of life where the p value is 0.021 of 83 respondents, 36 (43.4 percent) have a healthy diet, good diet, while 47 (56.6%) eat badly.

Respondents have a lifestyle with a certain diet that will affect their blood sugar, especially if the food consumed contains a lot of sugar, often consumes fast food, eats too many carbohydrates and consumes food that is processed by frying excessively can affect high fat intake, so that it can cause fat accumulation so that it will inhibit the pancreas from carrying out the function of insulin secretion, if insulin secretion is inhibited, blood sugar levels will increase, resulting in Diabetes Mellitus [18].

Quality of life is recognized as the most important criterion in assessing the medical outcomes of chronic disease treatment such as DM. Individual perceptions of the impact and satisfaction with the degree of health and its limitations are important as a final evaluation of treatment [19]. Diabetes mellitus cannot be cured, therefore diabetes management must be carried out for life, especially in managing diet [20]. Based on the explanation above, it can be seen that there is a relationship between diet and the quality of life of people with type 2 diabetes

mellitus, because a good diet can improve the quality of life better.

Obesity

Based on the results of the analysis, there were 219 respondents (58.88%) who were not obese according to the calculation of Normal BMI (18.5-22.9). There was no relationship between obesity and quality of life (0.496) (p>0.05). In line with research conducted by [21] that there is no relationship between obesity and quality of life of type 2 diabetes mellitus sufferers. Supported by research by [22] that there is no significant relationship between obesity and quality of life of type 2 diabetes mellitus sufferers with a p value = 0.75. However, it is different from research conducted by [23], that there is a significant relationship between obesity and the incidence of type 2 diabetes mellitus.

In this study, there was no significant relationship between obesity and quality of life of type 2 diabetes mellitus sufferers, possibly due to the use of a different obesity indicator threshold (BMI) than other studies. According to [23] in adults in China showed that the optimal BMI cut-off value for predicting the risk of DM in women was 23.3 kg/m2. (24) in Korea showed that the optimal BMI cut-off value for predicting the risk of DM in women was 23.0 kg/m2. This value is known to be lower than the obesity cut-off point for the population in Indonesia according to the [26] used in this study (BMI> 25.0 kg/m2).

Another thing that causes the absence of a relationship between obesity and quality of life in this study is that people who have DM and obesity still have a good quality of life, because obesity is likely not causing their physical or psychological problems [26].

Social Network

Based on the results of the study, there were 295 respondents (76.88%) who had good social networks. Based on the results of the chi-square statistical test in the bivariate analysis, it showed that there was a significant relationship between social networks and the quality of life of people with type 2 diabetes mellitus with a p value of 0.827 (p>0.05). In line with research conducted by [27] that there was a significant relationship between social networks and quality of life (p=0.000).

In this study, social networks are the ability of respondents to seek information about diabetes mellitus from their social networks such as family, friends, and access to health services to obtain information about type 2 diabetes mellitus. Diversity in social networks can help individuals gain perspectives and assistance from various points of view. Social networks can help individuals make health-related decisions, such as starting treatment or changing their lifestyle.

Individuals with larger social networks tend to engage in better health behaviors, such as physical activity and healthy eating patterns. These behaviors can reduce the risk of diabetes complications and improve quality of life. In contrast, individuals who live alone or have limited social networks show an increased risk of complications [28].

Social Support

Based on the research results, there were 270 respondents (70.13%) with good social support, while based on the results of the chi-square statistical test in the bivariate analysis, it shows

that there is a significant relationship between social support and the quality of life of type 2 diabetes mellitus sufferers with a p value of 0.000 (p <0.05). In line with research conducted by [29] that there is a significant relationship between family social support and quality of life in type 2 diabetes mellitus sufferers. Another study by [30] which showed a relationship between social support and quality of life of diabetes mellitus sufferers. Research by [31] that there is a relationship between family support and quality of life of diabetes mellitus patients obtained a p value of 0.000. The results of the statistical test showed that the p value (0.000) <0.05. Therefore, H0 is rejected and H1 is accepted, which means that there is a relationship between family support and quality of life of diabetes mellitus sufferers.

Research conducted by [32] found a relationship between the role of the family and the quality of life in patients with Type 2 DM. The study also stated that the better the role of the family, the higher the quality of life of patients with diabetes mellitus. The role of the family in providing support is very important, when patients carry out self-care correctly and consistently, they will feel more motivated and less burdened by the disease they suffer from, which in turn increases their enthusiasm in carrying out daily activities. According to [32] stated that the role of the family as a coordinator, motivator and contributor greatly influences the quality of life of people with diabetes mellitus. With the presence of a positive coordinator, motivator, contributor from the family, diabetes patients will find it easier to live a healthy lifestyle, which will ultimately improve the quality of life of patients with type 2 diabetes mellitus.

Social support is meaningful in efforts to improve the quality of life of people with Diabetes Mellitus. With social support, both emotional support, appreciation, instrumental and information, it is very helpful for patients with Type 2 Diabetes Mellitus to be able to increase their confidence in their ability to carry out self-care, which can improve their quality of life. Social support contributes significantly to diabetes self-management by increasing motivation, providing access to information, reducing stress, improving adherence to treatment, and developing self-management skills. Therefore, it is important to create a strong support network for diabetes patients to help them manage their condition effectively. Family support is a process that occurs throughout life, the nature and type of family support differs in the stages of the life cycle. Family support can be in the form of internal or external social support.

Social Norms

Based on the results of the study, there were 371 respondents (96.36%) with good social norms, while based on the results of the chi-square statistical test in the bivariate analysis, it showed that there was a significant relationship between social norms and the quality of life of type 2 diabetes mellitus sufferers with a p value of 0.000 (p <0.05). In line with research by [33] regarding the influence of norms on foot care behavior in diabetes mellitus sufferers at health centers in the South Surabaya city area, which found that there was an influence of norms on foot care behavior in diabetes mellitus sufferers.

Social norms can be interpreted as beliefs that are influenced by other people who are considered important by individuals who advise individuals to do or not do certain behaviors and motivation accompanied by the willingness to do or not do something that is considered important.

According to the results of the researcher's analysis, out of 385 respondents, 250 people (67.39%) had good social norms and good quality of life. Researchers assume that in addition to sufferers being in a good home environment, sufferers also receive advice from health service providers to routinely check their blood sugar, this assumption is supported by the results of interviews using social norm questionnaires to sufferers who often routinely check and check themselves at health service providers. The better the environment, the better the person's behavior and the people around them will influence or suggest to behave well too. This is what can improve the quality of life of people with type 2 diabetes mellitus.

Trust

Based on the results of the study, there were 347 respondents (90.13%) who had good trust. Based on the results of the chi-square statistical test in the bivariate analysis, it showed that there was a significant relationship between trust and the quality of life of type 2 diabetes mellitus sufferers with a p value of 0.964 ($p>0.05$). In this study, the trust in question is the patient's belief or perception to behave healthily in maintaining blood glucose levels to improve quality of life. In line with the results of research by [34] in his research on the relationship between disease perception and quality of life of type 2 diabetes mellitus sufferers, that there was no significant relationship between trust and quality of life.

High trust or confidence from DM sufferers can contribute to compliance with treatment and disease management, which in turn improves quality of life. Trust is also related to psychological aspects, such as reducing anxiety and depression, which have a positive impact on QoL. This belief influences the coping strategies and healthy behaviors used by patients to manage their disease. Therefore, DM sufferers who perceive their disease in a more positive or optimistic way will be more motivated to comply with disease management and self-care activities so that their physical health is better maintained, and vice versa.

5. Conclusion

Physical activity, stress, social support, and social norms are the variables most related to the quality of life of type II diabetes mellitus patients at the Barombong Health Center in Makassar City in 2024. It is recommended to further optimize periodic blood sugar check-ups such as posbindu, posyandu for the elderly, and prolanis, improve psychological counseling services for diabetes sufferers, because stress and poor mental conditions can affect blood sugar control, in terms of improving the quality of life of patients and preventing complications in the future.

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