FACTORS AFFECTING QUALITY OF LIFE FOR PEOPLE WITH DIABETES MELLITUS IN THE WORKING AREA OF THE SELABATU HEALTH CENTER SUKABUMI CITY

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Abstract, **Background:** Diabetes Mellitus (DM), is a health problem, at risk of complications, and reduces the quality of life. To improve the quality of life, family support, self-efficacy, anxiety, self-care, and medication adherence are needed. The purpose of this study was to determine the factors that affect the quality of life in DM patients. Diabetes Mellitus is a disease of metabolic disorders, does not produce enough insulin/insulin cannot be used. Quality of life is a multi-dimensional element of well-being (physical, mental, emotional, and social status). Family support is assistance provided by the family in the form of physical and psychological. Self-efficacy is belief in one's own ability to achieve desired results. Anxiety is a feeling of fear, weakness, unable to act rationally. Self-care is the need for self-care to maintain health. Adherence to drinking is the attitude, behavior of taking the medication regularly.
Methods: This type of research is correlational with a cross-sectional approach. The population as many as 136 patients, sampling using total sampling. Instruments using standardized questionnaires include the Hensarling Diabetic Family Support Scale (HDFSS) instrument, the Diabetic Management Self-Efficacy Scale (DMSES) instrument, the Zung Self Rating Anxiety Scale (ZSRAS) instrument, the Summary of Diabetic Self-Care Activity (SDSCA) instrument, the Morisky instrument Medication Adherence Scale-8 (MMAS-8), instrument Diabetic Quality of Life (DQOL). Statistical analysis using simple and multiple linear regression.
Results: The results showed that simultaneously only self-efficacy had an effect on the quality of life (p-value 0.037).
Conclusion: Simultaneously, only self-efficacy affects the quality of life for DM patients in the Selabatu Public Health Center, Sukabumi City. It is hoped that this research will be input for conducting counseling on the importance of family support, self-care, medication adherence to quality of life.

Keywords: Diabetes Mellitus, Anxiety, Drug Compliance, Quality of Life, Self Care, Self Efficacy.

Background

Diabetes Mellitus (DM) is a metabolic disease in the form of a collection of symptoms due to increased amount of sugar in the blood (hyperglycemia) resulted from abnormalities in insulin secretion, insulin action, or both. The increased amount of sugar in the blood causes blood sugar to accumulate in the blood so that it fails to enter the cells. The failure is resulted from a decrease in the amount of insulin or defects in insulin function (1).

In 2019, people with DM had reached 463 million people, of which 9.3% came from the adult population (20-79 years). This number is estimated to continue to increase to 578 million people or 10.2% in 2030 and could reach 700 million people or 10.9% in 2045 (2).

The International Diabetes Federation, states that DM has an impact on health conditions

that can cause complications including cardiovascular disease, neuropathy, nephropathy to eye disease that can cause retinopathy and blindness. Chew *et al*., (2014), states that psychologically the impacts that arise can be in the form of stress, distress, anxiety to depression (3). In addition, DM disease cannot be completely cured and requires treatment for a long time, this greatly affects the quality of life of the sufferer (4).

Health-related quality of life is defined as a measurement of the perceived functional status, impact, limitations, conditions, and perspectives of care that patients with chronic disease integrate within the context of their culture and value system. (5).

DM disease will directly or indirectly affect the patient's physical health. According to Philips, when diabetic patients experience high blood sugar levels (hyperglycemia), patients will feel very thirsty, urinate frequently, have headaches, get tired easily, and feel irritable. Meanwhile, if the patient experiences very low blood sugar levels (hypoglycemia), the patient will easily sweat, be hungry, have impaired vision, feel weak, have impaired motor coordination, mental confusion, and feel anxious. These things will affect the patient's quality of life (6,7).

High and low quality of life in individuals cannot be separated from factors that influence it such as family support, self-efficacy, anxiety, self-care, and medication adherence (8–12).

Family support is one of the factors that affect the quality of life of people with DM. Taylor states that family support is assistance provided by family members that can provide physical and psychological comfort to individuals who are facing stressful situations (13).

Then the self-efficacy factor that can affect the quality of life of DM sufferers is self-efficacy. Self-efficacy or self-efficacy based on Luszczynska is defined as a person's belief about his ability to perform the desired action to achieve the desired result (14).

Furthermore, the factors that can affect the quality of life of people with DM are anxiety. Stonerock, states that anxiety is a feeling that is general, where someone who experiences anxiety, feels very afraid or loses confidence and feels weak so that he is unable to behave and act rationally (15).

Another factor that affects the quality of life of people with diabetes is self-care. Self-care behavior is one of the many factors that can affect the quality of life for people with DM. According to Dorothea Orem, self-care is a human need for self-care and conditions whose management is carried out continuously to maintain health and life, as well as healing from disease and overcoming complications caused by it. (11).

The next factor that can affect the quality of life of people with diabetes is medication adherence. According to WHO, adherence to medication in chronic disease is the patient's attitude and behavior in taking the medication regularly, in terms of dose, frequency, time, and lifestyle changes. While Pladevali M, et al in Rahmayanti et al (2017) stated that medication adherence was seen from the suitability of the history of the number of drugs consumed with the prescribed drugs. (16).

So far, many studies related to the quality of life in DM sufferers have been associated with family support, self-efficacy, anxiety, self-care, and medication adherence, but research considering that the five variables have a direct and indirect effect on the quality of life in DM patients is rarely done. The relationship between family support, self-efficacy, anxiety, self-care, and medication adherence where these five factors influence each other is very important to measure the closeness before affecting the quality of life in DM patients..

Sukabumi City is one of the level II regions in West Java Province which has 15 Puskesmas. The Selabatu Health Center was reported to be a health center with the highest DM cases as many as 2,968 cases. The Work Area of the Selabatu Health Center occupies the 1st position with the most DM cases in 2020.

Based on the results of a preliminary study conducted by researchers using interviews with 10 people with diabetes mellitus, 7 of them had a low quality of life while the other 3 had a fairly high quality of life. Recognition from 7 sufferers who have a low quality of life stated that the family support provided is still lacking, has low self-efficacy, is very anxious because of the illness they are suffering from, pays less attention to self-care, often forgets to take medication, lacks family support, self-efficacy, self-care, medication adherence, and high anxiety can be a factor in decreasing the quality of life in DM patients.

Based on this phenomenon, researchers are interested in researching "Factors Affecting Quality of Life in Diabetes Mellitus (DM) Patients in the Work Area of the Selabatu Health Center, Sukabumi City".

Method

The type of research used is correlational research with a cross-sectional approach. The study was carried out in the Working Area of the Selabatu Public Health Center, Sukabumi City from March 2021 to August 2021. The population was 136 patients, the sample was obtained using a total sampling technique, 6 people were excluded because they had died, a sample of 130 people was obtained with a response rate

calculation of 95.6 %. Instruments using standardized questionnaires include the Hensarling Diabetic Family Support Scale (HDFSS) instrument, the Diabetic Management Self-Efficacy Scale (DMSES) instrument, the Zung Self Rating Anxiety Scale (ZSRAS) instrument, the Summary of Diabetic Self-Care Activity (SDSCA) instrument, the Morisky instrument Medication Adherence Scale-8 (MMAS-8), instrument Diabetic Quality of Life (DQOL). Validity test and reliability test refer to the results of the validity test and standardized questionnaire reliability test that have been previously determined. Analysis of respondent characteristics used frequency distribution, bivariate statistical analysis using simple linear regression, and multivariate statistical analysis using multiple linear regression.

Result

1. Description of Respondents Characteristics

Table 1. Description of Respondents Characteristics

Characteristics of Respondents	f	%
Age (Year)		
17-25	2	1,5
26-35	10	7,7
36-45	12	9,2
46-55	47	36,2
56-65	55	42,3
> 65	4	3,1
Gender		
Male	48	36,9
Female	82	63,1
Last Education		
	1	0,8
Primary School	10	7,7
Junior High School	41	31,5
Senior High School	72	55,4
College	6	4,6
Marital Status		
Not married yet	9	6,9
Married	115	88,5
Divorce	6	4,6
Work		
Employee	69	53,1
Not Employee	61	46,9
Long Suffering DM		
> 1 Year	130	100,0

Based on table 1 shows that most of the respondents are in the age range of 56-65 years as 55 people or 42.3%, female as many as 82 people or 63.1%, high school education as many as 72 people or equal to 55.4%, as many as 115 married people or 88.5%, working as many as 69 people or 53.1%. All respondents are as many as 130 people or by 100.0%.

2. Univariate Analysis

Table 2. Univariate Analysis Results

Variable	f	%	*Mean*	SD	*Min*	*Max*
Family Support			82,31	1,40	41	113
Good	43	33,1				
Not Good	87	66,9				
Self Efficacy			32,45	7,43	18	50
High	79	60,8				
Low	51	39,2				
Anxiety			46,30	5,44	33	60
Normal	48	36,9				
Mild Anxiety	81	62,3				
Moderate Anxiety	1	0,8				
Severe Anxiety	0	0,0				
Self Care			45,50	1,41	18	87
Good	82	63,9				
Not Good	48	36,9				
Medication Compliance			4,27	2,32	0	8
High	24	18,5				
Moderate	13	10,0				
Low	93	71,5				
Quality of Life			42,56	6,92	27	55
High	105	80,8				
Low	25	19,2				

Based on table 2, it can be seen that the average value of family support is 82.31 (1.40). The average value of self-efficacy is 32.45 (7.43). The average value of anxiety is 46.30 (5.44). The average value of Self Care is 45.50 (1.41). The average value of medication adherence is 4.27 (2.32). The average value of quality of life is 42.56 (6.92).

3. Bivariate Analysis

Table 3. Simple Linear Regression Analysis

Variable	*P-Value*	*Unstandardized Coefficients B*		R	R^2
		Constant	Variabel		
Family Support	0.002	31.454	0.135	0.272	0.074
Self Efficacy	0.000	32.708	0.304	0.326	0.106
Anxiety	0.126	34.609	0.172	0.135	0.018
Self Care	0.007	36.659	0.115	0.234	0.055
Medication Compliance	0.180	41.051	0.354	0.118	0.014

Based on table 3, it can be seen that there is an effect of family support on quality of life (p = 0.002, R2 = 0.272), self-efficacy on quality of life (p = 0.000, R = 0.326, R2 = 0.106), and self care on quality of life (p=0.007, R=0.234, R2=0.055). There was no effect of anxiety on quality of life (p=0.126, R=0.135, R2=0.018), medication adherence to quality of life (p=0.180, R=0.118, R2=0.014), therefore these two variables were not included in the study. multiple linear regression analysis. Only the variables of family support, self-efficacy, and self-care were analyzed using multiple linear regression.

4. Multivariate Analysis

Table 4. Multiple Linear Regression Analysis

Model	*Unsandarized Coefficients* B	T	Sig.
Family Support	.056	1.049	.296
Self Efficacy	.220	2.109	.037
Self Care	.021	0.400	.690
(Constant)	29.773	8.437	.000

Based on table 4, it can be concluded that of the three variables, only the self-efficacy variable partially affects the quality of life variable in DM patients, indicated by the p-value (sig.) on the self-efficacy variable which is 0.037, the value is less than 0.05. then H0 is rejected, this shows that there is an influence of self-efficacy (X2), on the quality of life (Y).

Discussion

Based on the results of the study (table 2), the average value of the family support variable is 82.31. Family support is very important for people with DM. The high or low of family support is certainly influenced by various factors. However, internal factors in DM sufferers such as age, gender, education, occupation, marital status, and duration of suffering from DM did not affect family support (17).

Based on the results of the study (table 2), the average value of the self-efficacy variable is 32.45. Self-efficacy in DM patients is certainly influenced by various factors, including the age factor. According to Bandura, age affects the level of self-efficacy, because mature thinking processes in adulthood and even old age cause DM sufferers to really understand that self-confidence is something very important (18). Based on the results of the study (table 1), shows that most of the respondents are in the age range of 56-65 years, and a small proportion is in the age range of 17-25 years.

Another factor that affects self-efficacy is education. Individuals who have high education have better self-efficacy. Notoadmodjo stated that one's education will shape one's attitudes and behavior towards the environment (19). Based on the results of the study (table 1), shows that most of the respondents have a high school education level, and only a small proportion do not attend school.

The results of the study (table 2), show the average value of the anxiety variable is 46.30. Anxiety in DM patients is influenced by various factors, one of which is the age factor. Age is very influential on the level of anxiety, this is following the statement put forward by Lukman, that maturity in the thought process in adult individuals is more likely to use good coping mechanisms (20). Based on the results of the study (table 4.1), shows that most of the respondents are aged 56 – 65 years, and only a small proportion of respondents are aged 17-25 years.

The next factor that can affect anxiety is education. If the respondent's level of education is low, it tends to cause limitations in problem-solving. According to Issac, a person with a low level of education is easy to experience anxiety, because higher education will affect a person's thinking ability (21). Based on the results of the study (table 1), shows that most of the respondents have high school education and only a small proportion are not in school.

Based on the results of the study (table 2), the average value of the self-care variable is 45.50. Various factors affect self-care, one of which is the level of education. The level of education shows the ability of DM patients to accept medical procedures. Patients with basic education tend to refuse more medical procedures given (22). Based on the results of the study (table 1), shows that most of the respondents have high school education and only a small number of respondents do not attend school.

The results of the study (table 2), show an average value of 4.27. Compliance with taking medication in DM patients is influenced by many factors, including age. WHO explains that age is a factor that can affect compliance. Adolescent to adult patients tend to be more obedient in taking drugs, while the opposite occurs in elderly patients, this is due to the age factor which is often associated with patient forgetfulness in taking medication. Physiologically, in old age, there is a process of degeneration of human organs, one of which is a decrease in memory (23). Based on the results of the study (table 1), it shows that the age of the respondents is between the range of 56-65 years, and only a small proportion of the age of the respondents are between the range of 17-25 years.

The results of the study (table 2), show the average value of quality of life is 42.56. Quality of life can be influenced by demographic factors such as age, gender, education level, marital status, occupation, and duration of diabetes mellitus (24).

One of the factors that affect the quality of life is the level of education. Education level is an important factor that is closely related to the process of understanding disease, self-care, DM management, and blood sugar control, overcoming symptoms that arise with proper treatment, and preventing complications. Highly educated patients can develop coping mechanisms and a good understanding of information. In the end, the individual will have a positive attitude in taking all beneficial actions for himself (25). Based on the results of the study (table 1), shows that most of the respondents have a high school education, and only a small proportion do not attend school.

The results of the study (table 3), show that there is an effect of family support on the quality of life in DM patients with weak influence strength. The results of this study are supported by Sari's research (2017), which states that family support has a significant relationship with quality of life in DM patients (p = 0.000) (26). Another study conducted by Nuryatno (2019), stated that there was a relationship between family support and the quality of life of DM patients (p = 0.001) (8).

Yenni said that family support is a supporting factor that can affect a person's behavior and lifestyle, which in turn will have an impact on their health and quality of life. If the patient gets sufficient support from the family, then of course the patient will be motivated to change behavior by living an optimal healthy lifestyle so that it can improve health status and quality of life (27).

Based on the results of the study (table 3), shows that there is a significant effect of self-efficacy on the quality of life in DM patients. These results are in accordance with the research of Ariana et al., (2019), which showed that there was a significant relationship between self-efficacy and quality of life in people with diabetes mellitus (p = 0.002) (28). Then supported by research by Bude (2020), showing that self-efficacy has a significant relationship with quality of life (p = 0.000) (29).

The higher the self-efficacy, the higher the patient's quality of life. Individuals with high self-efficacy will realize that what is done during the healing process will make the quality of life of the individual better (30).

Based on the results of the study (table 3), shows that anxiety does not affect the quality of life in DM patients. The results of this study are by the research of Ethel et al (2016), which states that there is no relationship between anxiety and quality of life (31). Then another study by Andika (2016) also stated that there was no significant relationship between anxiety and quality of life (32).

Keliat mentioned that anxiety can cause damage to the quality and function of life. The higher the level of anxiety, the lower the quality of human life. The psychological impact in the form of anxiety disorders that are left too long can certainly reduce the quality of life of the patient, characterized by the occurrence of physical limitations because the patient feels afraid and always worried about carrying out various activities so that it reduces the patient's ability to work and get along with other people, and at the same time reduce the quality of life (33).

However, based on the results of research anxiety does not affect the quality of life. In this study, anxiety has a very weak relationship strength in a positive direction, which means that when there is an increase in the value of the anxiety variable, the quality of life variable will also increase. In theory, when the value of the anxiety variable increases, it will make the quality of life variable decrease. Therefore, anxiety does not affect the quality of life.

Based on the results of the study (table 3), shows that there is a significant effect of self-care on the quality of life in people with diabetes. This is in line with research conducted by Hartati et al., (2019) which states that there is a relationship between self-care and the quality of life of patients with diabetes mellitus (p = 0.004) (11). Another study conducted by Wani et al., (2019), also stated that self-care can affect the improvement of quality of life (p = 0.000) (34).

Mulyani said that self-care management that is carried out consistently can control unstable blood sugar levels, minimize complications and improve the quality of life of sufferers. Kusniawati explained that a decrease in the quality of life in DM sufferers is often caused by the patient being inconsistent in self-management, thus affecting physical health, psychosocial health, and relationships with the surrounding environment. Effective self-care management is obtained if someone has good skills and knowledge to manage DM independently (35).

Based on the results of the study (table 3), shows that there is no significant effect of medication adherence on the quality of life in DM patients. The results of this study are in line with research by Rahmayanti et al (2017), which states that there is no relationship between medication adherence and quality of life (16).

In theory, taking the medication regularly and balanced with a healthy lifestyle can keep

blood sugar levels low. The belief in the effectiveness of the drug, the belief in the side effects of the drug, and the adherence to taking medication affect the patient's quality of life. Regularity in the consumption of antidiabetic drugs is one of the efforts to control blood glucose levels to slow the emergence of complications. Regular treatment significantly improves the functional health of people with DM (36).

However, medication adherence cannot be used as a major determinant of high or low quality of life. Basically, although antidiabetic drugs are often taken by patients, if the patient has intentionally or unintentionally did not take antidiabetic drugs, it will causandie non-adherence to take medication.

The results of the study (Table 4) show that the simultaneous or joint effect only occurs on the self-efficacy variable. Factors that affect the quality of life include family support, self-efficacy, anxiety, self-care, and medication adherence. However, the results showed that partially the factors that affect the quality of life are family support, self-efficacy, and self-care. Meanwhile, simultaneously, the only factor that affects the quality of life is self-efficacy.

Self-efficacy can certainly affect the quality of life in people with DM. This means, in people with DM, high self-efficacy is needed so that the quality of life becomes better. Self-confidence in the patient becomes an important point. This belief makes the patient feel confident that he or she is capable of being able to treat various DM diseases, the patient can determine or take positive attitudes and actions to support the treatment process. So if DM patients have high confidence, it will have a big effect on improving the quality of life for the better.

Conclusion

Based on the results of the research conducted, people with diabetes mellitus (DM) in the Work Area of the Selabatu Public Health Center, Sukabumi City, most of the respondents' ages were in the range of 56-65 years, namely 55 people or 42.3%, female sex as many as 82 people or as many as 82 people. 63.1%, high school education as many as 72 people or 55.4%, married status as many as 115 people or 88.5%, have jobs as many as 69 people or 53.1%. All respondents have suffered from DM > 1 year, namely 130 people or by 100%.

The average value of the family support variable is 82.31 (SD = 1.40), the average value of the self-efficacy variable is 32.45 (SD = 7.43), the average value of the anxiety variable is 46.30 (SD = 5.44), the average value of the self-care variable is 45.50 (SD = 1.41), the average value of the medication adherence variable is 4.27 (SD = 2.32), the average value the quality of life variable was 42.56 (SD=6.92).

There is an effect of family support on the quality of life, there is an effect of self-efficacy on the quality of life, there is no influence of anxiety on the quality of life, there is an effect of self-care on the quality of life, there is no effect of adherence to medication on the quality of life. Simultaneously, only self-efficacy affects the quality of life for people with Diabetes Mellitus (DM) in the Work Area of the Selabatu Public Health Center, Sukabumi City.

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