

The Relationship Between Respondents' Characteristics And Quality Of Life In Diabetes Mellitus Patients At The Sipultak Health Center, Pagaran District, North Tapanuli Regency In 2022

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ABSTRACT

Diabetes Mellitus (DM) is a set of symptoms that appear in a person caused by an increase in blood glucose levels due to a progressive decrease in insulin secretion. Diabetes Mellitus will accompany sufferers for a lifetime so that it greatly affects the quality of a person's life. Living with diabetes mellitus can affect his life circumstances which are often referred to as negative influences on the quality of life of sufferers either or without complications. The purpose of the study was to determine the relationship between respondent characteristics and quality of life in diabetes mellitus patients at the Sipultak Health Center, Pagaran District, North Tapanuli Regency in 2022. This type of research is quantitative research with *cross sectional*. The research was conducted at the Sipultak Health Center, Pagaran District, North Tapanuli Regency in July-August 2022. The study population of Diabetes Mellitus patients was 260 patients. The sample in this study was 73 patients using the Slovin formula. Bivariate analysis using the *Chi-Square method*. The age characteristics of diabetes mellitus patients are mostly aged 46-55 years as many as 34 people (46.6%). The majority of respondents with diabetes mellitus patients had a good quality of life (score 81-120) as many as 18 people aged 46-55 years with a P.Value value of $0.018 < 0.05$. The sex characteristics of diabetes mellitus patients are mostly male as many as 58 people (79.5%). The majority of respondents with diabetes mellitus patients had a poor quality of life (score 30-80) as many as 32 people in the male sex with a P.Value value of $0.016 < 0.05$. The characteristics of the education level of diabetes mellitus patients are the majority of high school education as many as 23 people (31.5%). The majority of respondents with diabetes mellitus patients had a poor quality of life (score 30-80) as many as 14 people at the college education level with a P.Value value of $0.015 < 0.05$. The job characteristics of diabetes mellitus patients are that the majority work as self-employed as many as 35 people (47.9%). The majority of respondents with diabetes mellitus patients had a poor quality of life (score 30-80) as many as 23 people in the type of work as self-employed with a P.Value value of $0.004 < 0.05$. The characteristics of long-suffering diabetes mellitus patients are the majority of long-suffering from DM for 2-5 years as many as 64 people (87.7%). The majority of respondents of diabetes mellitus patients had a poor quality of life (score 30-80) as many as 38 people who had suffered for 2-5 years with a P.Value value of $0.018 < 0.05$.

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INTRODUCTION

Diabetes Mellitus (DM) is a set of symptoms that appear in a person caused by an increase in blood glucose levels due to a progressive decrease in insulin secretion (ADA, 2015). DM is also defined as a metabolic disease with hyperglycemic characteristics that occur due to abnormalities in insulin secretion, insulin work or both (Perkeni, 2015). Insulin is a hormone that regulates blood

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sugar. Hyperglycemia or elevated blood sugar, is a common effect of uncontrolled diabetes, and over time causes serious damage to many body systems, particularly nerves and blood vessels (WHO, 2011).

The number of diabetics always increases every year, WHO predicts that by 2030 the number of diabetic patients will reach 21.3 million (Aini et al., 2011). The increase in the number of non-communicable diseases brings a change in disease patterns from infectious diseases to non-communicable diseases. One of the non-communicable diseases that always increases is diabetes mellitus. Patients are diagnosed with DM if fasting blood glucose levels > 126 mg / dl or blood glucose levels when > 200 mg / dl.

Indonesia is a country that ranks 7th with 8.5 million DM sufferers after China, India and the United States, Brazil, Russia, Mexico. The incidence of DM according to Riskesdas data (2013) increased from 1.1% in 2007 to 2.1% in 2013 from a total population of 250 million people. According to the International of Diabetic Federation (IDF, 2015) the global prevalence rate of DM sufferers in 2014 was 8.3% of the total population in the world and increased in 2014 to 387 million cases.

Diabetes Mellitus will accompany sufferers for a lifetime so that it greatly affects the quality of a person's life. Quality of life is a self-view of what is produced in life that can benefit and function for many things and in various things so that it can become a quality person in his life. Quality of life is an individual's perception of his position in life, in relation to local cultural and value systems and related to his ideals, expectations, and views which is a multidimensional measurement not limited only to the physical or psychological effects of treatment (WHO, 2015).

Quality of life is an individual's perception of his position in the context of the culture and value system in which the individual lives and its relationship to his goals, expectations, standards and life focus (WHO, 2012). Living with diabetes mellitus can affect his life circumstances which are often referred to as negative influences on the quality of life of sufferers either or without complications. Quality of life provides a general assessment of functional abilities, disabilities and worries due to illness which consists of several dimensions to be measured, namely physical, psychological, social relationships and environmental health. Low quality of life can worsen complications and can end in disability or death. Nagpal's (2010) research suggests that there are eight domains of quality of life for type 2 DM patients, namely role limitations due to physical health, physical ability, general health, treatment satisfaction, frequency of symptoms, financial problems, psychological health, and diet satisfaction.

Decreased quality of life has a significant relationship with morbidity and mortality rates, and greatly affects the life expectancy of diabetes mellitus patients (Smeltzer & Bare, 2008). The quality of life of diabetes mellitus patients is influenced by several factors, including demographic factors which include age and marital status, then medical factors, namely the length of suffering and complications experienced and psychological factors consisting of depression and anxiety (Raudatusalamah & Fitri, 2012). Quality of life affects physical health, psychological condition, level of dependence, social relationships and patient relationships to the surrounding environment (Skevigton, S.M et al in Isa & Baiywu, 2006). The research conducted by him aims to examine the quality of life of DM patients and compare clinical and sociodemographic factors that can affect the quality of life of patients. The results showed that there were 52 patients with a good QOL score (20.7%) which was quite good 164 (65.4%) which was low 35 (13.9%). Researchers concluded that generally DM patients show a fairly good quality of life based on questionnaires about quality of life.

Research conducted (Silaban, 2013), which describes the level of quality of life of DM sufferers, found that (24.3%) had a high quality of life and (75.7%) low quality of life. Research conducted (Siwiutami, 2017) which states that the average type 2 DM sufferer with (58.92%) has a

low quality of life and (41.8%) has a high quality of life. In line with research (Prof. *et al.*, 2015) which shows that the average person with type 2 diabetes has a sufficient quality of life (63.3%).

If the quality of life decreases, it can worsen metabolic disorders either directly hormonal stress or indirectly through complications (Mandagi, 2010). Research (Amir, 2015) found that most people with type 2 diabetes mellitus have high average blood glucose levels. In an international journal by (Kumar, Krishan and Jhaji, 2016), in his research stated that patients with type 2 diabetes have high blood glucose levels with the development of diabetic nephropathy, there is a strong correlation between blood glucose levels and quality of life. Research (Spasić *et al.*, 2014) states that diabetes mellitus has a major impact on the quality of life of sufferers.

Factors that affect the quality of life of people with type 2 diabetes mellitus consist of several factors, including demographic factors which include age and marital status, medical factors, namely the length of suffering and complications experienced, psychological factors consisting of depression and anxiety (Teli, 2017). Changes based on the physical domain experienced by people with diabetes mellitus, sufferers become tired quickly, urinate frequently, often feel weak, weight decreases. While changes in the psychological domain of sufferers become sad, restless, worried which can lead to a decrease in quality of life. In this study, the factor to be studied is blood glucose levels because if blood glucose levels are higher and not controlled, there will be a risk of microvascular and macrovascular complications so that they can potentially affect the quality of life of DM sufferers (Smeltzer & Bare, 2015). This is in line with research (Tristiana *et al.*, 2016) which states that people with type 2 DM experience physical disorders and psychological, social and spiritual well-being that affect changes in their quality of life.

METHOD

This type of research is quantitative research, the design of this study is correlational descriptive. The research was conducted at the Sipultak Health Center, Pagaran District, North Tapanuli Regency in July-August 2022. The population of the study in Diabetes Mellitus patients was 260 patients, the sample size in this study was 73 patients. Bivariate analysis of *Chi-Square method*.

RESULTS AND DISCUSSION

Univariate Result

Age Characteristics of Respondents

Table 1. Age Characteristics of Diabetes Mellitus Patients at Sipultak Health Center, Pagaran District, North Tapanuli Regency in 2022

Data	Total	Percentage
36-45 Years	18	24,7
46-55 Years	34	46,6
56-65 Years	14	19,2
>65 Years	7	9,6
Total	73	100

Based on table 1, it was found that the age characteristics of diabetes mellitus patients at the Sipultak Health Center, Pagaran District, North Tapanuli Regency in 2022 were the majority of 46-55 years old as many as 34 people (46.6%).

Gender Characteristics of Respondents

Table 2. Gender Characteristics of Diabetes Mellitus Patients at Sipultak Health Center, Pagaran District, North Tapanuli Regency in 2022

Data	Total	Percentage
Man	58	79,5
Woman	15	20,5
Total	73	100

Based on table 2, it was found that the sex characteristics of diabetes mellitus patients at the Sipultak Health Center, Pagaran District, North Tapanuli Regency in 2022 were mostly male as many as 58 people (79.5%).

Characteristics of the Respondent's Education Level

Table 3. Characteristics of the Education Level of Diabetes Mellitus Patients at the Sipultak Health Center, Pagaran District, North Tapanuli Regency in 2022

Data	Total	Percentage
SD	18	24,7
SMP	13	17,8
SMA	19	26,0
College	23	31,5
Total	73	100

Based on table 3, it was found that the characteristics of the education level of diabetes mellitus patients at the Sipultak Health Center, Pagaran District, North Tapanuli Regency in 2022 the majority of them had a high education of 23 people (31.5%).

Characteristics of the respondent's work

Table 4. Job Characteristics of Diabetes Mellitus Patients at Sipultak Health Center, Pagaran District, North Tapanuli Regency in 2022

Data	Total	Percentage
Wiraswasta	35	47,9
PNS	8	11,0
IRT	5	6,8
BUMN	1	1,4
Farmer	24	32,9
Total	73	100

Based on table 4, it was found that the job characteristics of diabetes mellitus patients at the Sipultak Health Center, Pagaran District, North Tapanuli Regency in 2022 the majority worked as entrepreneurs as many as 35 people (47.9%).

Characteristics of Long Suffering Responders

Table 5. Characteristics of Long Suffering from Diabetes Mellitus Patients at Sipultak Health Center, Pagaran District, North Tapanuli Regency in 2022

Data	Total	Percentage
< 1 Year	1	1,4
2-5 Years	64	87,7
6-10 Years	6	8,2
>10Years	2	2,7
Total	73	100

Based on table 5, it was found that the characteristics of long-suffering diabetes mellitus patients at the Sipultak Health Center, Pagaran District, North Tapanuli Regency In 2022, the majority of people suffered from DM for 2-5 years as many as 64 people (87.7%).

Quality of Life Characteristics

Table 6. Quality of Life Characteristics of Diabetes Mellitus Patients at Sipultak Health Center, Pagaran District, North Tapanuli Regency in 2022

Data	Total	Percentage
Good (Score 81-120)	30	41,1
Poor (Score 30-80)	43	58,9
Total	73	100

Based on table 6, it was found that the quality of life characteristics of diabetes mellitus patients at the Sipultak Health Center, Pagaran District, North Tapanuli Regency in 2022 had a majority of poor quality of life (score 30-80) as many as 43 people (58.9%).

Bivariate Results

The Relationship Between Respondents' Age and Quality of Life

Table 7. Cross-tabulation of Respondents' Age with Quality of Life of Diabetes Mellitus Patients at Sipultak Health Center, Pagaran District, North Tapanuli Regency in 2022

Age Data	Quality of Life		Total	P Value
	Good (Score 81-120)	Bad (Score 30-80)		
36-45 Years	6	12	18	0,018
46-55 Years	18	16	34	
56-65 Years	3	11	14	
>65 Years	3	4	7	
Total	30	43	73	

Based on table 7, it was found that the quality of life of respondents with diabetes mellitus patients at the Sipultak Health Center, Pagaran District, North Tapanuli Regency in 2022 the majority had a good quality of life (score 81-120) as many as 18 people aged 46-55 years with a P.Value value of 0.018<0.05.

Respondents' Sex Relationship with Quality of Life

Table 8. Cross-Tabulation of Respondents' Gender with Quality of Life of Diabetes Mellitus Patients at Sipultak Health Center, Pagaran District, North Tapanuli Regency in 2022

Gender Data	Quality of Life		Total	P Value
	Good (Score 81-120)	Bad (Score 30-80)		
Man	26	32	58	0,016
Woman	4	11	15	
Total	30	43	73	

Based on table 8, it was found that the quality of life of respondents with diabetes mellitus patients at the Sipultak Health Center, Pagaran District, North Tapanuli Regency in 2022 had a poor quality of life (score 30-80) as many as 32 people in the male sex with a P.Value value of 0.016<0.05.

The Relationship Between Respondents' Education Level and Quality of Life

Table 9. Cross-tabulation of Respondents' Education Level with Quality of Life of Diabetes Mellitus Patients at Sipultak Health Center, Pagaran District, North Tapanuli Regency in 2022

Education Level Data	Quality of Life		Total	P Value
	Good (Score 81-120)	Bad (Score 30-80)		
SD	10	8	18	0,015
SMP	4	9	13	
SMA	7	12	19	
College	9	14	23	
Total	30	43	73	

Based on table 9, it was found that the quality of life of respondents with diabetes mellitus patients at the Sipultak Health Center, Pagaran District, North Tapanuli Regency in 2022 the majority had a poor quality of life (score 30-80) as many as 14 people at the university education level with a P.Value value of $0.015 < 0.05$.

The Relationship of Work to Quality of Life

Table 10. Cross-tabulation of Respondents' Work with Quality of Life of Diabetes Mellitus Patients at Sipultak Health Center, Pagaran District, North Tapanuli Regency in 2022

Job Data	Quality of Life		Total	P Value
	Good (Score 81-120)	Bad (Score 30-80)		
Wiraswasta	12	23	35	0,004
PNS	5	3	8	
IRT	2	3	5	
BUMN	0	1	1	
Farmer	11	13	24	
Total	30	43	73	

Based on table 10, it was found that the quality of life of respondents with diabetes mellitus patients at the Sipultak Health Center, Pagaran District, North Tapanuli Regency in 2022 the majority had a poor quality of life (score 30-80) as many as 23 people in the type of work as entrepreneurs with a P.Value value of $0.004 < 0.05$.

Long-Suffering Relationships Respondents Have with Quality of Life

Table 11. Cross-tabulation of Long Suffering Respondents with Quality of Life of Diabetes Mellitus Patients at Sipultak Health Center, Pagaran District, North Tapanuli Regency in 2022

Old Data Suffers	Quality of Life		Total	P Value
	Good (Score 81-120)	Bad (Score 30-80)		
< 1 Year	0	1	1	0,018
2-5 Years	26	38	64	
6-10 Years	3	3	6	
>10Years	1	1	2	
Total	30	43	73	

Based on table 11, it was found that the quality of life of respondents with diabetes mellitus patients at the Sipultak Health Center, Pagaran District, North Tapanuli Regency in 2022 the majority had a poor quality of life (score 30-80) as many as 38 people who had suffered for 2-5 years with a P.Value value of $0.018 < 0.05$.

DISCUSSION

The Relationship Between Age and Quality of Life of Diabetes Mellitus Patients at the Sipultak Health Center, Pagaran District, North Tapanuli Regency in 2022

Age characteristics of diabetes mellitus patients at the Sipultak Health Center, Pagaran District, North Tapanuli Regency In 2022, the majority of people aged 46-55 years were 34 people (46.6%). The quality of life of respondents of diabetes mellitus patients at the Sipultak Health Center, Pagaran District, North Tapanuli Regency in 2022 the majority have a good quality of life (score 81-120) as many as 18 people aged 46-55 years with a P.Value value of $0.018 < 0.05$.

Quality of life is influenced by age where according to the results of Damayanti's research (2016) that sociodemographics (age) affect the quality of life. The older a person is, the quality of life he has decreases (Hasdianah, 2015).

The results of Laoh & Tampongangoy's research, (2015) that of the 30 respondents in the study, the most respondents with the age of 60-74 years were found as many as 15 respondents (50%) and the least respondents with the age of 75-90 years, namely 2 respondents (6.7%). The results showed that the frequency distribution of respondents according to the age group of 60-74 years was 15 respondents (50%). Age affects the risk and incidence of Diabetes Mellitus, age is closely related to the increase in blood glucose levels. This is supported by the results of research by Sulviana (2012) which says that old age causes an increase in glucose intolerance, therefore blood sugar control drugs that were previously effective can no longer be effective.

The Relationship between Sex and Quality of Life of Diabetes Mellitus Patients at the Sipultak Health Center, Pagaran District, North Tapanuli Regency in 2022

Gender characteristics of diabetes mellitus patients at the Sipultak Health Center, Pagaran District, North Tapanuli Regency In 2022, the majority of them are men as many as 58 people (79.5%). The quality of life of respondents of diabetes mellitus patients at the Sipultak Health Center, Pagaran District, North Tapanuli Regency in 2022 the majority had a poor quality of life (score 30-80) as many as 32 people in the male sex with a P.Value value of $0.016 < 0.05$.

In contrast to what was stated by Iskandar, (2016) that women tend to have a lower quality of life compared to men. Gender is seen significantly from its role function, men have a higher role function than women. Men get more family support because they play an important role in the family. The results of Laoh & Tampongangoy's research, (2015) that of the 30 respondents in their research, the most respondents were female (56.7%). From the results of the study, the most respondents were female with 17 respondents (56.7%).

Women like sweet foods, breads and all foods that have a high level of carbohydrates, these foods are a factor in the onset of Diabetes Mellitus. This is supported by the results of Kurniawan's research (2008) which says that risk factors such as obesity, diet, lack of activity / physical exercise, age and history of DM during pregnancy, cause the high incidence of DM in women.

The Relationship Between Education Level and Quality of Life of Diabetes Mellitus Patients at Sipultak Health Center, Pagaran District, North Tapanuli Regency in 2022

Characteristics of the education level of diabetes mellitus patients at the Sipultak Health Center, Pagaran District, North Tapanuli Regency In 2022, the majority of them have a high school education of 23 people (31.5%). The quality of life of respondents of diabetes mellitus patients at the Sipultak Health Center, Pagaran District, North Tapanuli Regency in 2022 the majority had a

poor quality of life (score 30-80) as many as 14 people at the college education level with a P.Value value of $0.015 < 0.05$.

The level of education is also very influential on the quality of life because low education will affect poor physical habits. The level of education can also influence a person in receiving information (Iskandar, 2016).

The results of Laoh & Tampongangoy's research, (2015) that of the 30 respondents in their research, respondents with the highest high school education were 13 respondents (43.3%), and the lowest educated were elementary school as much as 20%. From the education factor, it shows that most respondents have a high school education of 13 respondents (43.3%) and at least are universities with 4 respondents (13.3%).

Education is an important factor in understanding disease, self-care, and controlling blood sugar. This is supported by the results of Aini's (2012) study which found a difference in the value of knowledge about DM in highly educated and low-educated patients.

Job Relationship with Quality of Life of Diabetes Mellitus Patients at Sipultak Health Center, Pagaran District, North Tapanuli Regency in 2022

The characteristics of the work of diabetes mellitus patients at the Sipultak Health Center, Pagaran District, North Tapanuli Regency In 2022, the majority of them work as entrepreneurs as many as 35 people (47.9%). The quality of life of respondents of diabetes mellitus patients at the Sipultak Health Center, Pagaran District, North Tapanuli Regency in 2022 the majority have a poor quality of life (score 30-80) as many as 23 people in the type of work as self-employed with a P.Value value of $0.004 < 0.05$. Work will affect the quality of life. Employment will make a person get a wage or salary for medical expenses. Quality of life increases along with the work a person has (Hasdianah, 2015).

Long Suffering Relationship with Quality of Life of Diabetes Mellitus Patients at Sipultak Health Center, Pagaran District, North Tapanuli Regency in 2022

Characteristics of long suffering from diabetes mellitus patients at the Sipultak Health Center, Pagaran District, North Tapanuli Regency In 2022, the majority of people suffered from DM for 2-5 years for 64 years (87.7%). The quality of life of respondents of diabetes mellitus patients at the Sipultak Health Center, Pagaran District, North Tapanuli Regency in 2022 the majority had a poor quality of life (score 30-80) as many as 38 people who had suffered for 2-5 years with a P.Value value of $0.018 < 0.05$. Long suffering will affect the quality of life that has suffered for years will have self-efficacy and good disease management (WU et al in Damayanti, 2016), while according to Bernal *et al* in Damayanti (2016), long suffering accompanied by complications will have low self-efficacy, so it can be concluded that long suffering accompanied by complications will tend to affect the quality of life.

CONCLUSION

The age characteristics of diabetes mellitus patients are mostly aged 46-55 years as many as 34 people (46.6%). The majority of respondents with diabetes mellitus patients had a good quality of life (score 81-120) as many as 18 people aged 46-55 years with a P.Value value of $0.018 < 0.05$. The sex characteristics of diabetes mellitus patients are mostly male as many as 58 people (79.5%). The majority of respondents with diabetes mellitus patients had a poor quality of life (score 30-80) as many as 32 people in the male sex with a P.Value value of $0.016 < 0.05$. The characteristics of the education level of diabetes mellitus patients are the majority of high school education as many as 23 people (31.5%). The majority of respondents with diabetes mellitus patients had a poor quality of life (score 30-80) as many as 14 people at the college education level with a P.Value value of $0.015 < 0.05$. The job characteristics of diabetes mellitus patients are that the majority work as self-

employed as many as 35 people (47.9%). The majority of respondents with diabetes mellitus patients had a poor quality of life (score 30-80) as many as 23 people in the type of work as self-employed with a P.Value value of $0.004 < 0.05$. The characteristics of long-suffering diabetes mellitus patients are the majority of long-suffering from DM for 2-5 years as many as 64 people (87.7%). The majority of respondents of diabetes mellitus patients had a poor quality of life (score 30-80) as many as 38 people who had suffered for 2-5 years with a P.Value value of $0.018 < 0.05$.

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