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The relationship between family support as caregiver with the quality of life of elderly diabetes mellitus patients in the outpatient facility of Haji Adam Malik Hospital Medan

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ABSTRACT

A successful development across various sectors, particularly in healthcare, results in a rise in life expectancy worldwide, including in Indonesia. Referring to the health perspective, the elderly population may naturally experience a decline in health or as a result of diseases. One of the health issues encountered by the elderly is diabetes mellitus, a chronic non-communicable degenerative disease caused by insulin secretion abnormalities. In this case, family support is essential for improving the quality of life of the elderly patients with diabetes mellitus. This study investigates the various dimensions of family support as caregivers that are most associated with the quality of life of elderly diabetes mellitus patients at the IRJ RSUP H. Adam Malik Medan. This cross-sectional study involves a sample of 80 elderly diabetes mellitus patients, selected using a non-probability sampling technique. Both primary and secondary data serve in data collection, which are then processed using a logistic regression test. The results of multivariate statistical analysis reveal that the family support dimensions are associated with the quality of life of elderly diabetes mellitus patients in the IRJ RSUP H. Adam Malik Medan encompasses the appreciation dimension (p = 0.000) demonstrated by OR = 11.087, followed by the emotional dimension (p = 0.008), and instrumental dimension (p = 0.010). On the other hand, the informative dimension (p = 0.077) is not associated. Conclusion: There is a considerable correlation between family support as caregivers and the quality of life of elderly diabetes mellitus patients at the IRJ RSUP H. Adam Malik Medan.

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INTRODUCTION

Progress in various fields, especially health, has contributed to increasing the life expectancy of the world's population throughout the world, including Indonesia. The increase in life expectancy has given rise to challenges that must be considered, namely the occurrence of a triple burden. Along with the growth in the number of births and higher levels of disease, there has also been an increase in the economic burden of the population borne by the productive age population for those who are not economically productive (RI, 2014).

According to WHO, by 2050, around 16 percent of the world's population (almost 1.5 billion people) will be elderly. Most developed countries have adopted the chronological age of 65 years as the definition of elderly or older people (Heriyanti, H, et al., 2020). Between 2015 and 2050, the ratio of the world's population over 60 years will experience a nearly two-fold increase, from 12% to 22% (Akgun-Citak et al., 2020).

However, Law of the Republic of Indonesia No. 13 of 1999 concerning the welfare of the elderly defines people who have entered the age of 60 years and over as elderly or elderly. In terms of health, the elderly can experience a decline in health due to disease or natural processes (Pusdatin Kemenkes RI, 2014). As a result, the age of those suffering from chronic diseases will increase, which means the need for care for the elderly will increase (Akgun-Citak et al., 2020).

Diabetes mellitus is a chronic degenerative disease that is not contagious and is caused by abnormalities in insulin secretion (Kristaningrum et al., 2021). Diabetes mellitus is a condition characterized by blood sugar levels exceeding normal limits (200 mg/dl) and fasting sugar levels reaching (126 mg/dl) which occurs chronically (Kristaningrum et al., 2021).

Based on data from WHO, the total number of people with diabetes mellitus continues to increase and was recorded at 422 million individuals worldwide in 2014, up from 108 million people in 2014 (P2PTM Ministry of Health of the Republic of Indonesia, 2018). Statistical analysis worldwide shows that diabetes mellitus has significantly increased in adults by 6.4% to 7.7%, while poor long-term glycemic care in people with diabetes mellitus can result in various microvascular complications and macrovascular complications such as kidney, retina, and especially cardiovascular (Al-Rawaf et al., 2021).

International Diabetes Federation (IDF) stated that the number of diabetes mellitus sufferers in Indonesia in 2021 was 19.47 million. Meanwhile, the total number of outpatient visits for diabetes mellitus patients at IRJ RSUP Haji Adam Malik Medan based on medical record data in 2022 was 2836, while elderly diabetes mellitus numbered 398 people with an average low quality of life and resigned to their illness.

According to the Brazilian society of diabetes (2016) Because of the nature of diabetes mellitus which is a chronic disease, individuals with diabetes mellitus require long-term observation to maintain care and control of the glycemic they suffer. This control is the main focus of treatment, which is aimed at preventing and delaying serious complications of chronic disease (Gomes et al., 2017). Based on this, the family has a very significant role in caring for, controlling, and providing support to people with diabetes mellitus.

In order to reduce the risk of complications and mortality, patients with diabetes mellitus must combine a healthy lifestyle such as taking medication regularly, following a healthy diet, exercising, monitoring blood glucose levels, and taking care of their feet (Chang et al., 2014). Patient saturation is a major problem in the management of diabetes mellitus diet. A diet that is in line with the doctor's orders is essential, but in reality, patients with diabetes mellitus do not have good compliance in implementing the disease management program (Hestiana, 2017).

Family as caregiver is an individual who helps others especially patients who are unable to carry out self-care independently due to chronic illness, disability, or aging (Hestiani, 2017). Several factors that can affect the patient's quality of life include age, gender, education level, knowledge of the disease, presence of complications, duration of the disease, psychological

conditions such as depression, stress, anxiety, family support, and the ability to perform self-care (Chaidir et al., 2017).

Quality of life in people with diabetes mellitus is affected by certain factors, including the length of time they suffer from diabetes mellitus, complications with other diseases. According to research conducted by Azila (2016), the length of time an individual suffers from diabetes mellitus is related to the level of anxiety that will result in a decrease in the quality of life of patients with diabetes mellitus. The same is true for acute and chronic complications that occur in people with diabetes mellitus. This can be a very serious problem. Complications that occur can cause people with diabetes mellitus to lose their abilities both physically, psychologically and socially. Changes and functional disorders that occur have a major impact on the quality of life of a person with diabetes mellitus (Arini et al., 2022).

Nearly half of people with diabetes mellitus with effective treatment cannot monitor their glucose levels, which results in complications that should have been prevented from getting worse with attention or care from the family. High complication rates result in a decrease in the quality of life of an individual because they can cause disability, increased morbidity and mortality due to diabetes mellitus (Sulistyo, 2020).

The quality of life of an individual with diabetes mellitus is not only influenced by complications and the length of time a person suffers from diabetes mellitus, but also by the individual's compliance. According to (Suwanti et al., 2021) in patients with diabetes mellitus who have been diagnosed for at least a year, aged > 25 years. The result is that individuals who are not compliant have a lower level of quality of life. Therefore, caregivers from the family are needed to improve the quality of life of patients who are suffering from diabetes mellitus, especially the elderly.

Treatment of patients with diabetes mellitus is carried out in the long term, the involvement of the family as a caregiver can result in changes in the pattern and life of the individual and to improve the quality of life in the elderly. To be able to understand and describe whether there is a relationship between family support as a caregiver and the quality of life of elderly diabetes mellitus patients at The Outpatient Facility Of Haji Adam Malik Hospital Medan.

RESEARCH METHOD

This research is a type of quantitative research that uses a cross-sectional analysis design and design approach. The cross-sectional approach aims to study how risk is related to effects, techniques, data collection, or observations. All research subjects are observed at the same time in this case (Sastroasmoro, 2022).

The sampling technique used is Nonprobability Sampling. This means that the sample of all elderly patients with diabetes mellitus who are willing to be respondents and visit the study at the outpatient installation of Haji Adam Malik General Hospital Medan is 80 respondents. This study was conducted in November 2023.

This study uses a questionnaire as an instrument. The questions are closed and have answers provided. The questionnaires used consist of three questionnaires: a questionnaire on family support as a caregiver, a questionnaire on respondent demographics, and a questionnaire on quality of life.

Primary data collection was carried out directly by researchers using a questionnaire method containing questions and statements related to research variables and secondary data obtained from STARS and Medical Records. Independent variable Family support as a caregiver for elderly diabetes mellitus patients. Dependent variable Quality of life for elderly diabetes mellitus patients.

The data that has been collected is processed and analyzed using electronic devices, such as computerization. Data analysis using inferential statistics is carried out by utilizing the statistical solution for products and services version 22.0, by entering data systematically. There are three

different ways to perform data analysis, namely univariate analysis, bivariate analysis and multivariate analysis

RESULTS AND DISCUSSIONS

Results

1. Respondent Characteristics

Respondent characteristics are special characteristics found in the respondents that distinguish them from others such as age, gender, education, duration of diabetes mellitus and the presence of complications of diabetes mellitus. The characteristics of respondents in this study can be seen in table 1. Based on the results of the research that has been carried out, it was found that the age of respondents at IRJ RSUP Haji Adam Malik Medan was mostly 60-69 years old with a total of 66 people (82.5%), 70-79 years old with a total of 10 people (12.5%), and a minority aged 80-89 years as many as 4 people (5%). Most respondents were men as many as 49 people (61.2%) while women were 31 people (38.8%).

From the 80 respondents, it can be seen that the majority of respondents' education was college graduates totaling 41 respondents (51.2%), high school graduates as many as 28 respondents (35%), and a minority of respondents were junior high school graduates as many as 11 respondents (13.8%). It is known that the duration of diabetes mellitus of respondents is mostly moderate duration, namely 43 people (53.8%), short duration is 22 people (27.4%), and a minority of long duration is 15 people (18.8%). Of the 80 respondents, it can be seen that the majority of respondents' education is graduates. Respondents who have complications of diabetes mellitus at IRJ RSUP Haji Adam Malik Medan mostly have complications, namely 54 people (67.5%), and a minority have no complications, amounting to 26 people (32.5%).

Table 1 Frequency distribution of respondent characteristics at IRJ RSUP Haji Adam Malik Medan in 2023

No.	Respondent Characteristics	f	%
1	Age		
	60-69 years	66	82,5
	70-79 years	10	12,5
	80-89 years	4	5,0
2	Gender		
	Male	49	61,2
	Female	31	38,8
3	Education		
	Elementary School	0	0
	Junior High School	11	13,8
	Senior High School	28	35,0
	University	41	51,2
4	Duration of diabetes mellitus		
	Short Duration (≤ 10 Years)	22	27,4
	Medium Duration (≥ 10 Years)	43	53,8
	Long Duration (≥ 20 Years)	15	18,8
5	Complications of diabetes mellitus		
	Yes	54	67,5
	No	26	32,5
	Total	80	100

2. Univariate Analysis

a. Frequency Distribution of Family Support as Caregivers for Elderly Diabetes Mellitus Patients

Based on the results of the study, it can be seen the distribution of the frequency of family support as a caregiver for the quality of life of elderly diabetes mellitus patients at IRJ RSUP Haji Adam Malik Medan. It can be seen that the majority of emotional family support is good,

amounting to 47 respondents (58.8%) and the minority support is not good, amounting to 33 respondents (41.2%).

The majority of instrumental family support is not good, amounting to 43 respondents (53.8%) while the minority support is good, amounting to 37 respondents (46.2%) It can also be seen that the majority of informational family support is not good, amounting to 46 respondents (57.5%) and the minority support is good, amounting to 34 respondents (42.5%) and the family support of the appreciation dimension as a caregiver for the quality of life of elderly diabetes mellitus patients, the majority of support is good, amounting to 46 respondents (57.5%) while the minority support is not good, amounting to 34 respondents (42.5%).

Table 2. Frequency distribution of family support as caregivers for elderly diabetes mellitus patients at IRJ Haji Adam Malik General Hospital Medan in 2023

No	Family Support	f	%
1	Emotional		
	Good	47	58,8
	Not Good	33	41,2
2	Instrumental		
	Good	37	46,2
	Not Good	43	53,8
3	Informational		
	Good	34	42,5
	Not Good	46	57,5
4	Reward		
	Good	46	57,5
	Not Good	34	42,5
	Total	80	100

b. Quality of Life

Based on the study, it can be seen that the majority of the 80 respondents had a poor quality of life, namely 45 respondents (56.2%) and a minority of respondents had a good quality of life, namely 35 respondents (43.8%).

Table 3. Frequency distribution of quality of life of elderly diabetes mellitus patients at IRJ Haji Adam Malik General Hospital Medan in 2023

No	Quality of Life	f	%
1	Good	35	43,8
2	Not Good	45	56,2
	Total	80	100,0

3. Bivariate Analysis

a. The Relationship Between Emotional Support and Quality of Life of Elderly Diabetes Mellitus Patients at IRJ Haji Adam Malik General Hospital Medan

Cross tabulation of the relationship between emotional support and the quality of life of elderly diabetes mellitus patients at IRJ RSUP Haji Adam Malik Medan can be seen in table 4. Based on table 4, it can be seen that out of 80 respondents, emotional support for the quality of life of elderly diabetes mellitus patients was good for 47 respondents (58.8%) with good emotional family support including good quality of life for 28 respondents (35%) and less good for 19 respondents (23.8%). Emotional support with the quality of life of elderly diabetes mellitus patients was less good for 33 respondents (41.2%) with good emotional family support including good quality of life for 7 respondents (8.8%) and less good quality of life for 26 respondents (32.5%).

The results of the chi square statistical test analysis obtained a p value = 0.001 ($p < 0.05$). Therefore, the hypothesis in this study is that Ho is rejected, meaning that there is a relationship between emotional support and the quality of life of elderly diabetes mellitus patients at IRJ RSUP Haji Adam Malik Medan in 2023.

Table 4. Cross tabulation of the relationship between emotional support and quality of life of elderly diabetes mellitus patients at IRJ RSUP Haji Adam Malik Medan in 2023

Emotional Family Support	Quality of Life in Elderly Patients with diabetes mellitus				Amount		*p* (Sig)
	Good		Not Good				
	f	%	f	%	F	%	
Good	28	35,0	19	23,8	47	58,8	0,001
Not Good	7	8,8	26	32,5	33	41,2	
Total	35	43,8	45	56,3	80	100	

b. The Relationship Between Instrumental Support and Quality of Life of Elderly Diabetes Mellitus Patients at IRJ Haji Adam Malik General Hospital Medan

Cross tabulation of the relationship between instrumental support and quality of life of elderly diabetes mellitus patients at IRJ RSUP Haji Adam Malik Medan can be seen in table 5. Based on table 5, it shows a total of 80 respondents, instrumental support with good quality of life of elderly diabetes mellitus patients amounted to 37 respondents (46.2%) with good instrumental family support including good quality of life amounted to 23 respondents (28.8%) and less good amounted to 14 respondents (27.5%). Instrumental support with less good quality of life of diabetes mellitus patients amounted to 43 respondents (53.8%) with good instrumental family support including good quality of life amounted to 12 respondents (15%) and less good quality of life amounted to 31 respondents (38.8%).

The results of the chi square statistical test analysis obtained p value = 0.002 (p <0.05). Therefore, the hypothesis in this study is that Ho is rejected, meaning that there is a relationship between instrumental support and the quality of life of elderly diabetes mellitus patients at IRJ RSUP Haji Adam Malik Medan in 2023, a relationship between emotional support and the quality of life in elderly diabetes mellitus patients at IRJ RSUP Haji Adam Malik Medan.

Table 5. Cross tabulation of the relationship between instrumental support and quality of life of elderly diabetes mellitus patients at IRJ Haji Adam Malik General Hospital, Medan in 2023

Instrumental Family Support	Quality of Life in Elderly Patients with diabetes mellitus				Amount		*p* (Sig)
	Good		Not Good				
	f	%	f	%	F	%	
Good	23	28,8	14	17,5	37	46,2	0,002
Not Good	12	15,0	31	38,8	43	53,8	
Total	35	43,8	45	56,3	80	100	

c. The Relationship Between Informational Support and Quality of Life of Elderly Diabetes Mellitus Patients at IRJ Haji Adam Malik General Hospital Medan

Cross tabulation of the relationship between Informational support and quality of life in elderly diabetes mellitus patients at IRJ RSUP Haji Adam Malik Medan can be seen in table 6. Based on table 6, it shows a total of 80 respondents, Informational support for the quality of life of elderly diabetes mellitus patients with good as many as 34 respondents (42.5%) with good informational family support including good quality of life totaling 18 respondents (22.5%) and less good as many as 16 respondents (20%). Informational support with the quality of life of elderly diabetes mellitus patients with less good as many as 46 respondents (57.5%) with good informational family support including good quality of life totaling 29 respondents (36.3%).

The results of the chi square statistical test analysis obtained p value = 0.154 (p <0.05). Therefore, the hypothesis in this study is Ho is accepted which means there is no relationship between informational support and the quality of life of elderly diabetes mellitus patients at IRJ RSUP Haji Adam Malik Medan in 2023.

Table 6. Cross tabulation of the relationship between informational support and quality of life of elderly diabetes mellitus patients at IRJ RSUP Haji Adam Malik Medan in 2023

Informational Family Support	Quality of Life in Elderly Patients with diabetes mellitus				Jumlah		*p* (Sig)
	Good		Not Good				
	f	%	f	%	F	%	
Good	18	22,5	16	20,0	34	42,5	0,154
Not Good	17	21,3	29	36,3	46	57,5	
Total	35	43,8	45	56,3	80	100	

d. The Relationship Between Appreciation Support and Quality of Life of Elderly Diabetes Mellitus Patients at IRJ Haji Adam Malik General Hospital Medan

Cross tabulation of the relationship between Appreciation support and the quality of life of elderly diabetes mellitus patients at IRJ RSUP Haji Adam Malik Medan can be seen in table 7. Based on table 7, it shows a total of 80 respondents, appreciation support for the quality of life of elderly diabetes mellitus patients with good as many as 46 respondents (57.5%) with good appreciation family support including good quality of life totaling 30 respondents (37.5%) and less good as many as 16 respondents (20%). Appreciation support for the quality of life of elderly diabetes mellitus patients with less good amounted to 34 respondents (42.5%) with appreciation family support including good quality of life totaling 5 respondents (6.3%) and less good amounting to 29 respondents (36.3%).

The results of the chi square statistical test showed that the p value = 0.000 (p = 0.05). Therefore, the hypothesis of this study is Ho is rejected, indicating that there is no relationship between appreciation support and the quality of life of elderly diabetes mellitus patients at IRJ RSUP Haji Adam Malik Medan in 2023.

Table 7. Cross tabulation of the relationship between appreciation support and quality of life of elderly diabetes mellitus patients at IRJ RSUP Haji Adam Malik Medan in 2023

Family Support Appreciation	Quality of Life in Elderly Patients with diabetes mellitus				Amount		*p* (Sig)
	Good		Not Good				
	f	%	f	%	F	%	
Good	30	37,5	16	20,0	46	57,5	0,000
Not Good	5	6,3	29	36,3	34	42,5	
Total	35	43,8	45	56,3	80	100	

4. Multivariate Analysis

Multivariate analysis was conducted to determine the most dominant family support related to the quality of life of elderly diabetes mellitus patients at IRJ RSUP Haji Adam Malik Medan. In addition, the bound analysis aims to determine whether there is interaction between independent variables. This study uses logistic regression because the dependent and independent variables are dichotomous.

Multivariate analysis included all potential independent variables. The purpose of multivariate analysis was to find the most significant independent variables related to the quality of life of older patients with diabetes mellitus. In this scenario, all potential variables were tested simultaneously, and the results are in Table 8. The results of the previous analysis showed that in modeling I there was one variable with a p value > 0.05, which showed informational family support (0.077). Furthermore, in this modeling, the variable with the highest p value was removed from the model. Then, the OR change was found in each modeling.

The variable was removed from the model if the OR change was less than ten percent. Conversely, if the OR change was more than ten percent, the variable was returned to the model. Table 8 shows the largest p value, indicating that informational family support has been removed

from the model. The results of the next final multivariate modeling, after removing the informational family support variable, are shown in table 9.

Table 8. Initial multivariate modeling

No.	Variables	B	p value	OR	95% C.I.for OR	
					Lower	Upper
1	Emotional Family Support	1,485	,019	6,505	1,275	15,277
2	Instrumental Family Support	1,734	,007	126,237	1,623	19,751
3	Informational Family Support	1,176	,077	22,482	,879	11,947
4	Family Support Awards	2,732	,000	9,202	3,780	62,388

From the multivariate analysis in table 9, it turns out that the variables related to the quality of life of elderly diabetes mellitus patients at IRJ RSUP Haji Adam Malik Medan are family support appreciation (0.000) then emotional family support (0.008) and instrumental family support variables (0.010). The results of the multivariate analysis show that the most frequently appearing variable in this study is family support appreciation which can be seen from the OR value of 11.087 which means that respondents who are influenced by family support appreciation have a 11.087 times greater chance of the quality of life of elderly diabetes mellitus compared to emotional family support which can be seen from the OR value of 5.210 which means that respondents who are influenced by emotional family support have a 5.210 times greater chance of the quality of life of elderly diabetes mellitus and instrumental family support (4.739) which means that respondents who are influenced by emotional family support have a 4.739 times greater chance of the quality of life of elderly diabetes mellitus.

Table 9. Final multivariate modeling

No.	Variabel	B	p value	OR	95% C.I.for OR	
					Lower	Upper
1	Emotional Family Support	1,651	,008	5,210	1,546	17,553
2	Instrumental Family Support	1,556	,010	4,739	1,454	15,448
3	Family Support Awards	2,406	,000	11,087	3,114	39,472

Discussion

According to the research results, it is known that patients at IRJ RSUP Haji Adam Malik Medan are mostly 60-69 years old, male, college graduates, have a long history of diabetes mellitus, mostly moderate duration and have complications.

Diabetes is a chronic disease that experiences an increase in the number of patients every year, this has a correlation with changes in lifestyle in modern times. The presence of diabetes mellitus will affect the health status of an individual and also affect the quality of life of the individual (Jalil & Putra, 2020).

According to the Big Indonesian Dictionary, Age is the duration of life that has existed since birth. Age has a significant correlation with a person's ability to understand and think. Along with increasing age, it will affect the development of a person's maturity. This is the impact of the events he experiences and the maturity of his soul. In general, an individual experiences changes in the form of rapid physiological decline after the age of 40. Type two diabetes mellitus often occurs after a person ages, especially at the age of over 45 years, especially individuals with excessive BB. Being overweight causes the body to be insensitive to insulin (Wijaya & Padila, 2019). This will certainly have an impact on decreasing the quality of life.

Gender is a biological difference between women and men that has existed since an individual was born Hungu (2016). According to Siti, Z. N. (2021) the mother's education level is closely related to how an individual can act and find causes and solutions in their life. Individuals who have a high level of education tend to act rationally. Therefore, individuals with education

will find it easier to accept new ideas. Individuals with a good level of education will be more mature in the process of changing themselves. This makes it easier for the individual to accept positive, objective and open direction in various information about health.

According to Fauzia (2018) Duration of suffering is the time interval since a person was diagnosed and the current time measured in years. The presence of diabetes mellitus in an individual's body is closely related to the health condition of the individual. This is the impact of worsening sugar control which is likely caused by damage to beta cells that occurs in line with the duration of an individual suffering from diabetes mellitus (Karato, E., & Lutfiani, 2020).

Heart attacks, strokes, end-stage renal failure, severe foot infections and sexual dysfunction are complications that can occur in individuals with diabetes mellitus. The prevalence of all complications will increase drastically after 10-15 years of an individual being diagnosed with diabetes mellitus.

Based on the researcher's views obtained from the results of the study, it is known that age, gender, education, duration of diabetes mellitus and complications are closely related to the quality of life of elderly diabetes mellitus patients.

According to Putra (2019), family support can really support other family members by providing funds, providing care for sick family members, completing household chores, and using available resources and materials to meet care needs.

Family support can be interpreted as the community's perception of the support they receive through their family members, including the nuclear family, extended family, relatives, and friends(PANGANDAHENG, 2018)(Wulandari, 2021)(Rahmawati & Rosyidah, 2020). Good family support affects the patient's treatment process. Based on research by Arini, et al. 2022, diabetes mellitus patients with strong family support have higher medication adherence and better glycemic control than patients without family support. Elderly diabetes mellitus sufferers are 4 times more likely to need family support than diabetes sufferers under the age of 60.

Family support that can be provided by the family of elderly people with diabetes mellitus can be in the form of emotional, informational, appreciation, and instrumental support.

Empathy, attention, personal warmth, affection, and expressions of emotional support are known as emotional support. Family appreciation for support provided by family members in the form of information, instructions, or advice needed by an elderly person with diabetes mellitus to improve their health status is called informational support. Family appreciation can be in the form of expressions of respect for parents who suffer from diabetes mellitus. Families can receive instrumental support in the form of direct support, such as material, housing, and assistance in daily activities (Heriyanti et al., 2020).

The family is very important in the development of diabetes mellitus treatment. Families support their loved ones who suffer from diseases or health problems with positive behavior and attitudes (Wijaya & Padila, 2019). The functional, psychological, and social health of people with diabetes mellitus is influenced by their life experiences with diabetes mellitus and the treatment they receive; this can be referred to as quality of life affecting well-being (QOL) (Damanik et al., 2020).

Family support helps improve the quality of life of people with diabetes. Family support helps people with type 2 diabetes increase their confidence in their ability to care for themselves and improve their quality of life (Suwanti, et al., 2021).

The happiness of life and mental health of people with diabetes are influenced by good family support. Quality of life can be defined as the level of well-being that a person has, including their physical and social conditions, and how they can live a better life (Lestari & Zulkarnain, 2021). Family support affects the provision of assistance and how the recipient considers the assistance important (Wiraini et al., 2021).

Family is an important component that affects a person's mental, social, and emotional health. The attitudes and learning needs of people with diabetes mellitus are influenced by family

support. If the family provides support and participates in the education of patients with diabetes mellitus, it will have a positive impact on patients, because they will be more open to learning about their disease (Feroz et al., 2019).

According to the researcher's assumption that the elderly who experience diabetes mellitus do not have a good quality of life. This is proven by the fact that patients who suffer from diabetes mellitus in old age mostly have a poor quality of life. Diabetes mellitus interferes with the life they live. In addition, elderly people with diabetes mellitus need support from their families. The better the family support for the elderly's condition, the better the quality of life the elderly will get, and vice versa, the less family support, the less quality of life obtained.

The family provides emotional support to patients by understanding the problems they are experiencing, listening to complaints of illness, and providing comfort in dealing with problems. On the other hand, patients also get appreciation from their families in the form of encouragement to control blood sugar, adhere to diet, take medication, and carry out health checks. In addition, patients also get instrumental help from their families such as reminders for food according to diet, support for exercise, type 2 diabetes care, and financial assistance for treatment. Finally, patients also get information from their families such as advice to go to the doctor, take training, and get new information about diabetes.

a. Relationship Between Appreciation Support and Quality of Life of Elderly Diabetes Mellitus Patients at IRJ RSUP Haji Adam Malik Medan

Based on the results of the study, it was found that appreciation support for quality of life in diabetes mellitus patients is the most dominant dimension of family support related to quality of life in elderly diabetes mellitus patients at IRJ RSUP Haji Adam Malik, as can be seen from the results of the bivariate analysis with a p-value ≤ 0.05 (0.000).

In Fadya's study (2021), Hamalding and Muharwati (2017) stated that involving patients in treatment compliance is a way for families to give appreciation. The results of high appreciation support also showed high compliance and impact of the disease (Darojatun & Alawiyyah, 2020)(Haq et al., 2021)(Rochman, 2023). This is because patients are enthusiastic about continuing their treatment. A good quality of life can also result from compliance with good medical care (Putri, 2021). The results of this study are in line with Frie's theory of diabetes mellitus (2013) which states that appreciation and evaluation as a form of effective family function can improve the psychosocial status of sick families. Patients will get recognition for their abilities and expertise through this support.

Previous studies by (Liano & Wisanti, 2022) examined the relationship between family support and quality of life of people with diabetes mellitus. The results of the study showed, based on the appreciation dimension, a significant relationship between family support (p-value: 0.002). According to the researcher's assumption, parents with an active appreciation dimension will have an impact on compliance behavior in treating diabetes mellitus. The appreciation given by the family to patients with diabetes mellitus can improve psychosocial status, enthusiasm, motivation, and self-esteem because it is considered useful and meaningful to the family, encouraging them to take care of diabetes regularly, which in turn has an impact on a better quality of life.

b. Relationship Between Emotional Support and Quality of Life of Elderly Diabetes Mellitus Patients at IRJ RSUP Haji Adam Malik

The results of the bivariate analysis showed that there was a relationship between emotional support and quality of life of elderly diabetes mellitus patients at IRJ RSUP Haji Adam Malik. The p-value ≤ 0.05 (0.001).

A previous study by Liano & Wisanti (2022) examined the relationship between family support and quality of life of diabetes mellitus patients. The results showed a significant relationship between family support (p-value: 0.025).

According to the researcher's theory, if the emotional dimension supports the family, it will improve the quality of life of the sufferer and make them feel happier psychologically and physically when managing their diabetes mellitus. The emotional dimension can also affect the treatment of diabetes mellitus patients, because families who actively support the emotional dimension will make diabetes mellitus patients feel comfortable physically and psychologically when they are near the people they care about.

c. Relationship Between Instrumental Support and Quality of Life in Elderly Diabetes Mellitus Patients at IRJ RSUP Haji Adam Malik

The results of the study showed that the instrumental support dimension was related to the quality of life of elderly diabetes mellitus patients, with a p value ≤ 0.05 (0.002). The level of compliance with treatment and stable glucose level control was influenced by instrumental support given to families of type 2 diabetes sufferers. Without instrumental support, the quality of life of diabetes sufferers can be affected (Heriyanti, H. et al., 2020).

This study is in line with the research of Liano & Wisanti (2022) entitled The Relationship between Family Support and Quality of Life of Diabetes Mellitus Patients. The study found a significant relationship between family support and quality of life of diabetes mellitus sufferers, according to the instrumental dimension (p-value: 0.003).

According to the researcher's assumption, the results of the study illustrate that instrumental family support is closely related to the quality of life of elderly diabetes mellitus patients. Because as is known, the age factor in getting this instrumental support is very important. So this instrumental support is very much needed by the elderly for a better quality of life.

d. Relationship Between Informational Support and Quality of Life in Elderly Diabetes Mellitus Patients at IRJ RSUP Haji Adam Malik

The results of the study showed that the quality of life of elderly diabetes mellitus patients at IRJ RSUP Haji Adam Malik did not correlate with informational support. The results of the bivariate analysis showed that the p-value was more than 0.05 (0.154).

Family information support can encourage diabetes mellitus patients to continue their treatment or have routine check-ups every month. Even though the patient already knows the control schedule, the family continues to provide informational support by reminding them to avoid foods that contain a lot of sugar. So that it can improve the quality of life of sufferers and encourage them to comply with their medications (Noor et al., 2021)(Khasanah, 2019). Liano & Wisanti's study (2022) examined how families can help diabetes mellitus patients live a better quality of life. This study is in line with this study. The results showed a significant relationship between the informational dimensions of family support (p-value: 0.024).

The results of the study, according to the researcher's assumption, showed that there was no relationship between informational support and the quality of life of elderly diabetes mellitus patients. This is due to the fact that older age affects the information received, such as how the family provides information about treatment and prohibitions for diabetics, but parents forget because of their age. This is in line with a study conducted by (Uliyah et al., 2009) This study found that there was no relationship between the informational dimension of the family and the quality of life of elderly diabetes mellitus patients. This can be shown by the fact that the age of the patient affects the information they receive, such as about treatment, routine check-ups, and prohibitions for diabetics, but older people often forget because of age factors.

CONCLUSION

Based on the results of the study from the logistic regression analysis, it can be concluded that three variables related to the quality of life of elderly diabetes mellitus patients are family support in the appreciation dimension (0.000), family support in the emotional dimension (0.008), and

family support in the instrumental dimension (0.010). The results of the multivariate analysis showed that the most dominant variable related to the quality of life of elderly diabetes mellitus patients was family support in the appreciation dimension, with an Odds Ratio (OR) value of 11.087, which means that family support in the appreciation dimension has a 11.087 times chance of affecting the quality of life of elderly diabetes mellitus patients. Furthermore, family support in the emotional dimension has an OR value of 5.210, which means that patients who are related to emotional family support have a 5.210 times chance of affecting the quality of life of elderly diabetes mellitus patients. Family support in the instrumental dimension has an OR value of 4.739, which means that patients who are related to emotional family support have a 4.739 times chance of affecting the quality of life of elderly diabetes mellitus patients. However, there was no significant relationship between family support in the informational dimension with a p value of 0.154.

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