



# The Relationship of Family-Based Self-Management Education Programs with Quality of Life of Patients with Type II Diabetes Mellitus at Limboto Health Center

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## ABSTRACT

Type II diabetes mellitus is a chronic disease that requires long-term management because it can cause various complications and have an impact on reducing the quality of life of sufferers. Diabetes control does not only depend on medical therapy, but also requires the patient's ability to self-manage. One of the efforts that can be made to improve these abilities is the family-based Self-Management Education program which aims to improve knowledge, skills, and family support in the treatment of people with diabetes mellitus.

This study aims to determine the relationship between family-based Self Management Education programs and the quality of life of people with type II diabetes mellitus at Limboto Health Center. This study uses a quantitative method with a cross sectional design. The research was carried out at the Limboto Health Center from December to January. The population in this study amounted to 184 patients with type II DM with a sample of 65 respondents selected using purposive sampling techniques. Data collection was carried out using questionnaires to measure the level of self-management and quality of life of respondents. Data analysis was carried out univariate and bivariate to determine the relationship between the two research variables. The results showed that some respondents had a poor quality of life category as many as 31 people (47.7%), while respondents with good self-management amounted to 28 people (43.1%). The results of the analysis showed a relationship between the family-based Self Management Education program and the quality of life of people with type II diabetes mellitus. The conclusion of this study is that the family-based Self Management Education program has a relationship with the quality of life of people with type II diabetes mellitus. Therefore, the implementation of educational programs involving families is important to improve the self-management skills and quality of life of people with diabetes mellitus.

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## INTRODUCTION

Type II diabetes mellitus (DM) is a chronic disease that cannot be completely cured and has an impact on Health related quality of life (HRQOL) patients with DM. Diabetes Mellitus that is not properly controlled can result in various kinds of acute and chronic complications Lifestyle changes can trigger the onset of diseases, including non-communicable diseases. (Husna, 2024).

The increase in the number of non-communicable diseases has led to a change in disease patterns from infectious diseases to non-communicable diseases (Diarti et al., 2023). One of the non-communicable diseases whose number has increased is Diabetes Mellitus (DM).

By global, Currently, about 6% of the entire world's population of more than 420 million individuals suffer from type 1 or Type II diabetes. This figure has quadrupled since 1980, and is expected to exceed half a billion by the end of the decade. While premature deaths from other major non-communicable diseases

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(NCDs) declined, premature deaths from diabetes actually increased by 5% between 2000 and 2016. Diabetes poses a serious risk to the achievement of targets. (Daniel et al., 2021)

International Diabetes Federation estimates that the number of individuals suffering from diabetes in Indonesia will increase, from 9.1 million cases in 2014, to 14.1 million cases by 2035. The increasing number of DM sufferers in developing countries due to the increasing prosperity rate in these countries is starting to be in the spotlight. Increasing per capita income and changing lifestyles, especially in various big cities, have resulted in an increase in the incidence of degenerative diseases, such as DM (Collins et al., 2021)

According to International Diabetes Federation (2025), Indonesia is ranked 7th in the country with the highest incidence of diabetes with a total of 10.7 million people. The prevalence of DM is expected to increase as the population ages to reach 19.9% or 11.2 million people aged 65-79 years. This figure is expected to continue to soar to reach 578 million by 2030 and 700 million by 2045 (Husna & Mumtaz, 2024).

Diabetes Mellitus (DM) is the fourth leading cause of death in Indonesia and is also the leading cause of blindness due to retinopathy. About 75% of DM patients die from vascular complications (Etlidawati et al., 2024). Diabetes mellitus is on the rise every year, according to IDF Diabetes Atlas, (2025) estimates that by 2024, 7.3 million adults (aged 20-79 years) in Indonesia will have diabetes, and projections show this number will increase to 20.4 million by 2050 according to the IDF Atlas. Indonesia has the fifth highest number of adults with diabetes in the world. The IDF reports that 10.8% of the adult population in Indonesia has diabetes (IDF Diabetes Atlas, 2025)

The incidence of diabetes mellitus in Gorontalo Province according to medical diagnosis in the entire population of various age groups is compiled based on the administrative area of the Regency/City. Gorontalo Regency showed the highest number of cases with a total of 3,506 cases, followed by Gorontalo City which recorded 1,992 cases. Boalemo Regency has 1,504 cases, followed by Pohuwato Regency with 1,459 cases, Bone Bolango Regency with 1,477 cases, and finally North Gorontalo Regency with 1,059 cases. Overall, the total number of cases in Gorontalo Province reached 10,997 cases (Riskesmas, 2018). Based on data received from the government health office in Gorontalo Province, there has been a decrease in diabetes mellitus cases from 23,950 cases in 2023 to 23,585 cases in 2024 from the total number of visits diagnosed with diabetes mellitus. The area with the highest cases of diabetes mellitus is occupied by Gorontalo Regency with 6,203 cases, followed by Boalemo with 6,095 cases, Bone Bolango Regency with 5,206 cases, Gorontalo City Regency with 2,886 cases, North Gorontalo Regency with 2,368 cases and Pohuwato Regency with 827 cases (Gorontalo Provincial Health Office 2024).

Based on data obtained from the Gorontalo Regency Health Office in 2025, the Limboto Health Center will be ranked first in diabetes mellitus cases with a total of 1002 cases, the Telaga Health Center with a total of 274 cases, and the Telaga Biru Health Center with a total of 54 cases.

There are 5 pillars of diabetes mellitus control implemented by the Ministry of Health, (2023), namely, Education, Medical Nutrition Therapy, Physical Activity, Pharmacological, and Blood Sugar Level Monitoring. These pillars are an important foundation that people with diabetes need to follow to control blood sugar levels, avoid complications, and improve quality of life (Ministry of Health of the Republic of Indonesia, 2023)

Patients and their families need to be educated about diabetes, how the disease works, its different types, and how to manage the disease independently, including stress management. Efforts are made in handling this by providing Self Management Education (Ministry of Health of the Republic of Indonesia, 2023)

Self Management Education is an educational program designed to provide support in improving the knowledge, skills, and abilities of people with type II diabetes, so that they can manage their own health conditions. The excellence in this program is a solution to maintain the quality of life of people with diabetes mellitus so that they have confidence and ability to improve their care and self-management (Husna & Muntaz, 2024)

One of the implementations carried out in Gorontalo Regency is through mentoring and empowerment of families with diabetes mellitus. The purpose of this implementation is to empower family support which has a great influence on the quality of life of people with diabetes mellitus on the prevention and control of diabetes mellitus (Djamaludin & Arsyad, 2023).

Family support has an influence on the quality of life of DM sufferers. Family is an important part of a person as well as DM sufferers. Family support and care from the closest people with diabetes mellitus provide comfort, attention, affection, and motivation to achieve recovery with an attitude of accepting their condition Sitti fatimah, (2023) The amount of family support has a direct impact on the management of DM disease, thus affecting their quality of life (Husna, 2024)

Quality of life is an individual's perception of their position in the context of the culture and value system in which they live and in relation to their goals, expectations, standards and concerns. Quality of life is an effective measure, especially for people with certain diseases. Quality of life measurements in Type II diabetic patients can be used for further measures, in addition to improving health services for patients and disease management. The quality of life of individuals with Type II diabetes has a significant impact on their

lives and also affects their families. Quality of life can also evaluate various aspects that can affect individual well-being, so that the family is very influential in providing optimal support for diabetes mellitus patients (Arnita et al., 2023)

Research conducted (Munir & Yuliana, 2023) Their research showed a positive change in respondents' knowledge of diabetes mellitus. Before health education, only 67% of respondents had a minimal understanding of diabetes mellitus. However, after health education was provided, the number of respondents who had good knowledge increased to 75%. This shows that the quality of information about diabetes mellitus increased by 42% before and after health education.

In research (Scott, S. (2025)), also mentioning that the Self Management Education There are significant changes in improving the quality of life of sufferers, not only improving patients' understanding of the management of the diseases they experience, but also having a real impact on improving various aspects of life. These aspects include physical function, emotional stability, quality of social interaction, and the environment in which the patient lives.

The results of initial observations at the Limboto Health Center using the interview method with several Diabetes Mellitus patients show that there is a significant need for education about self-management for Type II DM sufferers, especially education that is sustainable, practical, and can be applied in daily life. Limited access to information, non-compliance in treatment, and low motivation are the main obstacles in improving the quality of life of patients. Therefore, it is important to conduct research on the impact of the Self Management Education program on the quality of life of people with Type II diabetes mellitus, so that the interventions carried out are more targeted and in accordance with the needs in the field.

In addition, other patients also said that there is a difference between the educational needs and information available for people with type II diabetes mellitus. Lack of education results in patients having difficulty managing their illness independently, which has an impact on their low quality of life. Education on self-management is needed so that patients can understand their condition, improve adherence to treatment, and adopt a healthy lifestyle in a sustainable manner.

Based on the description above, a study entitled "The Effect of the Family-Based Diabetes Mellitus Self Management Education Program on the Quality of Life of Type II Diabetes Mellitus Patients at the Limboto Health Center" in Gorontalo is very necessary. This research will not only provide education about Self Management Education on quality of life, but also analyze its relationship empirically.

## RESEARCH METHODS

This research was carried out in the working area of the Limboto Health Center on December 27, 2025 – January 27, 2026. Types of quantitative research The research design used in this study is quantitative research with a cross sectional approach. Cross sectional research is a type of research that emphasizes the time of measurement/observation of independent and dependent variable data only once at a time. The sampling method in this study uses Purposive Sampling, with a sample of 65 respondents. This research instrument used the World Health Organization Quality of Life-BREF (WHOQOL-BREF) questionnaire to measure the quality of life of respondents, and the Diabetes Self Management Quality (DSMQ) questionnaire to measure respondents' self-management.

## RESEARCH RESULTS

### Univariate Results

#### Characteristics of Respondents Based on Demographic Data

Table 1. Characteristics of Respondents by Gender

Yes	Gender	Frequency (n)	Percentage (%)
1.	Men – men	23	35,4
2.	Women	42	64,6
<b>Total</b>		<b>65</b>	<b>100</b>

Based on the table above, it shows that most of the respondents are female, namely as many as 42 respondents (64.6%)

Table 2. Characteristics of Respondents by Age

Yes	Age	Frequency (n)	Percentage (%)
1	46-55 years old (Early Elderly)	25	38,5

2	56-65 years old (Late Elderly)	31	47,7
3	>65 years old (Senior)	9	13,8
<b>Total</b>		<b>65</b>	<b>100</b>

Based on the table above, it was found that the age group with the first highest number of respondents was 56-65 years old (late elderly) with 31 respondents (47.7%), while the second most were 46-55 years old (early elderly) with 25 respondents (36.5%).

Table 3. Characteristics of Respondents Based on Education Level

Yes	Final Education	Frequency (n)	Percentage (%)
1	SD	24	36,9
2	Junior High School	22	33,8
3	High School	14	21,5
4	S1	5	7,7
<b>Total</b>		<b>65</b>	<b>100</b>

Based on the table above, it shows that the last level of education of the first highest number of respondents was elementary school with 24 respondents (36.9%), while the second most was junior high school with 22 respondents (33.8%).

Table 4. Respondent Characteristics Based on Marital Status

Yes	Marital Status	Frequency (n)	Percentage (%)
1	Have a Spouse	42	64,6
2	Widower/widow	23	35,4
<b>Total</b>		<b>65</b>	<b>100</b>

Based on the table above showing marital status, most of the respondents have 42 life partners (64.4%), while respondents with widow/widow status total 23 people (35.4%).

Table 5. Characteristics of Respondents Based on Length of Suffering

Yes	Long Suffering from DM	Frequency (n)	Percentage (%)
1	<5	36	55,4
2	>5	29	44,6
<b>Total</b>		<b>65</b>	<b>100</b>

Based on the table above, it shows that most of the respondents suffer from diabetes mellitus >5 which amounts to 39 respondents (60%).

Table 6. Distribution of Respondents Based on Self Management

Yes	Self Management	Frequency (n)	Percentage (%)
1	Good	28	43,1
2	Enough	0	0

3	Less	37	56,9
<b>Total</b>		<b>65</b>	<b>100</b>

Based on the table above, it shows that the self-management behavior of respondents is mostly in the poor category with a total of 37 respondents (56.9%).

Table 7. Distribution of Respondents Based on Quality of Life

Yes	Quality of Life	Frequency (n)	Percentage (%)
1	Good	19	29,2
2	Medium	15	23,1
3	Bad	31	47,7
<b>Total</b>		<b>65</b>	<b>100</b>

Based on the table above, it shows that the quality of life of respondents is mostly in the poor category with a total of 33 respondents (50.8%).

### Bivariate Results

Table 8. The Relationship between Self Management and Quality of Life of Diabetes Patients with Diabetes at Limboto Health Center.

<i>Self Management</i>	Quality of Life						Total	Statistical Test ( <i>p-value</i> )
	Good		Medium		Bad			
	n	%	n	%	n	%		
Good	15	23,1	8	12,3	5	7,7	28	0,000
Enough	0	0	0	0	0	0	0	
Less	4	6,1	7	10,8	26	40	37	
<b>Total</b>	19	29,2	15	23,1	31	47,7	65	

Based on the table above, it shows that out of 65 respondents, the results of self-management were obtained with good quality of life as many as 15 respondents, the results of self-management were good with a moderate quality of life as many as 8 respondents, the results of self-management were good with poor quality of life as many as 5 respondents, and the results of self-management were less with a good quality of life as many as 7 respondents, The results of self-management are lacking with poor quality of life as many as 26 respondents.

In addition, the results of the statistical test using the Spearman's rho test obtained a p-value value of 0.000 which means ( $p < 0.05$ ) with a significance level  $\alpha = 0.05$ . Therefore, it can be concluded that  $H_0$  is rejected and  $H_1$  is accepted, which means that there is a relationship between the self management education program and the quality of life in patients with Diabetes Mellitus at the Limboto Health Center.

## DISCUSSION

### Self Management Education for Patients with Diabetes Mellitus at Limboto Health Center

Based on the results of research conducted on DM patients at the Limboto Health Center regarding the self management education program, it shows that the self-management of DM patients with the lack category is 37 respondents (56.9). These results were dominated by respondents with low levels of education (primary and junior secondary education). This condition shows that limited education contributes to the low ability of respondents to carry out optimal self-management of diabetes mellitus.

In addition to primary and junior secondary education, higher education also does not fully guarantee the implementation of good self-management. Some respondents revealed that even though they understand information about diabetes, it is still difficult to apply it in daily life. This is because of their busy work, they often miss regular meal schedules, rarely do physical activity, and do not regularly check blood

sugar levels. There are also respondents who say that they know the importance of a diabetic diet, but find it difficult to control their diet due to habits and social environment.

In addition, some respondents stated that despite understanding the risk of complications, they felt that their body was still in good condition so they were less consistent in carrying out self-care. This shows that the knowledge possessed is not always followed by a change in behavior. In the management of chronic diseases such as DM, the success of self-management is not only influenced by education level, but also by motivation, family support, lifestyle habits, and self-control.

Lack of self-management in respondents can be seen from non-compliance in dietary arrangements, lack of consistency in physical activity, monitoring of blood sugar levels that are not routine, and high dependence on health workers without being balanced with self-care efforts. This indicates that respondents do not fully understand the importance of the role of self-management in controlling diabetes mellitus.

Theoretically, education level is an important factor that affects an individual's ability to understand health information and apply it in daily life. According to the theory Self Care Orem published in the book Orem in 2001, the ability of individuals to take care of themselves is influenced by their cognitive capacity, knowledge, and understanding of the health conditions they experience. Individuals with low levels of education tend to have limitations in receiving, processing, and interpreting health information, including information related to the management of diabetes mellitus (Nanda Ariesta, Ita Sulistiani, Purwanto, 2026)

The results of this study are in line with the research of Andalia and Mulyati, (2023) which states that people with diabetes mellitus with a low level of education have poorer self-management skills compared to patients with higher levels of education. The study explained that low levels of education are related to a lack of knowledge about diseases, low awareness of the importance of self-care, and limitations in accessing and understanding health information.

Other research conducted by Arania, Triwahyuni, and Nugraha (2021) also showed that education level is significantly related to patient adherence in carrying out diabetes treatment. Patients with low education tend to have difficulty following treatment recommendations and lifestyle changes, making diabetes self-management less effective.

The researcher assumes that the low level of education of the respondents is one of the main factors that cause self-management to be in the category of lacking. Educational limitations make it difficult for respondents to understand technical health information, such as diabetic diet settings, interpretation of blood sugar test results, and the importance of consistency in carrying out self-care.

In addition to the results of the study on respondents with poor self-management, this researcher also found respondents with a good self-management category with a total of 28 respondents (43.1%). This group of respondents is more found in respondents with married status. These findings show a relationship between marital status and the ability of people with diabetes mellitus to apply self-management optimally.

Married respondents tended to receive social and emotional support from their partners in undertaking diabetes mellitus treatment. This support can be in the form of help in regulating diets, reminders of medication adherence, encouragement to do physical activity, and psychological support in dealing with chronic diseases. This condition allows respondents to apply self-management behaviors consistently, so that disease management can run better.

Theoretically, these findings are also consistent with Orim's Self-Care Theory (2001), which states that an individual's ability to perform self-care is influenced by supporting factors from the social environment, including family and partner. Spousal support helps individuals meet their self-care needs, especially when the disease condition requires the adaptation of lifestyle changes on an ongoing basis.

The results of this study are in line with the research of Maulani, Hasneli, and Karim (2024), who said that family support is essential for individuals living with DM. This support is expected to help in more effective diabetes management. With good support, patients can avoid complications that may occur.

Another study conducted by Rizana, Fitria, Nadiya (2025) concluded that family support was positively correlated with self-care management of people with diabetes mellitus, where patients who received good family support tended to have higher self-management skills.

Thus, the researcher assumes that marital status can have an effect on improving self-management of people with diabetes mellitus, where married respondents tend to show more optimal self-management compared to respondents who live alone or do not have a partner.

### **Quality of Life in Patients with Diabetes Mellitus at Limboto Health Center**

Based on the results of a study conducted on DM patients at the Limboto Health Center regarding the quality of life, it was shown that the quality of life of DM sufferers in the poor category amounted to 31 respondents (47.7%), which was characterized by low scores in the physical, psychological, and social domains. This condition shows that sufferers not only face physical health problems, but also experience psychological pressure that has an impact on overall well-being.

Poor quality of life in patients with type II diabetes mellitus in this study is closely related to psychological stress, especially in patients who have hypertensive comorbid disease. The combination of the

two chronic diseases leads to an increased burden of care, long-term treatment demands, as well as concerns about cardiovascular complications, which further fuels stress and lowers quality of life.

Theoretically, stress in people with diabetes mellitus has an effect both psychologically and physiologically. From a psychological perspective, stress causes emotional disorders that affect an individual's perception of his or her life. Patients with high levels of stress tend to judge their health condition negatively, feel dissatisfied with their lives, and experience a decline in social function.

From a physiological perspective, stress can trigger an increase in stress hormones such as cortisol which has an impact on increasing blood glucose levels. This condition can worsen glycemic control, increase the risk of complications, and exacerbate physical complaints. This combination of physical and psychological disorders is what causes the quality of life of people with diabetes mellitus to be in the poor category.

Research by Abualhamael et al. (2024) shows that people with type II diabetes mellitus with high levels of stress have a lower quality of life, particularly in the psychological and physical domains. Stress is reported to be associated with emotional exhaustion and decreased life satisfaction.

Research by Sianturi & Agustina. (2023) also reported that psychological stress plays a significant role in reducing the quality of life of people with diabetes mellitus. Patients with high stress tend to have poor glycemic control and limitations in daily activities.

The researcher assumes that the poor quality of life in patients with type II diabetes mellitus in this study is influenced by stress that arises due to the burden of chronic diseases and the presence of comorbid hypertension. Multiple diseases increase psychological stress, aggravate disease management, and reduce the ability of sufferers to carry out daily activities optimally.

Based on the results of this study, which was also conducted at the Limboto Health Center, the quality of life with a good category amounted to 19 respondents (29.2%). This good quality of life is shown by adequate scores in various domains of quality of life, especially the physical, psychological, social, and environmental domains. This condition shows that the patient is able to carry out daily activities relatively well, has a stable emotional condition, and is able to adapt to the disease he suffers.

The good quality of life in patients with type II diabetes mellitus in this study indicates that disease management has run quite optimally, both from physical and psychosocial aspects.

The good quality of life in patients with type II diabetes mellitus in this study can be attributed to the implementation of family-based Self Management Education (SME) programs. Education provided to patients and families helps improve knowledge, skills, and attitudes in managing diabetes, including dietary regulation, medication adherence, physical activity, and monitoring of health conditions.

Family-based self-management education also plays an indirect role in reducing the stress level of people with diabetes mellitus. A better understanding of the disease and consistent family support help sufferers reduce anxiety, fear of complications, and emotional distress from chronic illness.

The results of this study are in line with research by Abualhamael et al. (2024) showing that people with type II diabetes mellitus who have good self-management skills tend to have a higher quality of life, especially in the physical and psychological domains.

Research by Yuliana & Junaidin (2021) in Indonesia also reported that diabetes education involving families has a positive effect on improving the quality of life of people with type II diabetes mellitus. Family support helps improve medication adherence and reduce sufferers' stress.

In addition, recent research by Ihsan and Usman (2024) shows that continuous diabetes education programs contribute to improving the quality of life of people with diabetes mellitus through improved disease control and reduced psychological stress.

The researcher assumes that the good quality of life in patients with type II diabetes mellitus in this study is influenced by the successful implementation of family-based self-management education programs. Effective education and optimal family support help sufferers manage their illnesses, reduce stress levels, and improve their ability to adapt to chronic disease conditions. This condition allows sufferers to live their daily lives better and have a more optimal quality of life.

Based on the results of a study conducted on Type II Diabetes Mellitus patients, some respondents were in the medium quality of life category amounting to 15 respondents (23.1%). This condition shows that respondents are still able to carry out daily activities and social functions quite well, but have not reached optimal conditions both from physical, psychological, social, and environmental aspects. This moderate quality of life indicates that there are challenges in the management of type II diabetes experienced in the long term, one of which is related to the level of motivation of patients in self-care.

In theory, motivation is an important psychological factor that influences the health behavior of patients with chronic diseases, including type II DM. Motivation acts as an internal drive that makes individuals willing and able to carry out disease management consistently, such as maintaining a diet, doing physical activity, adhering to medication, and monitoring blood sugar levels.

According to the theory Self-Determination Theory, intrinsic motivation will encourage individuals to be more responsible for their health. Patients with type II diabetes who are well motivated tend to be more

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obedient to treatment and self-care, so that they are able to maintain a more stable health condition and improve the quality of life. On the other hand, suboptimal motivation can cause patients to carry out treatment inconsistently, resulting in poor blood sugar control and quality of life that is only at a moderate level (Kattang et al., 2025)

This is in line with research conducted by Gaffari et al. (2020) stating that patients' motivation in managing diabetes is significantly related to self-care adherence and quality of life. Patients with low motivation tend to have difficulty in disease control and report a lower quality of life.

Research by Saeedi et al. (2021) also confirms that type II diabetes as a chronic condition requires long-term motivation to maintain quality of life, because the demands of continuous care can reduce the patient's enthusiasm and psychological well-being if not supported by strong motivation.

Researchers assume that the moderate quality of life in Type II Diabetes Mellitus patients is related to the level of motivation that is not optimal in carrying out disease management, so that self-care is carried out inconsistently, such as lack of discipline in maintaining diet, physical activity, and monitoring blood sugar levels. In addition, the demands of long-term management of type II diabetes can cause psychological fatigue (diabetes distress) which has an impact on decreased motivation, so that patients are still able to carry out daily activities but have not achieved optimal quality of life. Therefore, increased motivation through health education, family support, and assistance from health workers is needed to improve the quality of life of type II DM patients.

### **The Relationship of Family-Based Self Management Education Program with the Quality of Life of Type II Diabetes Mellitus Patients at the Limboto Health Center**

Based on bivariate analysis using the Spearman's rho test, a significance value of 0.000 ( $<0.05$ ) was obtained, which means that there is a significant correlation between the independent variable (self management education) and the dependent variable (quality of life). From these results, it can be assumed that  $H_0$  is rejected and  $H_1$  is accepted, which means that there is a relationship between the self-management education program and quality of life in patients with Diabetes Mellitus at the Limboto Health Center.

In this study, it was found that self management education is correlated with quality of life, this is because the quality of life will be better when self management is done well. In other words, when self-management is carried out consistently, there will be an improvement in the quality of life, so that DM sufferers can achieve an optimal health status and will be more comfortable in living their lives. The direction of the relationship between the two variables in this study shows a positive relationship direction (Putri & Sukarmin, 2025)

Based on the results of the study, it is known that as many as 26 respondents (40%) are in the category of poor self-management and poor quality of life, which is the highest number compared to other categories. The characteristics of respondents in this group were dominated by the age of the late elderly, which showed that as they aged, the ability of respondents to independently manage type II DM disease tended to decrease. This condition has an impact on the overall decline in the quality of life, both from physical, psychological, social, and environmental aspects. These findings indicate that limited self-management in the late elderly contributes to the low quality of life of type II DM patients.

In theory, self-management is a key component in the management of chronic diseases, including type II Diabetes Mellitus, which includes dietary regulation, physical activity, medication adherence, blood sugar level monitoring, and stress management. In late old age, there are various physiological and psychological changes such as decreased cognitive function, physical limitations, visual impairments, and decreased memory that can hinder an individual's ability to carry out optimal self-management. The degenerative aging process causes reduced adaptability to the demands of chronic disease management, so that the late elderly with type II DM have difficulty maintaining consistent self-care behaviors. This condition results in non-optimal disease control and has an impact on increasing physical complaints, psychological discomfort, decreased social functioning, and quality of life that is in the poor category (Meisita et al., 2024)

This is in line with findings by Saeedi et al. (2021) stating that Type II DM in old age requires long-term self-management skills, and failure to carry out self-care consistently contributes to a decreased quality of life and an increased risk of complications.

Supported by research, Rahayu and Widodo (2022) found that old age is a factor that worsens the relationship between self-management and quality of life. Late elderly with limited activity and minimal support showed a lower quality of life than early elderly or adults.

The researcher assumes that the high number of respondents with poor self-management and poor quality of life are closely related to the characteristics of the late elderly who experience physical limitations, decreased memory, and dependence on others, making it difficult to carry out self-care independently and consistently. This condition causes the management of Type II DM to be suboptimal and triggers recurrent physical complaints, psychological fatigue (diabetes distress), and a decrease in social roles, which ultimately has an impact on poor quality of life. Therefore, the late elderly with Type II DM require intensive support

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from their families and health workers to improve self-management skills and improve quality of life.

Other research results, there were 7 respondents (10.8%), who were in the category of poor self-management and moderate quality of life. These findings show that although respondents have not been able to carry out optimal management of Type II DM, their quality of life condition is not yet in the poor category. This indicates that there are other factors that act as a buffer, one of which is the self-efficacy of respondents in dealing with their disease.

In theory, self-efficacy is an individual's belief in his or her ability to manage situations and execute certain behaviors to achieve the expected outcome. In the context of Type II DM, self-efficacy plays an important role in encouraging patients to continue to strive for self-care even though it is not consistent. Individuals with moderate self-efficacy still have the confidence to face illness and carry out daily activities, but are not strong enough to implement all aspects of self-management in a sustainable manner. This condition causes disease management to be not optimal, but quality of life can still be maintained at a moderate level.

The results of this study are in line with research by Safitri and Syafiq (2021) and also show that self-efficacy plays a role as a psychological factor that affects the quality of life of Type II DM patients. Patients with not fully low self-efficacy still have a better quality of life than patients with low self-efficacy, even though self-management has not been optimal.

This is supported by research by Fisher et al. (2020) explaining that sufficient self-efficacy can help Type II DM patients adapt to chronic disease conditions and reduce psychological impacts, so that quality of life does not immediately fall into the poor category.

The researcher assumes that respondents with less self-management and moderate quality of life still have a sufficient level of self-efficacy, so that they are able to carry out daily activities and adapt to Type II DM disease even though the disease management is not optimal. Not strong self-efficacy causes respondents to be inconsistent in implementing self-management behaviors, but the remaining self-confidence helps maintain a moderate level of physical and psychological condition. Therefore, increasing self-efficacy is expected to encourage improvement in self-management and improve the quality of life of Type II DM patients.

Although respondents with less self-management were still found, there were also respondents who had implemented self-management well and good quality of life amounting to 15 respondents (23.1%). These findings indicate that female respondents tend to have better ability to manage Type II DM, which has a positive impact on physical, psychological, social, and environmental conditions, so that quality of life can be maintained in the good category.

In theory, gender differences affect health behaviors and chronic disease management. Women generally have higher health awareness, are more adherent to treatment, and are more active in seeking information and utilizing health services. In the context of Type II DM, these characteristics support the more consistent implementation of self-management—including dietary regulation, medication adherence, blood sugar monitoring, and stress management—thus contributing to a better quality of life.

This is supported by the study of Sulaiman et al. (2021) reporting that women with Type II DM show better self-care adherence than men, particularly in dietary regulation, medication adherence, and blood sugar monitoring, which are associated with higher quality of life. These findings are strengthened by the study of Caruso et al. (2020) which found that women are more active in self-care behaviors and use health services more often, so that disease control becomes more optimal and has a positive impact on quality of life.

The researcher assumes that the dominance of female respondents in the group of good self-management and good quality of life is related to the tendency of women to be more concerned about health conditions, more obedient in carrying out treatment, and more open to health education than men. Women are generally more active in seeking information related to diseases, following the recommendations of health workers, and using health services regularly. In addition, women tend to have better emotional management and adaptation skills to chronic diseases, so they are able to carry out consistent self-care.

Other research results showed that there were 8 respondents (12.3%) with good self-management categories and moderate quality of life. These findings indicate that although respondents have been able to implement self-management behaviors well, their perceived quality of life is not fully in the good category. This condition can be associated with a long period of suffering from Type II DM, where the respondent has lived with the disease for a long enough period of time that it begins to feel the cumulative impact of the disease and its management.

In theory, suffering from chronic diseases for a long time affects the quality of life of patients. In Type II DM, the long duration of the disease is often accompanied by complications, recurrent physical complaints, and psychological burden due to the demands of long-term care. Although patients have good self-management skills—such as adherence to medication, manage diet, and monitor blood sugar levels—long-term exposure to the disease can reduce the perception of quality of life. The theory of chronic disease adaptation explains that patients can achieve good self-care competencies, but still experience physical and

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psychological fatigue that affects the quality of life so that it is in the moderate category.

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The results of this study are in line with research by Arnita et al. (2023) showing that the longer a person suffers from Type II DM, the more likely it is to have a decrease in quality of life, even if the patient has implemented good self-management behaviors.

This is supported by research The study Amalia et al. (2024) also reported that the duration of Type II DM was significantly related to quality of life, where patients with longer periods of suffering tended to experience decreased physical function and increased fatigue, despite the relatively good level of self-care adherence.

The researcher assumes that respondents with good self-management and moderate quality of life already have good ability and awareness in managing Type II DM, but long suffering from the disease causes the appearance of recurrent physical complaints, psychological fatigue, and concern about complications. This condition makes the quality of life not yet reach the optimal good category, even though self-care behaviors have been carried out consistently. Therefore, Type II DM patients with a long duration of the disease require continuous support, not only in the aspect of self-management, but also psychological assistance to improve the quality of life.

## CONCLUSION

Self Management of patients with Type II Diabetes Mellitus at the Limboto Health Center with a good category of 28 respondents (43.1%), and a bad category of 37 respondents (56.9).

Quality of Life of patients with Type II Diabetes at the Limboto Health Center with the good category amounting to 19 respondents (29.2%), the medium category amounting to 15 respondents (23.1%), and the bad category amounting to 31 respondents (47.7%)

There was a significant relationship between the self management education program and the quality of life of patients with Type II Diabetes Mellitus with a p-value of 0.000 (< value of  $\alpha = 0.05$ ).

## ADVICE

The researcher hopes that the results of this study can be the basis of new knowledge for future students regarding the relationship between self-management education programs and quality of life in patients with Type II Diabetes Mellitus.

The researcher hopes that the results of this study can be one of the additional references for health service workers to be used in supporting the achievement of the implementation of self-management education by people with Diabetes Mellitus so that they can improve the quality of life in people with Diabetes Mellitus.

The researcher hopes that all people, especially people with Diabetes Mellitus, will be able to maintain and control their health and be able to improve self-care through dietary adjustments, increasing physical activity, complying with taking antidiabetic drugs or medications that have been recommended by health workers safely and regularly, as well as conducting regular blood sugar checks and foot care.

The researcher hopes that the results of this study can be a reference and information for future researchers who want to conduct further research, especially related to DM self-management, the quality of life of people with Diabetes Mellitus, the relationship between the two.

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