



The Relationship between Family Support and the Quality of Life of Elderly Patients with Diabetes Mellitus in the Working Area of the Duingi Health Center

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Article Info

Article history:

Received 09 Feb, 2026

Revised 27 Mar, 2026

Accepted 17 Apr, 2026

Keywords:

diabetes mellitus;

Family Support;

Quality of Life;

Elderly

ABSTRACT

The elderly experience changes in the endocrine system that are associated with a decrease in insulin production by the pancreas and insulin resistance that causes the degenerative disease diabetes mellitus, this affects the emotional well-being of the sufferer, which leads to a decrease in the quality of life, therefore the family as a support system that provides direct care for the sick elderly is very important in improving the quality of life of the elderly. This study aims to find out how the relationship between family support and the quality of life of the elderly with diabetes mellitus (DM) in the working area of the Duingi Health Center. The quantitative method with the research design used in this study is cross sectional where samples are selected through the purposive sampling method, the sample number is 36 elderly respondents with DM in the working area of the Duingi health center. The results showed that the majority of respondents had less family support of 26 people (72.2%), moderate quality of life of 22 people (61.1%). Statistical values are obtained by Asymp. sig (2 tailed) p value of 0.029 < 0.05 which means that there is a relationship between family support and the quality of life of elderly people with diabetes mellitus in the working area of the duingi health center. Family support is essential in improving the quality of life in the elderly with DM.

INTRODUCTION

Aging is a stage of life that is characterized by a decline in biological function due to the aging process that takes place progressively. The aging process causes physiological changes in various body systems, including the endocrine system, which impact glucose metabolism (Kalyani et al., 2021). In the elderly, there is a decrease in the function of cells β pancreas in producing insulin and an increase in insulin resistance in peripheral tissues, so that the body's ability to maintain normal blood glucose levels is reduced. This condition increases the risk of type 2 diabetes mellitus in the elderly which is chronic and requires long-term management.

Diabetes mellitus is one of the global health problems with an increasing prevalence and has a significant impact on the quality of life of sufferers. The International Diabetes Federation reports that in 2021 there were about 537 million adults aged 20-79 years in the world living with diabetes, and almost half of that

number went undiagnosed, especially in the elderly age group. The number of people with diabetes globally is projected to continue to increase to reach 783 million people by 2045, with the majority of cases being type 2 diabetes mellitus which is closely related to age, unhealthy lifestyle, urbanization, and environmental influences. (International Diabetes Federation, 2021) (Saeedi et al., 2022)

Indonesia is one of the countries with the highest number of people with diabetes mellitus in the world. Based on the *IDF Diabetes Atlas*, Indonesia ranks seventh in the world with the number of people with diabetes around 19.5 million adults aged 20-79 years and is the only country in the Southeast Asian region that is included in the top ten in the world (*International Diabetes Federation, 2021*). Nationally, the prevalence of diabetes mellitus in Indonesia is in the range of 10.9% and this condition is closely related to an increased risk of cardiovascular disease. The high number and prevalence of diabetes shows that diabetes mellitus is still a major health problem that requires serious attention and sustainable management in national health development. (Pranata et al., 2021)

Based on the *2024 Indonesian Health Survey*, the prevalence of diabetes mellitus based on the diagnosis of health workers was recorded at 1.7 percent in all age groups and increased to 2.2 percent in the population aged 15 years and above (*Indonesian Health Survey, 2024*). The difference between prevalence based on diagnosis and the results of blood glucose level examinations shows that there are still high cases of diabetes mellitus that have not been optimally detected. This condition is more common in the elderly group who have limited access to health services and early detection of diseases (Nugroho, 2022).

The problem of diabetes mellitus in the elderly is also found at the regional level, including in Gorontalo Province. National health survey data shows that the prevalence of non-communicable diseases, including diabetes mellitus, in the elderly group in Gorontalo Province is relatively higher than in other age groups (Ministry of Health of the Republic of Indonesia, 2023). The high incidence of diabetes mellitus in the elderly at the regional level is related to age factors, limited physical activity, and low early detection and control of chronic diseases in primary health services. This condition shows the need to strengthen efforts to prevent, control, and manage diabetes mellitus more optimally, especially through primary health services at the regional level (Rahmawati et al., 2022).

Elderly people with diabetes mellitus not only experience physical disorders due to the disease and its accompanying complications, but also face various psychological problems such as anxiety, depression, prolonged fatigue, and decreased motivation to live (AlHayek et al., 2021). Studies have shown that diabetes mellitus in the elderly is closely related to a decline in quality of life that includes physical, psychological, social, and environmental aspects. This decrease in quality of life can worsen overall health conditions, decrease adherence to treatment, and inhibit the ability of the elderly to adapt and manage the chronic diseases they suffer. (Zhuang et al., 2022)

The quality of life of the elderly with diabetes mellitus is influenced by various factors, both from the individual and the surrounding social environment. One of the environmental factors that plays an important role is family support. The family is the main support system in elderly care through the provision of emotional, informational, and instrumental support in the management of chronic diseases. Various studies show that adequate family support is related to increased medication adherence, the implementation of healthy living behaviors, and the ability of the elderly to overcome the psychological impact of diabetes mellitus, thus contributing to improving the quality of life of the elderly (AlShahrani et al., 2021).

Previous studies have shown a significant relationship between family support and quality of life in people with diabetes mellitus. Studies have reported that good family support is meaningfully associated with improved quality of life in people with type 2 diabetes mellitus through improved medication adherence, stress management, and adaptability to chronic diseases. Diabetic patients who received adequate emotional and instrumental support from their families tended to have a higher quality of life compared to patients who received low family support. However, most of the studies still focus on the adult population in general and have not specifically examined the elderly group, particularly in the context of primary health services. (AlShahrani et al., 2021b) (Zhuang et al., 2022)

The results of a preliminary study in the working area of the Duingingi Health Center show an increase in the number of elderly people with diabetes mellitus in the last two years. Initial observations and interviews revealed that some elderly people experienced limitations in daily activities, complications of illness, and decreased enthusiasm for life which had an impact on quality of life. In addition, it was found that there was a difference in the level of family support, where the elderly with good family support showed more optimal adherence to treatment and physical activity than the elderly with low family support.

Based on this description, there is still limited empirical evidence regarding the relationship between family support and the quality of life of the elderly with diabetes mellitus, especially in the working area of the Duingingi Health Center. Therefore, this study aims to determine the relationship between family support and the quality of life of elderly people with diabetes mellitus in the working area of the Duingingi Health Center.

RESEARCH METHODS

This study uses a quantitative method with a *cross-sectional* analytical design. A *cross-sectional design* was used to assess the relationship between family support and the quality of life of elderly people with diabetes mellitus at a single observation time, making it appropriate to identify relationships between variables without intervention. The quantitative approach was chosen because it allows for objective measurement of variables as well as analysis of relationships between variables using standardized statistical methods. The research will be carried out in the working area of the Duingingi Health Center in October 2025. The study population is all elderly people with diabetes mellitus who were recorded at the Duingingi Health Center in the period from January to June 2025. The research sample amounted to 36 respondents who were selected using (Zan et al., 2024) *the purposive sampling technique*, which is a sample determination technique based on inclusion and exclusion criteria that have been set according to the research objectives (Setiawan & Prasetyo, 2021).

The main materials and equipment in this study are in the form of a standardized questionnaire data collection instrument. Family support was measured using *the Heinsarling Diabetes Family Support Scale (HDFSS)* which includes emotional, rewarding, instrumental, and informational support dimensions, and has been shown to have good validity and reliability in studies in people with diabetes mellitus (Heinsarling & Kleiber, 2021). Quality of life was measured using *WHOQOL-BREF* developed by the World Health Organization, consisting of four domains, namely physical, psychological, social, and environmental, and has been widely validated as a reliable instrument to measure quality of life in people with chronic diseases and the elderly. (Skevington & Böhnke, 2023)

Data collection was carried out directly by distributing questionnaires to respondents after obtaining written consent. The collected data is then processed through completeness, coding, and tabulation checks before being analyzed using statistical software. Data analysis included univariate analysis to describe respondent characteristics and study variables, as well as bivariate analysis using the Chi-Square test to assess the relationship between family support and quality of life with a significance level of 0.05. The entire research process was carried out by paying attention to the ethical principles of research, including approval after explanation, confidentiality of identity, and confidentiality of respondent information.

RESULTS AND DISCUSSION

Table 1: Distribution of Characteristics of Elderly Respondents with Diabetes Mellitus in the Working Area of the Duingingi Health Center (n = 36)

Characteristics	Classification	Frequency (n)	Percentage (%)
Age	60-74 years old	36	100,0
Gender	Male	11	30,6
	Women	25	69,4
Final Education	Not in school	3	8,3
	SD	18	50,0
	Junior High School	5	13,9
	High School	8	22,2
	Colleges	2	5,6
Long Suffering from DM	< 5 years	10	27,8
	≥ 5 years	26	72,2

Premiere date 2025

Based on Table 1, of the 36 elderly respondents with Diabetes Mellitus, all of them were 60-74 years old (100%). Most of the respondents were female (69.4%), with the last level of education being the majority of elementary school (50.0%). In addition, most of the respondents had suffered from Diabetes Mellitus for ≥ 5 years (72.2%). These results show that the majority of respondents are elderly women with basic education and have suffered from the disease for a long time.

Table 2 Distribution of Family Support to Elderly Patients with Diabetes Mellitus in the Working Area of the Duingingi Health Center (n = 36)

Family Support	Frequency (n)	Percentage (%)
Good	10	27,8

Family Support	Frequency (n)	Percentage (%)
Less	26	72,2
Total	36	100,0

Premiere date 2025

Based on Table 2, of the 36 elderly respondents with Diabetes Mellitus, most of them had less family support, namely 26 people (72.2%), while respondents with good family support were 10 people (27.8%). This shows that the majority of elderly people with Diabetes Mellitus in the work area of the Duingi Health Center still have a low level of family support.

Table 3 Distribution of Quality of Life of Elderly Patients with Diabetes Mellitus in the Working Area of the Duingi Health Center (n = 36)

Quality of Life	Frequency (n)	Percentage (%)
Good	8	22,2
Medium	22	61,1
Bad	6	16,7
Total	36	100,0

Premiere date 2025

Based on Table 3, of the 36 elderly respondents with Diabetes Mellitus, most of them had a moderate quality of life, namely 22 people (61.1%), followed by 8 people (22.2%) good quality of life, and 6 people (16.7%) had poor quality of life. This shows that the majority of elderly people with Diabetes Mellitus have a quality of life in the moderate category.

Table 4 The Relationship between Family Support and Quality of Life of the Elderly With Diabetes Mellitus in the Working Area of the Duingi Health Center (n = 36)

Family Support	Good n (%)	Medium n (%)	Bad n (%)	Total
Good	5 (13,9)	3 (8,3)	2 (5,6)	10
Less	3 (8,3)	19 (52,6)	4 (11,1)	26
Total	8 (22,2)	22 (61,1)	6 (16,7)	36

Premiere date 2025

Based on Table 4, it shows that of the 36 elderly respondents with Diabetes Mellitus, respondents with good family support mostly have a good quality of life as many as 5 people (13.9%), while respondents with poor family support mostly have a moderate quality of life as many as 19 people (52.6%). This shows that family support can play a role in influencing the quality of life of the elderly with Diabetes Mellitus.

CONCLUSION

Distribution of Characteristics of Elderly Respondents with Diabetes Mellitus in the Working Area of the Duingi Health Center

Based on the results of the study, all respondents were in the age group of 60-74 years which was included in the early elderly category. These findings suggest that diabetes mellitus is prevalent in the elderly age group. Theoretically, age is one of the main risk factors for diabetes mellitus because the aging process causes a decrease in insulin sensitivity and reduced function of cells β pancreas in producing insulin, so that the regulation of blood glucose levels becomes less optimal (Kalyani et al., 2021). Data from the International Diabetes Federation shows that most people with type 2 diabetes mellitus are in the adult to elderly age group, and the prevalence increases with age. Other studies have also reported a significant association between the age of ≥ 60 years and the incidence of type 2 diabetes mellitus. Based on these findings, elderly individuals have a higher risk of (Saedi et al., 2022) (Zhuang et al., 2022) developing diabetes mellitus due to decreased physiological and metabolic functions of the body.

Judging from gender, the majority of respondents in this study were women. This condition shows that elderly women have a larger proportion of people with diabetes mellitus. Biologically, women have a higher risk of developing diabetes mellitus due to hormonal changes throughout the life cycle. A decrease in the hormone estrogen during menopause affects body fat distribution and insulin sensitivity, which can increase the risk of hyperglycemia. Recent research also shows that postmenopausal women have a higher risk of developing type 2 diabetes mellitus than premenopausal women (Mauvais-Jarvis et al., 2022) (Zhang et al., 2021). Thus, gender factors, especially in elderly women, play a role in the incidence of diabetes mellitus related to hormonal changes and increased body fat accumulation.

Based on education level, most respondents had a last education of Primary School. Low levels of education can affect an individual's ability to understand health information and manage chronic diseases, including diabetes mellitus. Education plays an important role in shaping a person's health knowledge, attitudes, and behaviors. Individuals with low levels of education tend to have limited health literacy, which has an impact on low medication adherence and blood glucose level control (Berkman et al., 2022). Recent research has also shown that education level is significantly associated with glycemic control in people with type 2 diabetes mellitus. Therefore, low education levels (Almeida et al., 2023) can be a contributing factor to the suboptimal management of diabetes mellitus in the elderly.

Based on the length of time they had diabetes mellitus, most respondents had suffered from the disease for five years or more. This condition shows that diabetes mellitus is a chronic disease that requires long-term management. Seniors with a longer duration of diabetes are at risk of developing complications, physical fatigue, and psychological disorders such as anxiety and depression that can reduce quality of life. In theory, the longer a person suffers from diabetes mellitus, the greater the risk of a decline in quality of life due to the prolonged burden of chronic disease. Other studies have also reported a significant association between the length of time they have diabetes mellitus and a decrease in quality of life in the elderly. This shows that the duration of the disease is an important factor that affects the physical, psychological, and social conditions of elderly people with diabetes mellitus. (Zhuang et al., 2022) (Putri et al., 2023)

Distribution of Family Support for Elderly Patients with Diabetes Mellitus in the Working Area of the Duingi Health Center

The results of the study showed that most of the elderly with diabetes mellitus in the Duingi Health Center Working Area had family support in the poor category, which was 72.2%. This condition shows that family involvement in the care of the elderly with diabetes mellitus is not optimal. Low family support, especially in informational, emotional, instrumental, and reward aspects, can hinder the ability of the elderly to understand illness, undergo treatment, and maintain self-care behaviors in a sustainable manner. Seniors who do not receive adequate family support tend to have difficulty regulating diet, medication adherence, and health control visits, which can ultimately increase the risk of complications of diabetes mellitus. (Stuart et al., 2022)

These findings are in line with the results of other studies showing that low family support is associated with poor management of diabetes mellitus and low prevention efforts to complications. Recent studies report that people with diabetes mellitus with poor family support have lower levels of medication adherence and glycemic control compared to those who receive good family support. Therefore, active family involvement is an important factor in supporting the elderly with diabetes mellitus, especially in helping with daily disease management and preventing worsening health conditions.

Distribution of Quality of Life for the Elderly with Diabetes Mellitus in the Working Area of the Duingi Health Center

The results of the study showed that most of the elderly with diabetes mellitus in the Duingi Health Center Working Area had a quality of life in the medium to poor category. This condition is related to the physical limitations experienced by the elderly, such as a decrease in the ability to do activities independently, increased dependence on others, and the emergence of psychological problems in the form of anxiety, feelings of hopelessness, and reduced social interaction. Chronic diseases that last for a long time cause the elderly to have difficulties in adapting to their health conditions, thus having an impact on physical, psychological, social, and environmental aspects of quality of life. (Alencar et al., 2021)

The findings of this study are in line with the results of studies that state that impaired physical function and negative psychological conditions are significantly related to a decrease in quality of life in people with type 2 diabetes mellitus, especially in the elderly age group. In addition, recent research shows that family support plays an important role in improving motivation, psychological well-being, and the ability of the elderly to manage chronic diseases, thereby contributing to a better quality of life. Based on these results, it can be concluded that the quality of life of elderly people with diabetes mellitus is influenced by physical limitations, psychological conditions, and family support received while undergoing disease management. (Zhao et al., 2022) (Putra et al., 2023)

The Relationship between Family Support and the Quality of Life of Elderly Patients with Diabetes Mellitus in the Working Area of the Duingingi Health Center

The results of the study showed that most of the elderly with diabetes mellitus in the Duingingi Health Center Working Area had poor family support with quality of life in the medium category. This condition indicates that family support that is not optimal, especially in the emotional aspect, can cause the elderly to still feel sad, feel undervalued, and limited in social interaction. The decline in physical function due to chronic diseases also contributes to the reduction of the social role of the elderly, which has an impact on the quality of life, especially on the social and psychological dimensions. (Anggraini et al., 2024)

The study also found that the elderly with family support were less likely to have a poor quality of life, especially in the physical, psychological, and social dimensions. Excessive anxiety, dependence on daily activities, and the emergence of negative feelings about themselves are factors that worsen the quality of life of the elderly. This is in line with research that states that psychological disorders such as anxiety and depression are significantly associated with a decrease in quality of life in people with type 2 diabetes mellitus. Other studies have also shown that people with diabetes have a higher risk of experiencing mental health problems that impact disease control and overall well-being. (Frühwald et al., 2021) (Alramadan et al., 2023)

In contrast, a small percentage of the elderly with less family support still show a good quality of life, which is related to internal coping skills such as the fulfillment of spiritual needs. Spirituality plays an important role in helping the elderly accept chronic illnesses, reduce emotional stress, and maintain the meaning of life. These findings are in line with research showing that spiritual well-being is positively associated with quality of life and psychological resilience in chronic disease patients. (Kurniawati & Sari, 2022)

In the elderly group with good family support, the majority have a good quality of life. Consistent emotional, social, and instrumental support from families provides a sense of security, increases motivation, and helps the elderly to undergo treatment and daily activities more optimally. These results are in line with research that states that family support contributes significantly to improving the quality of life and psychological well-being of people with diabetes mellitus. However, there are still elderly people with good family support but poor quality of life, which is influenced by physical limitations, chronic fatigue, and less supportive environmental factors. (Alharbi et al., 2022) (Chen et al., 2021)

The results of the statistical test using *chi-square* showed a p-value of 0.029, which indicates a significant relationship between family support and the quality of life of the elderly with diabetes mellitus. These findings are in line with recent research that states that family support has a meaningful relationship with the quality of life of people with type 2 diabetes mellitus, especially in the elderly age group. (Rahman & Fitriani, 2023)

SUGGESTION

Based on the results of research that has been carried out in the Duingingi Health Center Working Area, it can be concluded that all respondents are elderly aged 60-74 years, with the majority being female. Most respondents had a last level of primary school education and had had diabetes mellitus for five years or more, suggesting that the disease is a chronic condition that has long been experienced by the elderly.

The results of the study show that most elderly people with diabetes mellitus have relatively little family support. This condition illustrates the limited role of the family in providing optimal support to the elderly, both emotionally, informationally, and instrumentally in the management of diabetes mellitus.

In addition, the quality of life of the elderly with diabetes mellitus is mostly in the moderate category, with a small proportion being in the poor category. This shows that diabetes mellitus has an impact on various aspects of the lives of the elderly, both physical, psychological, social, and environmental.

The results of statistical analysis showed a significant relationship between family support and the quality of life of elderly people with diabetes mellitus in the Duingingi Health Center Working Area, with a p-value of 0.029. These findings confirm that the better the family support received, the better the quality of life of the elderly with diabetes mellitus.

The results of this study are expected to be a source of reference for researchers in increasing understanding of the importance of family support for the quality of life of the elderly with diabetes mellitus. For the field of nursing, especially community nursing, this research is expected to be a learning material in improving the quality of education and family-oriented nursing practices as the main support system for the elderly. Further research is expected to develop this study by examining other factors that affect the quality of life of the elderly with diabetes mellitus, such as the level of independence, daily activity dependence (ADL), medication adherence, and other psychosocial factors.

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