

The relationship between family support and lifestyle management in type 2 diabetes mellitus patients

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Abstract

Background: Adopting a healthy lifestyle is the primary solution for treating type 2 diabetes mellitus. Family support plays a crucial role as an external factor that can strengthen a patient's commitment to adopting a healthy lifestyle. The greater the family support, the better the self-care outcomes for patients with type 2 diabetes mellitus.

Purpose: To determine the relationship between family support and lifestyle management in patients with type 2 diabetes mellitus.

Method: The research method used was an observational cross-sectional approach. The study sample consisted of 200 diabetes mellitus patients who met the inclusion and exclusion criteria. The instruments used were the HDFSS and SDSCA questionnaires. Data analysis used the Chi-square test with a significance level of $\alpha = 0.05$.

Results: The results showed that the majority of respondents received good family support, and the majority of respondents' lifestyle management was in the good category. The Chi-square test showed a significant relationship between family support and lifestyle management ($p = 0.001$), indicating a significant relationship between family support and lifestyle management.

Conclusion: There is a significant relationship between family support and lifestyle management.

Keywords: Diabetes Mellitus; Family; Lifestyle; Management; Support.

BACKGROUND

Epidemiological studies by the Global Burden of Disease in 2020 showed that cardiovascular disease, cancer, diabetes, and chronic respiratory diseases accounted for nearly 70% of global deaths. In 2023, the International Diabetes Federation (IDF) reported that there were approximately 537 million adults worldwide with diabetes, a figure projected to increase to 643 million in 2030 and 783 million in 2045. Indonesia has 19.5 million people with DM, ranking fifth in the world (Fitri et al., 2023).

The burden of non-communicable diseases continues to rise, with type 2 diabetes predominating. According to data from the Indonesian Ministry of Health, there will be approximately 19.5 million people with diabetes in 2023. This number is expected to continue to rise over the coming decades. According to a 2022 report from the Central Java Provincial Health Office, the prevalence of diabetes mellitus cases was 623,973. With this increasing number, prioritizing diabetes prevention and control strategies is crucial to reduce morbidity, mortality, and the economic burden (Agustina, 2024).

This disease not only affects physical health but also affects patients' overall quality of life. To

control and prevent more serious complications, it is important to adopt a healthy lifestyle, which includes a healthy diet and regular physical activity. However, many patients struggle to consistently maintain a healthy lifestyle (Dunggio et al., 2025).

Adopting a healthy lifestyle, including diet, regular physical activity, stress management, and adherence to medication, is the primary solution for treating diabetes, particularly type 2 diabetes. However, these efforts often face challenges, particularly when patients lack motivation or struggle to make behavioral changes independently. In this context, family support plays a crucial role as an external factor that can strengthen patients' commitment to a healthy lifestyle (Supriyanti et al., 2025).

Good family support can motivate patients to adhere to treatment and adopt healthy lifestyle habits, such as a proper diet and regular physical activity. Individuals with social support tend to have better health outcomes (Putri & Puspitasari, 2024).

Previous research has shown that family support is crucial in managing type 2 diabetes. The study found a significant positive relationship

between family support and self-management in type 2 diabetes patients at the South Denpasar Community Health Center ($p = 0.002 < 0.05$). The higher the family support, the better the self-care outcomes for patients with type 2 diabetes (Mahardika & Suryaantara, 2024).

Much research has been conducted, but there are still gaps that require further investigation. Many previous studies have focused solely on dietary adherence or emotional support, without considering the complexities of lifestyle management as a whole. Furthermore, most studies have used designs limited to a single lifestyle dimension. However, no research has more broadly examined how the form and level of family support influence various aspects of a patient's lifestyle, such as physical activity, stress management, and regular health check-ups.

RESEARCH METHOD

This type of research is quantitative research. The research design used is cross-sectional. The population is all Type 2 Diabetes Mellitus patients undergoing treatment or routine control at QIM Hospital during October 2025 with a population of 401 people. The sample of Type 2 Diabetes Mellitus patients was 200 people taken by purposive sampling.

The research instrument used the HDFSS (Hensarling Diabetes Family Support Scale) questionnaire and the Summary of Diabetes Selfcare Activity (SDSCA) questionnaire. The results of the study were analyzed using univariate analysis to determine the frequency distribution and bivariate analysis using the Chi Square test. This study has received ethical approval from the Health Research Ethics Committee of Sultan Agung Islamic University Semarang with Number 1863 / A.1-KEPK / FIK-SA / XI / 2025.

RESEARCH RESULTS

Table 1. Characteristics of Respondents (N=200)

Variable	Results
Gender (n/%)	
Male	71/35.5
Female	129/64.5
Age (n/%)	
20-29	2/1.0
30-39	17/8.5
40-49	24/12.0
50-59	63/31.5
60 -69	76/38.0
≥ 70	18/9.0
Level of education (n/%)	
Elementary school	115/57.5
Secondary school	64/32.0
High School	21/10.5
Employment Status (n/%)	
Working	51/25.5
Not Working	149/74.5
Long time suffering from diabetes mellitus (n/%)	
<5 Tahun	86/43.0
≥ 5 Tahun	114/57.0
Family support (n/%)	
Good	139/69.5
Enough	48/24.0
Less	13/6.5
Lifestyle Management (n/%)	
Good	128/64.0
Enough	56/28.0
Less	16/8.0

Table 4. Relationship Between Family Support And Lifestyle Management (N=200)

Family Support	Lifestyle Management						p
	Good		Enough		Less		
	n	%	n	%	n	%	
Good	120	86,3	13	9,4	6	4,3	0,001
Enough	6	12,5	42	87,5	0	0	
Less	2	15,4	1	7,7	10	76,9	

DISCUSSION

The high incidence of diabetes mellitus in women is influenced by differences in body composition and sex hormone levels between adult men and women. Women have more fat tissue than men. The body fat percentage in adult men ranges from 15 to 20%, while adult women tend to have a higher body fat percentage, around 20 to 25% of their total body weight.

Declining estrogen levels in menopausal women result in increased fat accumulation, particularly in the abdominal area, which leads to increased release of free fatty acids. This condition is associated with insulin resistance. In this study, women experienced a higher prevalence of diabetes mellitus compared to men. This phenomenon is caused by differences in fat proportions and higher hormone levels in women. In women who have passed menopause, estrogen levels increase, resulting in increased fat reserves. This is associated with the possibility of diabetes mellitus (Komariah & Rahayu, 2020).

The results of the study showed that out of 200 respondents, they were divided into six age categories. 1% of respondents were in the 20-29 age group, while 8.5% were in the 30-39 age group. 12% were in the 40-49 age group. 31.5% were in the 50-59 age group. 38% were in the 60-69 age group. 9% were in the 70-year-old age group.

Age significantly influences the development of various serious illnesses in humans. The majority of respondents were individuals over 50 years of age. In general, older people are more susceptible to serious illnesses. Diabetes mellitus is often found in people in vulnerable age groups. Diabetes mellitus develops due to the inability of older people to properly manage their diet or nutritional intake, which can lead to health problems such as diabetes mellitus (Indriyawati et al., 2022).

A person's age can influence the increase in glucose levels produced. After reaching the age of 45, a person is generally at greater risk of developing diabetes mellitus. This phenomenon occurs due to aging, where the number of pancreatic cells decreases drastically. This results in a significant decrease in hormone production and leads to a significant increase in blood sugar levels. This condition makes individuals more susceptible to diabetes mellitus infection (Prasetia et al., 2021).

The research findings show that of the 200 respondents, the majority had a basic educational background at Qolbu Insan Mulia Hospital in Batang, with a total of 115 respondents (57.5%). People with lower levels of education are more likely to pay less attention to lifestyle and diet, as well as steps that should be taken to prevent diabetes mellitus.

Individuals with higher levels of education tend to have a deeper understanding of diabetes and its impact on health (Norlita et al., 2024).

According to research conducted, the high prevalence of diabetes mellitus in respondents with low educational backgrounds is due to a lack of understanding of health issues among this group. Respondents with low educational levels tend to lack adequate knowledge about health issues. This lack of understanding can lead to a lack of awareness about maintaining their health. Increasing education levels will contribute to increased awareness of the importance of a healthy lifestyle and a focus on good habits.

The research findings indicate that of the 200 participants at Qolbu Insan Mulia Hospital in Batang, the majority were unemployed, with a total of 149 people (74.5%). This study aligns with research conducted by Nutrition Haiya at Bangetayu Community Health Center in Semarang, which showed that the majority of respondents diagnosed with diabetes mellitus were unemployed, with a percentage reaching 72.5% (Haiya & Ardian, 2020).

Unemployed individuals tend to have a higher risk of developing diabetes than those who are employed. Several factors contribute to this risk. One reason is that unemployed individuals tend to have less dynamic daily routines than those who are employed. Unemployed individuals typically engage in lower levels of physical activity. This lack of physical activity can lead to weight gain and problems with insulin sensitivity, which are major risk factors for diabetes. Unemployed individuals may face financial hardship, which can impact their ability to access nutritious food and healthcare. This situation can also increase the likelihood of developing diabetes (Yunir, 2022).

According to research, a lack of physical activity can result in a decreased efficiency of calorie burning in the body. This causes excess energy to accumulate as fat, which in turn can contribute to obesity, a risk factor for diabetes mellitus.

The results of the study indicate that the duration of diabetes mellitus in most respondents was ≥ 5 years, with a total of 114 respondents (57%). Duration of suffering refers to the period from the patient's first diagnosis to the present, measured in years (Hariani et al., 2020). This indicates that the patient has been suffering from diabetes mellitus for a considerable period of time.

People who have had a chronic illness for a long time will have an impact on their understanding and knowledge of diabetes mellitus management. Individuals who have had diabetes mellitus for more than 5 years often feel hopeless about their current

condition. Despite attempts at therapy, the desired results have not been achieved. Individuals with newly diagnosed diabetes mellitus less than 5 years ago still have a chance to recover from their disease (Andayani & Rohayati, 2023).

The research findings indicate that the majority of respondents received good family support, at 69.5%. This research aligns with research conducted by Mufia, which showed that of the 50 participants studied, 41 respondents received positive family support, while only 2 respondents received inadequate family support. This indicates that family support is a manifestation of caring provided by family members, whether in the form of emotional support, recognition, information, or practical assistance (Mufida et al., 2024).

Family is the closest social environment for someone facing challenges. Families play a crucial role in reducing the potential complications that can occur in individuals with diabetes mellitus. Family support plays a significant role in influencing a patient's beliefs and health throughout the treatment process. Family support includes providing information, practical support, and emotional support, which can boost self-confidence (Maulani et al., 2024).

Support from relatives provides patients with a sense of affection and care, making it easier for them to accept their condition. The behavior and communication of family members toward diabetes patients significantly impacts their mental state, adherence to treatment, and behavioral changes related to diet and physical activity. Therefore, family support is considered a crucial element. This is because with such assistance, patients are easier to monitor and can be more consistent in following various treatment programs (Mphasha et al., 2022).

Family involvement in diabetes mellitus management can improve patient adherence to treatment plans. Individuals who feel supported are generally more motivated to follow a healthy diet, adhere to medication schedules, and engage in physical activity recommended by medical professionals. At Qolbu Insan Mulia Hospital in Batang, many patients come with family members, which directly encourages interaction between patients, relatives, and medical staff. In this way, families serve not only as facilitators but also as partners in the patient's care process. This demonstrates that family support is a crucial element in achieving successful diabetes mellitus management (Mufid et al., 2025).

The results of the study indicate that the majority of respondents, 64%, practiced a healthy lifestyle. This research aligns with a study conducted by Saviqoh, which showed that of 131 respondents, 107

practiced a healthy lifestyle, while 24 had an unhealthy one. Lifestyle management for people with diabetes mellitus is crucial to maintaining stable blood glucose levels..

Lifestyle management for diabetes mellitus patients includes dietary adjustments, blood sugar monitoring, medication use, foot care, and physical activities such as exercise. Dietary adjustments aim to manage metabolism so that blood glucose levels remain stable and within the normal range. Monitoring blood sugar levels aims to evaluate whether the steps taken have produced maximum effect. Meanwhile, medication treatment aims to stabilize blood sugar levels to prevent various complications. Foot care is carried out to prevent wounds in diabetes patients. Exercise aims to increase insulin receptor responsiveness, allowing the body to function more efficiently (Luther et al., 2023).

Based on the research results, it was found that patients tended to be less concerned about their diet. They still consumed foods and drinks that could raise blood sugar levels, such as tea and coffee without added artificial sweeteners. Furthermore, patients rarely followed a low-calorie diet. Furthermore, many patients tended to be reluctant to seek medical attention due to the waiting in line. Even though family members wanted to accompany them, they were reluctant to go to the hospital due to the long waiting time and distance.

The results of the cross-analysis revealed that most respondents who received positive family support implemented lifestyle management in the good category (86.3%). Respondents who received adequate family support mostly implemented lifestyle management that was classified as sufficient (87.5%), while respondents who experienced minimal family support mostly showed lifestyle management in the poor category (76.9%). Based on the analysis using the Chi Square test, a P value of 0.001 was obtained with $\alpha < 0.05$. This indicates a relationship between family support and lifestyle management in patients with type 2 diabetes mellitus at Qolbu Insan Mulia Hospital, Batang.

Family support is a crucial factor in successfully managing a lifestyle. Families play a crucial role in supporting individuals in facing health challenges. When a family member faces a health problem, it is the family's responsibility to provide care to achieve optimal health. The longer a person lives with diabetes mellitus, the more boredom they experience in undergoing therapy to achieve recovery (Siallagan et al., 2025).

The family is the social unit closest to individuals with diabetes mellitus. Therefore, family participation directly influences the behavior and thought patterns

of diabetes mellitus patients. Lack of support from family members is one of the reasons associated with the failure of type 2 diabetes mellitus patients to manage their lifestyle. Family support can positively or negatively influence lifestyle management in individuals with type 2 diabetes mellitus. Therefore, positive family influence is crucial for patients to avoid feelings of boredom and stress during treatment for their disease. Support provided by family members includes motivation and appreciation, so patients feel cared for and recognized by those closest to them (Mufid et al., 2025).

The findings of this study are supported by a previous study conducted by Setiawati at PKU Muhammadiyah Hospital in Yogyakarta. The study demonstrated a relationship between family support and lifestyle management in patients with type 2 diabetes mellitus, based on statistical analysis using the Kendal Tau method, which yielded a p-value of 0.001 (with a p-value of <0.05). Family involvement plays a crucial role in supporting successful self-management of diabetes mellitus. Therefore, family participation in all aspects of diabetes mellitus management and care is crucial to improve treatment effectiveness and ensure consistent adherence to the therapy plan (Setiawati & Nindya, 2025).

Based on the research results, six respondents received good family support, but they were not yet managing their lifestyle optimally. Individuals with diabetes mellitus who have strong family support but have poor lifestyle management indicate that even though their families provide emotional support and practical assistance, the sufferer still faces challenges in self-management (such as diet, physical activity, medication use, and blood sugar monitoring). This phenomenon usually occurs due to a lack of self-awareness, emotional burden, or a lack of understanding of effective self-management techniques.

The research results indicate that two respondents in the group with minimal family support managed their lifestyle well. This indicates that these individuals are able to effectively manage their condition (through diet, exercise, medication use, and blood sugar monitoring) without significant external motivation.

Help from family members plays a crucial role in managing diabetes effectively. When family members are involved in the care process, patients generally demonstrate better adherence to treatment plans, diet, and required physical activity. This support should be aligned with improving self-management skills for individuals with diabetes mellitus.

CONCLUSION

The majority of respondents were female, aged 60-69 years, with primary education, unemployed, and diabetes mellitus (DM) for ≥ 5 years. The majority of respondents received good family support. The majority of respondents reported good lifestyle management. There is a relationship between family support and lifestyle management in type 2 diabetes mellitus patients at Qolbu Insan Mulia Hospital, Batang.

Diabetes Mellitus patients should actively seek family support, learn self-management, communicate openly with their families, and adopt a healthy lifestyle. The patient's family should be actively involved, providing support, providing motivation, reminding them of medication schedules, helping monitor blood sugar levels, and working with healthcare professionals to create a supportive environment that encourages patient independence in adopting a healthy lifestyle.

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