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Family Support and Self-Efficacy in The Management of Diabetes Mellitus Among The Elderly

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ABSTRACT

Managing a healthy lifestyle, particularly for individuals with diabetes, requires a high level of self-efficacy. Family support plays a significant role in helping elderly individuals with diabetes improve their self-efficacy and confidence in performing self-care activities.The aim of this study was to determine the relationship between family support and self-efficacy in managing diabetes mellitus among the elderly at a specific Health Center. This research employed a correlational analytic design with a cross-sectional approach. The study sample consisted of 114 respondents, and data were collected using the Family Support Questionnaire and the Diabetes Management Self-Efficacy Scale.Data analysis was performed using the Spearman's rank correlation test. The cross-tabulation results revealed that most respondents with good family support (45 respondents, or 69.23%) also demonstrated good self-efficacy. Conversely, nearly half of the respondents with poor family support (20 respondents, or 30.77%) still showed good self-efficacy.The Spearman's rho test yielded a p-value of 0.024 (< 0.05), indicating a significant relationship between family support and self-efficacy in managing diabetes among the elderly at Health Center A in 2025. However, the correlation coefficient value (r = 0.212) was categorized as a weak correlation.

KEYWORDS
Diabetes melitus; family support; self efficacy; elderly

INTRODUCTION

Diabetes mellitus is recognized as one of the fastest-growing global health emergencies of the 21st century. In 2021, more than 537 million individuals worldwide were living with diabetes, while approximately 541 million were estimated to have elevated blood glucose levels or to be in a prediabetic state, such as impaired glucose tolerance. The disease burden is further underscored by its high mortality rate; in 2021 alone, diabetes and its related complications were responsible for an estimated 6.7 million deaths among adults aged 20–79 years (Amalia & Asnindari, 2024).

Basen on (Mighra & Djaali, 2020) The global prevalence of diabetes mellitus is currently estimated at 6.1%, and projections suggest that this figure may double by 2050, reaching approximately 1.3 billion individuals. Both developing and developed countries are significantly affected, with an estimated 30 million people currently living with the disease. The primary contributing factors include genetic predisposition as well as lifestyle-related behaviors, such as unhealthy dietary patterns and physical inactivity (Amalia & Asnindari, 2024). Indonesia currently ranks fifth worldwide in terms of diabetes mellitus prevalence, with a recorded rate of 11.7%. As one of the leading causes of non-communicable diseases (NCDs), diabetes mellitus contributes substantially to national morbidity and accounts for a significant proportion of overall mortality. (Dietary et al., 2024). Meanwhile, the prevalence of diabetes mellitus in Central Java Province in 2023 was recorded at 226 cases, with a diabetes treatment success rate of 87%. (Amalia & Asnindari, 2024). Based on the 2023 Health Profile of

Pati Regency, there were 33,621 recorded cases of diabetes mellitus, with 100% healthcare service coverage. Meanwhile, the number of diabetes mellitus cases at Health Center A in 2023 was 1,567 patients (Amalia & Asnindari, 2024).

Based on a preliminary study conducted at Health Center A in Pati Regency on January 3, 2025, it was found that 150 elderly individuals actively participated in the elderly posyandu (integrated health post) in December 2024 and were diagnosed with diabetes mellitus. The elderly received services at the posyandu, including Prolanis activities, diabetes exercise programs, monthly blood pressure and blood sugar checks, as well as health education related to diabetes mellitus management and treatment involving family support. After measuring self-efficacy in five elderly individuals with diabetes mellitus, it was found that three of them had low self-efficacy (scores of 40, 38, and 42), while two had moderate self-efficacy (scores of 50 and 61).

Diabetes mellitus is one of the chronic diseases commonly experienced by the community, particularly among the elderly. This disease not only affects the physical condition of individuals but also has an impact on psychological and social aspects. According to data from the Ministry of Health of the Republic of Indonesia, the prevalence of diabetes mellitus among the elderly has shown an increasing trend every year. Elderly individuals with diabetes mellitus often face various challenges in managing their condition, including regulating diet, taking medication, and maintaining physical activity, all of which require a high level of self-efficacy to consistently sustain a healthy lifestyle (Gusti et al., 2024).

Diabetes mellitus impacts various sectors of life, including the health, economic, governmental, educational, and social sectors. In the health sector, its impact is reflected in the increasing prevalence of complications such as heart disease, nephropathy, and stroke in Indonesia. In the economic sector, the healthcare cost burden for individuals with diabetes mellitus aged 20–79 years in Indonesia reached USD 323.8 per person per year in 2023. In the social sector, diabetes has contributed to a decline in work productivity in Indonesia, with a reported decrease of 1.63% per year in 2023 (Amalia & Asnindari, 2024).

Self-efficacy is essential for elderly patients with diabetes mellitus, as it significantly influences their medication management behaviors (Huang et al., 2021). Self-efficacy can encourage diabetes mellitus patients' confidence to adopt positive behaviors and lifestyle adjustments in order to achieve treatment goals (Sakir et al., 2024). This belief determines how a person feels, thinks, motivates themselves, and behaves in performing the recommended diabetes self-care activities (Askin Ceran et al., 2024). Self-efficacy is especially important in primary care for elderly diabetes mellitus patients in the community, enabling them to perform self-care activities that help manage their condition and prevent complications (Wahidah & Rahayu, 2022).

Research by Thomas et al. (2023) indicate that diabetes can affect the patience of participants, including their relationships with their environment. Participants expressed that diabetes significantly impacts their work and daily activities. The study also found that participants' relationships with their families greatly influence their health outcomes, providing

encouragement for self-care and serving as a source of hope and strength. Prior Study by Violita et al. (2024) showed that the proportion of family self-efficacy in carrying out diabetes prevention efforts falls into the high self-efficacy category (54.3%).

Self-efficacy is influenced by several factors, including culture, gender, an individual's role in their environment, and the information they receive (Murjo et al., 2024). Simorangkir et al. (2024) It is stated that factors influencing self-efficacy in patients include family support, social aspects, and physical functioning. These factors shape patients' self-efficacy and can influence their behavior in managing treatment. This is supported by previous research by Muthiah et al. (2023) There is a relationship between self-efficacy and family support. Therefore, self-efficacy can influence an individual's decision-making regarding their treatment (Amalia & Asnindari, 2024).

The novelty of this study compared to previous research lies in its investigation of the relationship between family support and self-efficacy in elderly patients with diabetes mellitus. This study examines all domains of family support in elderly diabetes patients, including emotional, informational, instrumental, spiritual, social, and behavioral domains. In addition, the researcher explores all domains of self-efficacy, namely cognitive, emotional, social, and physical self-efficacy. This study also specifically focuses on elderly individuals suffering from diabetes mellitus.

Another novelty of this study compared to the study conducted by (Ong-Artborirak et al., 2023) Previous research only described the health literacy and self-efficacy of elderly people with diabetes mellitus. The study to be conducted by the researcher is more complex, as it examines the relationship between two variables and explores various indicators of dominant family support in enhancing self-efficacy.

Prior study from Pradina & Wahyuni (2019) showed that family support greatly assists diabetes mellitus patients in improving their self-efficacy or confidence in their ability to perform self-care actions. Family support in the form of warmth and kindness, as well as emotional support related to glucose monitoring, diet, and exercise, can enhance patients' self-efficacy, thereby supporting success in self-care management. Self-efficacy in diabetes mellitus patients reflects an individual's ability to make appropriate decisions, including accurately planning, monitoring, and carrying out their care regimen throughout their life (Amalia & Asnindari, 2024). Some important actions that can be taken to support family members with diabetes mellitus include increasing their awareness that diabetes mellitus is a chronic condition that cannot be cured. This awareness helps patients develop a strong commitment to managing their disease effectively (Amalia & Asnindari, 2024). Based on the above phenomenon and explanation, the researcher is interested in studying the relationship between family support and self-efficacy in the management of diabetes mellitus, specifically in elderly patients.

METHOD

This study employed a quantitative approach with a cross-sectional design to analyze the relationship between the independent variable, family support, and the dependent variable, self-efficacy of elderly individuals in managing diabetes mellitus. Data were collected once at a single point in time. The study

was conducted at Health Center A in Pati Regency in 2025, with a population of 150 elderly diabetes mellitus patients. A sample of 114 respondents was selected using purposive sampling based on Slovin's formula (with a 5% margin of error), according to the following inclusion criteria: elderly diabetes mellitus patients at Health Center A who were willing to participate, active in posyandu (integrated health service post) activities, and able to communicate well. The exclusion criteria included elderly individuals who did not participate in the entire sequence of the research activities from start to finish.

The instruments used were two types of questionnaires: the Family Support Questionnaire (covering emotional, appraisal, instrumental, and informational dimensions) and the Diabetes Management Self-Efficacy Scale to measure self-efficacy.

Family support was measured across four dimensions: emotional support, appraisal support, instrumental support, and informational support. The questionnaire consisted of 15 questions using a Likert scale, adapted from previous research (Safitri & Syafiq, 2022). The response options used a Likert scale ranging from 1 to 4 ("never" to "always"). The validity test conducted on 40 respondents showed that the calculated r-values were greater than the r-table value of 0.312, indicating that the instrument is valid. The reliability test using Cronbach's alpha produced a value of 0.975, demonstrating excellent reliability. The measurement results were categorized into two groups: Good (76–100%) and Poor (<76%).

The Diabetes Management Self-Efficacy Scale (DMSES), originally developed by Vann der Bijl in 1999 and adapted by Al Fatih et al. (2024), was used to measure self-efficacy in patients with type 2 diabetes mellitus. The questionnaire consists of 20 statements measured on a Likert scale from 1 to 5, with scores ranging from a minimum of 20 to a maximum of 100. The indicators assessed in the DMSES include blood glucose monitoring, maintaining ideal body weight, exercise, foot care, and medication adherence. Validity testing conducted on 94 patients with type 2 diabetes mellitus produced a correlation coefficient (r = 0.79), while reliability testing using Cronbach's alpha yielded a value of 0.81.

Data were analyzed using descriptive statistics to examine the frequency distribution and percentage of respondent characteristics, and inferential statistics with Spearman's rank correlation to determine the relationship between variables.

RESULT AND DISCUSSION

Respondent Characteristics

Table 1. Frequency Distribution of Characteristics of Elderly Diabetes Mellitus Patients Based on Age at Health Center A in 2025

Mean	Median	SD	Minimum	Maksimum
66,14	64	5,91	57	79

Table 1 shows that the mean value was 66.14, the median value was 64, the standard deviation was 5.91, the minimum value was 57, and the maximum value was 79.

The majority of type 2 diabetes mellitus cases occur in individuals aged 40 years and above. This is because, after the age of 40, insulin resistance in type 2 diabetes mellitus tends to increase, influenced by factors such as hereditary history and obesity. According to the World Health Organization (WHO), after the age of 30, blood glucose levels increase by

1–2 mg/dL per year, while fasting glucose levels can rise by 5.6–13 mg/dL when measured two hours after eating. Although diabetes mellitus generally develops in middle-aged or elderly individuals, there is a global epidemic trend indicating that type 2 diabetes mellitus is increasingly found at younger ages, mainly due to unhealthy lifestyle patterns. (Resti arania, 2021).

Table 2. General characteristics of participants (n=114)

Characteristic	f	%
Sex		
Male	55	48,2
Female	59	51,8
Education:		
Elementary school	59	51,8
Junior High School	38	33,3
Senior High School	17	14,9
Occupation:		
Farmer	29	25,4
Livestock breeder	29	25,4
Trader	22	19,3
Unemployed	34	29,8
Duration of having DM:		
< 5 years	13	11,4
5-10 years	67	58,8
>10 years	34	29,8
Medication consumption:		
Yes	77	67,5
No	37	32,5
Elderly Posyandu Participation:		
Attending once every month for 3 consecutive months	77	67,5
Irregular attendance at the monthly posyandu sessions	37	32,5
Total	**114**	**100**

The research results showed that the majority of respondents were female (51.8%), totaling 59 respondents. The hormones progesterone and estrogen play a role in enhancing the insulin response in the blood. However, during menopause, this response decreases due to the decline in estrogen and progesterone levels. Another contributing factor is that women often have unhealthy body weight, which can reduce insulin sensitivity. These conditions explain why women are more frequently affected by diabetes mellitus compared to men (Resti arania, 2021).

The research results showed that a portion of the respondents (51.8%) had completed only elementary school, totaling 59 respondents. Education level indirectly influences the occurrence of diabetes mellitus, as it is suspected to affect dietary patterns through the selection of food types consumed daily. Education level also impacts a person's food consumption choices in meeting their nutritional needs. Furthermore, education level has an effect on the incidence of type 2 diabetes mellitus. Individuals with higher education levels generally possess greater knowledge about health, which increases their awareness in maintaining a healthy lifestyle (Oktavia et al., 2024).

The research results showed that almost half of the respondents (29.8%) were unemployed, totaling 34 respondents. Occupation is closely related to the incidence of diabetes mellitus, as it influences the level of physical activity. Most unemployed respondents were women in the housewife category. Limited physical activity due to unemployment contributes to increased insulin resistance, which subsequently leads to higher blood glucose levels (Oktavia et al., 2024). Whether a person is employed or not affects the risk of developing diabetes mellitus. Occupations that involve low physical activity can result in insufficient energy expenditure, which may lead to weight gain and increase the risk of diabetes mellitus (Muna Lubis et al., 2023).

The study results showed that the majority of respondents (58.8%) had been suffering from diabetes mellitus for 5–10 years, totaling 67 respondents.

Furthermore, most respondents (71.7%) had lived with diabetes mellitus for less than 9 years. These findings are supported by research conducted by Setyorini & Wulandari, which revealed that the majority of respondents (59 people; 59%) had type 2 diabetes mellitus for more than 5 years. Another study also found that the most common duration of diabetes was 6–10 years, accounting for 32 respondents (36%). The duration of illness reflects the patients' ability to adapt, adhere to treatment regimens, and maintain a healthy lifestyle, which in turn supports better disease management (N. K. Sari & Firdaus, 2020).

Based on Table 2, the study results showed that the majority of respondents (67.5%) took medication and were active in posyandu activities, totaling 77 respondents. High self-efficacy in patients is essential, as it fosters awareness to regularly take medication and consistently utilize healthcare services (Fahamsya et al., 2022). High medication adherence is one of the key behaviors that determine the success of diabetes mellitus (DM) control. The level of self-confidence in managing type 2 DM can be assessed through patient adherence to physical activity, diet, and glucose monitoring (Widianingtyas et al., 2021).

Table 3. Family Support for Elderly Patients in Managing Diabetes Mellitus at Puskesmas A in 2025

Family Support Indicators	f	%
Instrumental Support		
Good	61	53,5
Poor	53	46,5
Informational Support		
Good	70	61,4
Poor	44	38,6
Emotional Support		
Good	84	73,7
Poor	30	26,3
Appraisal Support		
Good	75	65,8
Poor	39	34,2
Total	**114**	**100**

The research results showed that the majority of respondents received good support in all four aspects, with the highest percentage in emotional support (73.7%), followed by appraisal support (65.8%), informational support (61.4%), and instrumental support (53.5%). These findings indicate that emotional support was the most dominant aspect experienced by the elderly in managing their disease.. The study by Yusy, Dewi, & Ahmad (2023) stated that family support for elderly individuals with diabetes mellitus encompasses four key dimensions: emotional support, appraisal (recognition) support, informational support, and instrumental support.

Furthermore, emotional support has been proven to significantly influence the elderly's adherence to treatment, as demonstrated in the study by Eska, Nelly, & Tri (2024) The findings showed a significant relationship between emotional support and medication adherence in patients with diabetes mellitus ($p = 0.001$). Emotional support includes empathy, care, attention, and encouragement from family members, which strengthen the elderly's confidence and motivation in managing their treatment. In terms of the appraisal aspect, support in the form of praise and motivation when the elderly successfully follow their diet or reduce blood sugar levels can enhance their self-esteem and sense of being valued (Baharuddin & Nugroho, 2023).

In the informational aspect, families who consistently provide health education through various media, such as family WhatsApp groups or educational videos, can enhance the elderly's understanding of their health condition (Wartana et al., 2023). Meanwhile, instrumental support, provided in the form

of direct assistance such as preparing healthy meals, accompanying the elderly to medical check-ups, or reminding them to take medication, plays an important role in helping elderly patients consistently manage their diabetes mellitus (Wartana et al., 2023). Meanwhile, instrumental support, provided through direct assistance such as supplying medication, medical devices, and financial aid, plays a significant role in facilitating the treatment of the elderly. However, as revealed by Izzati et al. (2023), Low instrumental support may occur due to the family's financial limitations. Overall, this study found that 60.5% of respondents received good family support, which included both physical and emotional assistance.

Good family support indicates that the family is able to provide care for diabetes mellitus patients and meet their physical as well as psychological needs. Such support can enhance patients' confidence and motivation (Aini et al., 2024).

Table 4. Self-Efficacy in Elderly Patients Managing Diabetes Mellitus

Self Efficacy	f	%
Good	65	57,0
Moderate	48	42,1
Poor	1	0,9
Total	114	100

Based on Table 5, the results showed that the majority of respondents were in the high self-efficacy category, totaling 65 respondents (57%). Nearly half of the respondents were in the moderate category, amounting to 48 respondents (42.1%), while only 1 respondent (0.9%) fell into the low category.

These findings indicate that most elderly patients with diabetes mellitus have a good level of self-efficacy, reflecting their confidence and ability to manage disease relapse and independently handle their treatment. High self-efficacy enables individuals to take positive and consistent actions in overcoming their health challenges. Based on Al Fatih et al. (2024), Self-efficacy in one's personal abilities is a crucial factor in motivating effective actions to address health-related problems. Factors such as age, gender, education, and occupation play significant roles in shaping an individual's level of self-efficacy.

In this study, the majority of respondents were elderly (aged 60–74 years), accounting for 79.8%. Age is an important factor influencing self-efficacy, as it relates to life experience and the ability to manage health. Previous research has shown that individuals aged 40–65 years tend to have higher self-efficacy compared to the elderly, due to more stable physical and psychological conditions (Rahman et al., 2023). Furthermore, women in this study exhibited higher self-efficacy than men. Women comprised 51.8% of the respondents, supporting findings that women tend to be more active in health care and have greater confidence in fulfilling preventive roles for diabetes mellitus, including adherence to treatment.

Education and employment status also contribute to self-efficacy. Although only a small portion of respondents had a high school education (14.9%), research indicates that higher education levels support better self-efficacy because of a more optimal understanding of disease management (Ulfa et al., 2024). Additionally, respondents who were unemployed or retired (29.8%) tended to have higher self-efficacy because they had more time to focus on self-care activities, such as managing their diet and physical exercise. The reduced work-related stress also allowed these elderly individuals to adopt a more

structured and consistent approach to health management (Y. Sari et al., 2023).

Bandura (1994) explains that self-efficacy is formed through four main processes namely cognitive, motivational, affective, and selection. The cognitive process emphasises that human behaviour is the result of what is thought and planned in the mind. Individuals are able to make predictions, estimate the impact of an event, and develop strategies to achieve goals. Meanwhile, in the motivational process, self-confidence is an important factor that encourages a person to act, direct anticipatory steps, and build real goals and plans.

In addition, the affective process relates to how self-efficacy helps individuals manage emotions, suppress anxiety, and reduce stress. Good self-confidence enables a person to remain calm when facing threats and pressure, whereas low self-efficacy often results in heavier emotional burdens. The selection process demonstrates that self-efficacy encourages individuals to choose an environment that is suitable and supports their development. In this way, individuals not only adapt to their environment but also actively determine directions that strengthen their identity and increase their chances of success.

Table 5. Relationship Between Family Support and Self-Efficacy in Elderly Patients Managing Diabetes Mellitus

Family Support	Efikasi Diri						P Value
	Good		Moderate		Poor		
	F	%	F	%	F	%	
Good	45	69,23	24	50	0	0	0,024
Poor	20	30,77	24	50	1	100	
Total	**65**	**100**	**48**	**100**	**1**	**100**	

Based on the cross-tabulation results, a relationship was found between family support and self-efficacy in elderly patients with diabetes mellitus. The majority of respondents who received good family support also demonstrated high self-efficacy. The Spearman's rho statistical test showed a p-value of 0.024 (< 0.05), indicating a significant relationship between family support and self-efficacy. Family support in the form of attention, motivation, and information greatly influences patients' confidence in managing their disease (Sigit Mulyono, 2020).

Family support consists of four forms: informational support, which provides advice, knowledge, and guidance; appraisal support, offered through positive feedback, guidance, and appreciation for the patient's efforts; instrumental support, manifested as tangible assistance such as financial aid or fulfillment of medical needs; and emotional support, including empathy, attention, willingness to listen to complaints, and the presence of family as a source of strength (Li et al., 2023).

Self-efficacy is crucial in managing type 2 diabetes mellitus, as it serves as a key factor in driving behavioral changes toward effective self-care. Individuals with high self-efficacy are able to respond to health challenges with confidence and consistent actions, whereas those with low self-efficacy tend to give up more easily (Masruroh et al., 2021). Research shows that family emotional support, such as attentive monitoring of glucose levels and diet, significantly enhances patients' self-efficacy, which ultimately has a positive impact on the successful management of the disease (Ariani et al., 2020; Nisa et al., 2018)

Research from (Luo et al., 2024) These findings support the results of this study, indicating that social support through family can enhance the self-efficacy of

patients with chronic diseases. The family health of patients with chronic diseases was found to have a significant positive effect on self-efficacy. Perceived social support was identified as a partial mediator between family health and self-efficacy, accounting for 59.39% of the total effect. Additionally, health literacy moderated the impact of family health on both perceived social support and self-efficacy.

Previous studies conducted at Puskesmas Bagor and Dr. R. Soedarsono Regional Hospital have shown that family support is positively correlated with increased self-efficacy and resilience in patients. Patients with strong family support tend to feel more confident in adhering to treatment and making necessary lifestyle changes (Al Fatih et al., 2024). Self-efficacy also enhances patients' consistency in maintaining healthy eating habits, regular exercise, and medication adherence, which contributes to a better quality of life and improved disease control.

Various studies consistently indicate that family support is closely related to the self-efficacy of patients with chronic conditions, such as diabetes mellitus. Patients who feel fully supported by their families tend to be more emotionally calm, motivated to continue treatment, and able to find positive meaning in their care process. This demonstrates that family support not only serves as a form of assistance but also acts as a source of psychological energy, helping patients cope with their chronic condition. Therefore, the presence of a caring family plays a key role in enhancing patient resilience, both through moral and practical support (Amseke et al., 2021)

Researchers emphasize that family support plays a vital role for patients with diabetes mellitus. Various forms of support provided by families not only help maintain mental stability, but also directly contribute to improving patients' psychological well-being. Such support has been shown to be effective in reducing stress levels, alleviating anxiety, and minimizing feelings of helplessness that patients often experience while managing their chronic condition. The involvement of family members, including parents, spouses, and children, has a significant impact on the patient's quality of life, as patients feel valued, cared for, and not alone in undergoing treatment. Therefore, family support can be regarded as a determining factor that not only affects the patient's emotional condition, but also supports the success of medical therapy.

RESEARCH LIMITATIONS

A limitation of this study is that the sample selection was not randomized, and the variables examined were limited solely to family support. Therefore, future researchers are encouraged to investigate additional variables that may influence self-efficacy in diabetes mellitus management, as well as to conduct studies with larger randomized samples to achieve more robust and generalizable results.

CONCLUSION AND RECOMMENDATION

Based on the results of this study, it can be concluded that the majority of respondents received good family support across emotional, appraisal, informational, and instrumental aspects. Additionally, most respondents exhibited a high level of self-efficacy. The Spearman's rho statistical test showed a significant relationship between family support and self-efficacy in elderly individuals, indicating that better

family support is associated with higher self-efficacy in managing diabetes mellitus.

It is recommended that healthcare services actively involve family members as caregivers in the home-based management of diabetes mellitus. The practical implications for community nursing include implementing family-based programs through education, counseling, and direct assistance. Nurses can organize family outreach activities, provide training in diabetes self-care skills, and facilitate group discussion forums that encourage active involvement of family members. This approach will strengthen the self-efficacy of older adults, enhance their confidence in controlling their disease, and improve their quality of life. For future research, it is advised to evaluate larger randomized samples to obtain more comprehensive and generalizable results.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

This research has been declared to have passed ethical review from the Research Ethics Committee of the Muhammadiyah Kudus University Health Research Ethics Committee with number 284/Z-7/KEPK/UMKU/II/2025.

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