



## Relationship Between Family Support And Diabetic Foot Care Management in Type 2 DM Patients at Kota Utara Public Health Center, Gorontalo City

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### ARTICLE INFO

#### Article history:

Received January 30, 2025

Revised May 25, 2025

Accepted June 13, 2025

Available online June 14, 2025

**Keywords:** Type 2 Diabetes

Mellitus, Mental Health, Quality of Life

### ABSTRACT

*Family support is needed for individuals to overcome the problems they face. Family support has an influence and has a positive impact on DM sufferers, so that with family support it can be a motivation and also a reminder for someone with DM in carrying out foot care management. The purpose of this study was to determine the relationship between family support and diabetic foot care management in Type 2 DM patients at the North City Health Center, Gorontalo City. This research method uses an analytical survey with a cross-sectional research design. The population of this study was patients with a diagnosis of DM2 totaling*

*83 people. The sample consisted of 45 respondents with an accidental sampling technique. The results of the study were analyzed using the chi square statistical test. The results showed 30 respondents with low family support, 15 respondents with high family support, 26 respondents with poor foot care management, and 19 respondents with good foot care management. There is a relationship between family support and diabetic foot care management with a p value of 0.000 (<0.05). Conclusion: high family support can affect good foot care management.*

### 1. INTRODUCTION

Diabetes Mellitus (DM) is a disease characterized by high levels of glucose (simple sugar) in the blood. In Indonesia, DM is also known as diabetes, which is one of the diseases whose prevalence is increasing (Tjahjadi, 2017). Based on data from the International Diabetes Federation (IDF), in 2021 there were 537 million people in the world suffering from diabetes. This number increased rapidly in 2019, reaching 463 million people with diabetes in the world (International Diabetes Federation, 2021).

From the Indonesian Health Survey (SKI) report, in 2023 the prevalence of DM sufferers in Indonesia increased. The results of the 2023 SKI showed a difference between the prevalence of diabetes in 2023 and 2018. In 2018, diabetes sufferers increased by 11.7% higher than the prevalence in 2018, which was only 10.9%. Gorontalo Province ranks 33rd out of 38 provinces with the highest prevalence of diabetes mellitus sufferers in 2023 (KEMENKES, 2024).

Based on data obtained from the Gorontalo Provincial Health Office in 2023, there were 23,962 people with diabetes mellitus (Gorontalo Provincial Health Office, 2024). Gorontalo City is the 4th highest region in Gorontalo Province with the most diabetes sufferers in 2023. Of the 10 Health Centers in Gorontalo City, the North City Health Center is ranked second with the most diabetes mellitus sufferers (314 patients) after the Dumbo Raya Health Center (417 patients) in 2023. Although in second place, the North City Health Center recorded a surge in patients by 247 patients in the last 3 months compared to the Dumbo Raya Health Center which only had 106 diabetes mellitus patients (Gorontalo City Health Office, 2024). Based on the data above, with the increasing number of DM sufferers, the incidence of complications also increases (Soelistijo, et al., 2021). In people with diabetes, there tend to be vascular disorders that cause the feet to lose sensitivity. If the patient does not care about the condition of his feet, even if it is only a small wound and is not treated properly, the feet of diabetics are at risk of being easily injured and

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infected, causing gangrene and diabetic ulcers that lead to amputation. Therefore, foot care is very important to do (Febrinasari, 2020).

Foot care is a daily activity of diabetes mellitus patients consisting of detecting diabetic foot abnormalities, foot and nail care and foot exercises. Implementation of foot care can significantly prevent and reduce the risk of diabetic foot ulcers experienced by people with diabetes mellitus (Sari, 2021). Family involvement in DM management is essential because the family is the main caregiver while the patient is at home. Family support has a role in helping people with diabetes mellitus in carrying out efforts to prevent diabetes complications (Mahfudh, 2023). Family support is all forms of acceptance of both attitudes and actions of the family towards family members who are sick. The support provided by the family is in the form of instrumental, informational, emotional support, and support in the form of hope (Carsita and Windiramadhan, 2023).

Family support for DM patients can affect the management of diabetic foot care in DMT2 patients. Family support or support as motivation and also a reminder for someone to carry out foot care. According to the results of a study conducted by Mutiudin, et al. (2022), it was found that DMT2 sufferers with good family support also have good foot care behavior. Based on the results of statistical tests, it was found that there was a relationship between family support and foot care in DMT2 sufferers with a p-value of 0.002 ( $<0.05$ ).

Initial observation data that has been carried out by researchers at the North City Health Center, Gorontalo City, the number of DMT2 patients in 2023 has reached 314 patients. Based on the results of observations and interviews conducted by researchers at the North City Health Center, Gorontalo City, on 5 DMT2 patients on August 16, 2024, 4 people said they did not carry out good foot care such as not examining their feet and maintaining foot hygiene, and 3 people said that they did not have good family support or support in this case there was no family to accompany them in controlling their health conditions to health services. This study is different from the previous study based on the urgency of family involvement through social support. Based on the background description, the researcher is interested in examining the relationship between family support and diabetic foot care management in Type 2 DM patients at the North City Health Center, Gorontalo City

## 2. METHOD

This study is an analytical survey study with a cross-sectional design. By using a family support research instrument that has been tested for validity and reliability, the calculated  $r$  value is between 0.700-0.964 so that the family support instrument with 20 statement items is said to be valid with a calculated  $r$  value of  $r \geq r$  table (0.602). The population in this study were patients with a diagnosis of Type 2 DM at the North City Health Center, Gorontalo City, totaling 247 people in the last 3 months so that the average population in the last 1 month was 83 people. The sample consisted of 45 respondents with an accidental sampling technique.

## 3. RESULTS AND DISCUSSION

Tabel 1. Karakteristik Responden

Respondent Characteristics	Frequency (n)	Persentase (%)
Age		
36-45 years (Late Adulthood)	21	46,7
46-55 years (Early Elderly)	13	28,9
56-65 years (Late Elderly)	10	22,2
>65 years (Seniors)	1	2,2
Total	45	100
Gender		
Male	14	31,1
Female	31	68,9
Total	45	100

Job		
Housewife	27	60,0
Farmer	5	11,1
Self-employed	5	11,1
PNS	8	17,8
Total	45	100
Education		
Elementary School	12	26,7
Junior High School	14	31,1
High School	8	17,8
Bachelor	11	24,4
Total	45	100
Duration of DM		
≥5 Years	14	31,1
<5 Years	31	68,9
Total	72	100

Based on Table 1. The research subjects as many as 45 respondents showed that most were aged between 36-45 years (late adulthood) with the number of respondents 21 (46.7%), female gender as many as 31 respondents (68.9%), working as housewives as many as 27 respondents (60%), the highest education was junior high school as many as 14 respondents (31.1%), and suffering from Type 2 DM for <5 years as many as 29 respondents (64.4%).

Table 2. Family Support for Type 2 DM Patients at the North City Health Center, Gorontalo City

Family Support	n	Persentase
High	15	33,3
Low	30	66,7
Total	45	100

Based on table 2. Shows that out of 45 respondents, most of them have low family support, namely 30 respondents (66.7%). Based on the results of this study, most Type 2 DM sufferers have low family support. This can be seen from the results of respondents' answers to the questionnaire that has been given. Of the 4 aspects of family support, appreciation support has the lowest score, namely only approximately 11 total scores were obtained on all appreciation support question items. On average, respondents answered that their families rarely reminded them to order diabetes medication, and their families never even encouraged them to have their eyes and feet checked by a doctor. According to Mahfudh (2023), family involvement in DM management is very necessary because the family is the main caregiver while the patient is at home. Family support has a role in helping diabetes mellitus sufferers in carrying out efforts to prevent diabetes complications. The results of this study are in line with research conducted by Putri (2021) which found that out of 107 respondents with type 2 diabetes mellitus, most had low family support, namely 75 respondents (70.1%), and respondents who had high family support were only 32 respondents (29.9%). Based on the theory and research above, the researcher assumes that families can encourage other family members who suffer from DM to carry out the desired healthy behavior in diabetes management. Family members can provide information encouragement in the form of providing education about diabetes, providing emotional encouragement for calm, encouragement of appreciation, and instrumental such as a form of encouragement for DM sufferers to exercise regularly. So with the support of these family members, DM sufferers do not feel alone and can motivate them to manage their disease well.

Table 3. Diabetes Foot Care Management in Type 2 DM Patients at the North City Health Center, Gorontalo City

Foot Care Management	n	Persentase
Good	19	42,2

Not enough	26	57,8
Total	45	100

Based on Table 3. Shows that out of 45 respondents, most of them have poor diabetic foot care management, namely 26 respondents (57.8%). Based on the results of this study, most Type 2 DM sufferers have poor foot care. This can be seen from the results of respondents' answers through the questionnaire given where they did not examine all parts of the feet (including the soles of the feet, between the toes, the front of the feet, and heels), did not use warm water and soap when washing their feet, did not use soft and dry towels after washing their feet, especially between the toes, did not use soft and non-hard footwear when walking both indoors and outdoors, did not clean the inside of shoes/sandals from foreign objects such as gravel or other objects before wearing them, did not thin the thickness of the skin of the feet regularly if there are calluses or calluses, and did not use betadine and cover it with dry gauze in the injured area if there are/have abrasions on the foot area. On average, they only take action in the form of applying moisturizer to the feet evenly except between the toes and cutting toenails parallel to the fingertips and straight and not too short.

Most respondents have fewer foot care actions also due to the level of education possessed by the respondents which is dominated by respondents with low education (elementary and junior high school) which is 26 respondents (57.9%). According to Pakpahan (2021), the factors that facilitate, underlie, or motivate to take action, or in other words this factor is related to the motivation of individuals or groups to act on certain behaviors, one of which is the characteristics of the individual, for example, the level of education. Education affects the learning process, so the higher a person's education, the easier it is for someone to receive information, both from other people and from the mass media. The more information that comes in, the more knowledge is gained about health. Irwan (2020) also explains that actions or practices are the result of the realization of knowledge or attitudes, namely real actions. An individual will adopt an action or behavior if he first knows the meaning and benefits of the behavior. The results of this study are in line with research conducted by Putri, Indra, and Erianti (2020) that 12 respondents with low education, most of them had poor foot care practices (58.3%) and based on the results of statistical tests there was a relationship between education and foot care practices with a p-value of 0.019 ( $<0.005$ ). Based on the theory and research above, the researcher assumes that a person's education can affect the level of knowledge they have so that this knowledge will then be realized in a form of action in the form of foot care management.

Table 4. Relationship between Family Support and Diabetes Foot Care Management in Type 2 DM Patients at the North City Health Center, Gorontalo City

at the North City Health Center, Gorontalo City							ρ Value
Family Support	Foot Care Management						
	Good		Not enough		Total		
	Amount	%	Amount	%	Amount	%	
High	12	26,7	3	6,7	15	33,3	0,000
Low	7	15,6	23	51,1	30	66,7	
Amount	19	42,	26	57,	45	100	
		2		8			

Based on table 4. The bivariate data analysis technique used in this study using the chi-square statistical test obtained a p-value of 0.000, which means that the p-value is smaller than  $\alpha = 0.05$ , then it can be concluded statistically that there is a relationship between family support and diabetic foot care management in Type 2 DM patients at the North City Health Center, Gorontalo City. The results of the study conducted at the North City Health Center, Gorontalo City showed that the computerized results using the chi-square test with the help of the Statistical Program for the Social Science (SPSS) program obtained a p-value of family support and diabetic foot care management, which is 0.000, which means that the p-value is smaller than  $\alpha = 0.05$ , then it can be concluded statistically that there is a relationship between family support and

diabetic foot care management in Type 2 DM patients at the North City Health Center, Gorontalo City.

According to Sari (2021), foot care is a daily activity of diabetes mellitus patients consisting of detecting diabetic foot abnormalities and foot care. This foot care can be done by patients and families independently where health workers in this case nurses are required to provide education for patients and families with diabetes mellitus to carry out foot care independently.

Foot care is mainly done to prevent amputation. Feet should be washed every day with mild soap, rinsed with water, rinsed, and then dried especially between the toes. Dry feet need to be given a softening cream once or twice a day, but not between the toes because wet conditions make it easier for infection. Always wear socks to protect your nails and toes. Be careful when cutting nails, do not let injuries occur. Avoid heat, such as soaking feet in hot water or using hot compresses, because disorders of the sensory nerves can cause burns and infections. And most importantly, do not go barefoot, even if just walking from the bedroom to the bathroom (Tandra, 2018).

Based on the results of this study, it shows that there is a relationship between family support and diabetic foot care management in type 2 DM patients. Family support is needed in individuals to overcome the problems they face because family is a close social relationship with someone. High family support can provide comfort to people with diabetes mellitus. Family support has an influence and a positive impact on people with diabetes mellitus so that with family support it can be a motivation and also a reminder for someone with diabetes mellitus to carry out foot care (Putri, 2021).

Family support for DM patients can affect the management of diabetic foot care in type 2 DM patients. Family support or support as motivation and also a reminder for someone to carry out foot care. According to the results of a study conducted by Mutiudin, et al. (2022), it was found that people with DMT2 with good family support also have good foot care behavior, and based on the results of statistical tests, it was found that there was a relationship between family support and foot care in people with DMT2 with a p-value of 0.002 ( $<0.05$ ).

The results of this study are also in line with research conducted by Mahfudh (2023) which found that out of 38 respondents with high family support, there were 35 respondents (70%) whose foot care behavior was good, while 12 respondents with low family support, there were only 4 respondents (8%) whose foot care behavior was good. The results of the analysis showed that there was a relationship between family support and foot care behavior in patients with diabetes mellitus with a p-value of 0.001 or  $P \leq 0.05$ . Based on the theory and research above, the researcher assumes that someone suffering from type 2 DM who does not get good family support can affect their motivation in carrying out foot care management. Foot care management is very important for everyone, especially type 2 DM patients to prevent foot complications. This is because DM patients are very susceptible to foot wounds, where the wound healing process takes a long time. So if everyone wants to do good foot care, it will reduce and prevent the risk of complications in the feet.

### Research Limitations

In the data collection process, the information provided by respondents through questionnaires sometimes does not show the respondents' actual opinions, this happens because sometimes there are differences in thoughts, assumptions and understandings of each respondent, as well as other factors such as honesty in filling in the respondents' opinions in their questionnaires.

## 4. CONCLUSION

Type 2 DM patients at the North City Health Center, Gorontalo City, mostly have low family support, namely 30 respondents (33.3%), while those with high family support are 15 respondents (66.7%). Type 2 DM patients at the North City Health Center, Gorontalo City, mostly have poor diabetic foot care management, namely 19 respondents (42.2%), while those who have

good diabetic foot care management are 26 people (57.8%). There is a relationship between family support and diabetic foot care management in type 2 DM patients at the North City Health Center, Gorontalo City with a p value of 0.000 ( $<\alpha$  0.05).

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