Health Gate
Volume 3 Number 2 April 2025 ISSN 2986-1098
Homepage: https://healthgate.ppnikotablitar.com

DOI: https://doi.org/10.70111/hg3205
Submited : Maret, 15 2025
Reviewed: April, 15 2025
Accepted : April, 24 2025

Family Support And Diabetic Distress in Diabetes Mellitus Type-2 Patients

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ABSTRACT

Diabetes distress can significantly impact a person's mental health and motivation to manage the disease. Family support can reduce diabetes distress by providing comfort and understanding. This study aims to determine the relationship between family support and diabetes distress in type-2 diabetes mellitus patients at PKU Muhammadiyah Gamping Hospital, Indonesia.This study adopted a descriptive correlational design with a cross-sectional design. Samples were taken by accidental sampling technique from the population of outpatients at the PKU Muhammadiyah Gamping Hospital Polyclinic, with 107 respondents. The research instrument used was a family support questionnaire and the Diabetes Distress Scale-17. Data analysis was performed using Kendall's Tau correlation test. The results showed that most respondents had good family support (88.8%) and no distress (58.9%). Kendall's Tau correlation test showed a significant relationship between family support and diabetes distress with a P value = 0.014 and a correlation coefficient = 0.229. There is a significant correlation between family support and diabetes distress in patients with type-2 diabetes mellitus at PKU Muhammadiyah Gamping Hospital. Good family support can reduce diabetes distress in patients.

Keywords: type-2 diabetes mellitus; family support; diabetic distress

Background

Non-communicable diseases (NCDs) continue to be a significant health challenge in Indonesia, with diabetes mellitus (DM) as one example. Diabetes is a chronic, lifelong disease associated with metabolic disturbances, including carbohydrates, proteins, and fats. The causes of diabetes mellitus include genetic factors, unhealthy lifestyles, and environmental influences(1). Based on the International Diabetes Federation report, Indonesia is the fifth country with the highest number of people with diabetes in 2022 and is expected to increase by 2045(2). Data from the 2014 sample registration survey released by the Ministry of Health showed that diabetes is the third leading cause of death in Indonesia, accounting for 6.7%(1).

The prevalence of diabetes mellitus shows an increase of 19,465,100 adults aged 20-79 years(3). In 2021, there were 83,568 people with type-2 diabetes mellitus in DIY Province, but only about 60.5% of them received health services according to standards(4). The Indonesian government has paid great attention to preventing and controlling non-communicable diseases, including diabetes mellitus. This is reflected in the establishment of the Non-communicable Disease Control Bureau according to the Minister of Health Order No. 1575 of 2005 on the

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prevention and control of non-communicable diseases such as heart disease, cancer, metabolic disorders, and other reproductive diseases such as those caused by accidents and injuries[5].

Type-2 diabetes mellitus is a disease that is difficult to cure but can be managed. Management involves changing one's lifestyle to be healthier, such as maintaining a diet, exercising regularly, maintaining mental health, taking medication, and having regular monthly check-ups[6]. Short changes in lifestyle can make individuals experience stress and depression. Therefore, there is a condition called diabetes distress in people with diabetes. Diabetes stress is an emotional issue that is directly related to the stress and worry that comes with having a chronic disease. Diabetes stress includes concerns about self-management, family support, emotional distress, and access to health care[7]. A related factor in the occurrence of diabetes distress in patients with type-2 diabetes mellitus is the lack of family support[8].

Lifestyle changes made by patients with type-2 diabetes mellitus to prevent disease worsening and complications require support from various parties. The family is a close person and plays an active role in successfully treating patients with diabetes mellitus. Adequate family support can make it easier for patients to implement the management and lifestyle changes needed to manage type-2 diabetes mellitus more consistently[9]. Family support is assistance one family member provides to another sick person, both in roles and materials[10]. Family support strengthens the patient's confidence and provides reassurance that the patient is not facing their health journey alone[11].

The findings of earlier research by Yumna et al. Explain the association between family support and distress in people with diabetes mellitus-related distress; the study revealed no connection between family support and the degree of discomfort experienced by participants with the disease[12]. Previous research claimed that in individuals with type-2 diabetes mellitus, there is a strong and inverse link between stress levels and family support[13]. People with diabetes mellitus have more well-being when there is more excellent family support[14]. According to a study by Presley et al., type-2 diabetes mellitus patients tend to be more distressed when they are not as happy with the social support they receive from friends and family[15].

While some research has revealed a connection between type-2 diabetes patients' suffering and their family's support, there are still some areas that have not been explored in depth. Current research has not comprehensively described each domain of family support (e.g., emotional, instrumental, and informational) and diabetes distress (e.g., emotional burden, distress with health professionals, or other domains). A better understanding of these family support and distress types is needed to design more effective interventions. In addition, in the previous study, the family support questionnaire used was not the family support questionnaire. The inconsistency of the results of previous studies inspired the author to conduct research with this title. This research aims to investigate the relationship between family support and diabetes distress among patients with type-2 diabetes mellitus at PKU Muhammadiyah Gamping.

Methods

This study used a descriptive correlational design with a cross-sectional approach. The participants of this study were patients with type-2 diabetes mellitus aged over 18 years who examined themselves at the Polyclinic of PKU Muhammadiyah Gamping Hospital and agreed to participate. The sampling method was accidental.The research sample consisted of 107

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Volume 3 Number 2 April 2025 ISSN 2986-1098
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respondents. This study used the Family Support questionnaire by Nursalam (2017) and the Diabetes Distress Scale-17. The data type used in 2 variables is ordinal and is not normally distributed. Kendall's Tau correlation test was used to analyze the correlation. Statistical significance level was accepted if P<0.05.

Results

Table 1. Univariate Analysis of Respondent's Characteristics

Respondent's Characteristics	Frequency (f) (n= 107)	Percentage (%)
Age Range		
25-44 years old	4	3.7
45-59 years old	44	41.1
>= 60 years old	59	55.1
Sex		
Male	41	38.3
Female	66	61.7
Education Level		
Elementary School	16	15.0
Junior High School	16	15.0
Senior High School	38	35.5
Diploma/ Bachelor's Degree	37	34.6
Jobs		
Unemployed	22	20.6
Housewife	28	26.2
Entrepreneur	3	2.8
Farmers	3	2.8
Civil Servants	11	10.3
Private Sector Employee	14	13.1
Others	26	24.3
Marital Status		
Married	82	76.6
Divorced	3	2.8
Widowed	22	20.6
Complication		
No Complication	25	23,4
Hypertension	45	42,1
Nephropathy	4	3,7
Retinopathy	2	1,9
Neuropathy	15	14,0
Cardiovascular	13	12,1
Neuropathy dan Retinopathy	2	1,9
Retinopathy, Neuropathy, Nephropathy	1	0,9
Duration of Having Diabetes		
<5 tahun	44	41,1
>=5 tahun	63	58,9

Table 1. This study involved 107 respondents with type-2 diabetes mellitus at PKU Muhammadiyah Gamping Hospital. Most of the respondents were elderly aged 60 and older

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(55.1%), female (61.7%), with the last education of high school (35.5%), working as housewives (26.2%), with marital status mostly married (76.6%), most respondents had complications with hypertension (42.1%). They had suffered from type-2 diabetes mellitus >5 years (58.9%).

Table 2. Descriptive Statistics of Family Support Based on Indicators

Family Support Indicator	Min	Max	Mean	Std, Deviation (n=107)
Emotional Support and Appreciation	5	16	14.14	2.647
Instrumental Support	5	16	14.57	2.592
Informational Support	4	16	13.72	3.185

Table 2 describes the family support indicators. Of the three types of family support experienced by respondents in this study, the average score of instrumental support was the highest, while information support had the lowest average score.

Table 3. Univariate Analysis of Family Support

Category	Frequency (f) (n= 107)	Percentage (%)
Good	95	88.8
Fair	6	5.6
Poor	6	5.6

Table 3 is a univariate analysis of family support characteristics. It can be seen that most respondents with type-2 diabetes mellitus at PKU Muhammadiyah Gamping Hospital have good family support (88.8%).

Table 4. Descriptive Statistics of Diabetes Distress Based on Indicators

Indicators of Diabetes Distress	Min	Max	Mean	Std. Deviation (n=107)
Emotional Domain Burden	1.0	5.8	2.686	1.1981
Physician Domain Distress	1.0	5.0	1.285	0.7688
Regimen Domain Distress	1.0	4.4	1.998	0.7704
Interpersonal Domain Distress	1.0	6.0	1.681	1.0627

Table 4 is a descriptive indicator of diabetes distress in respondents. Of the four diabetes distress indicators, distress on emotional burden has the highest value, while distress with health professionals has the lowest value.

Table 5. Univariate Analysis of Diabetes Distress

Category	Frequency (f) (n= 107)	Percentage (%)
No Distress	63	58.9
Moderate Distress	35	32.7
Severe Distress	9	8.4

Table 5 is a univariate analysis of diabetes distress characteristics. Most respondents with type-2 diabetes mellitus at PKU Muhammadiyah Gamping Hospital experienced no distress (58.9%).

Table 6. Bivariate Analysis of Family Support with Diabetes Distress

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Variable	Kendall's Tau Correlation Coefficient	Significant (P Value)
Family Support with Diabetes Distress	0.229	0.014

Kendall's Tau correlation test showed a significant relationship between family support and diabetes distress with a P value = 0.014 and a correlation coefficient = 0.229. There is a significant correlation between family support and diabetes distress in patients with type-2 diabetes mellitus at PKU Muhammadiyah Gamping Hospital.

Discussion

The results of the univariate analysis of respondent characteristics can be seen in Table 1. This study involved 107 respondents with type-2 diabetes mellitus at PKU Muhammadiyah Gamping Hospital. Most of the respondents were elderly aged 60 and older (55.1%), female (61.7%), with the last education of high school (35.5%), working as housewives (26.2%), with marital status mostly married (76.6%), most respondents had complications with hypertension (42.1%). They had suffered from type-2 diabetes mellitus >5 years (58.9%).

Table 2 describes the family support indicators. Of the three types of family support experienced by respondents in this study, the average score of instrumental support was the highest, while information support had the lowest average score. This means that some respondents felt that the family provided instrumental support (costs and facilities) but needed to be higher in providing support related to information.

Table 3 is a univariate analysis of family support characteristics. It can be seen that most respondents with type-2 diabetes mellitus at PKU Muhammadiyah Gamping Hospital have good family support (88.8%). Family support refers to the attitudes, actions, or acceptance shown by family members toward a relative who is ill. The family is vital for each individual, including patients with diabetes mellitus[16]. In addition, family support for patients with diabetes mellitus is essential to achieve better patient health outcomes, improve the patient's ability to deal with the disease and improve health status, including in preventing complications[17]. Family support can take the form of emotional, appreciative, instrumental, and informational assistance. This support can enhance the self-care behavior of patients with diabetes mellitus, helping them manage their condition effectively.

People with diabetes mellitus need emotional support from the closest person, so it is expected to increase self-confidence in carrying out treatment[10]. According to other studies, active family involvement is in line with the concept of a healthy paradigm; in other words, care and healing are not only focused on the patient's recovery, but finding healthy family members is significant to maintain and improve the health of sick and healthy family members[7]. Therefore, the care and treatment of diabetes require a biological organ approach and family support through a family approach.

The research results show that patients diagnosed with type-2 diabetes mellitus at PKU Muhammadiyah Gamping Hospital have good family support, and it shows that families are very aware of the importance of providing support from other families. Good family support, such as giving attention and affection, driving to health services, and providing information related to type-2 diabetes mellitus, will affect the level of motivation and management of type-2 diabetes mellitus patients to carry out type-2 diabetes Mellitus treatment. Another study stated that the most family support in the excellent category was 86 subjects (56.6%); support from a

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good family will be essential in helping people with diabetes mellitus to carry out effective self-management[18]. When someone gets strong support from family, it can generate positive energy and trigger high enthusiasm for good diabetes management.

Adequate family support not only enhances motivation and management of care for individuals with type-2 diabetes mellitus but also contributes to improving their overall quality of life. Another study indicates that more excellent family support and coping strategies for patients lead to increased adherence to diabetes treatment. Family support and effective coping strategies increase patient motivation to seek treatment and significantly improve the overall quality of life and well-being of people with diabetes[19]. Support from close family members can have a positive influence on patients. In contrast, the lack of such support can lead to feelings of unhappiness, potentially hindering the healing process and adversely affecting the patient's diabetes condition[11]. The study's results conclude that family support is the best support system for patients with type-2 diabetes mellitus. It can have a significant influence on controlling their disease and improving their quality of life and physical and psychological well-being. Patients with type-2 diabetes mellitus get positive support in terms of physical, psychological, emotional, and information that is important for health problems such as type-2 diabetes mellitus.

Table 4 is a descriptive indicator of diabetes distress in respondents. Of the four diabetes distress indicators, distress on emotional burden has the highest value, while distress with health professionals has the lowest value. This means that most respondents experience significant emotional distress from their experience with diabetes. Table 5 is a univariate analysis of diabetes distress characteristics. Most respondents with type-2 diabetes mellitus at PKU Muhammadiyah Gamping Hospital experienced no distress (58.9%). Diabetes distress is an emotional response of type-2 diabetes mellitus patients to the burden experienced related to their disease. According to other studies, diabetes distress is a natural emotional response to the threat of disease that can change a person's way of life. This distress is different from depression and comes from the demands that arise in diabetes management and is the result of emotional adjustment to the condition[20]. Patients often feel anxious when faced with the many lifestyle changes required, feel a sense of failure when their fasting blood sugar levels are high, worry about the risk of complications, and feel frustrated when they struggle to control their condition. Following other research, diabetes distress can reduce overall health control in patients with type-2 diabetes mellitus, such as controlling blood pressure, cholesterol, and adherence to medication[21].

The research findings show that has been conducted show that patients with type-2 diabetes mellitus at PKU Muhammadiyah Gamping mainly do not experience distress related to their illness is good. Everyone has characteristics and self-efficacy that can affect how they respond to stress and health problems experienced. Some individuals may be naturally more inclined to cope with stress better than others. In line with other studies, self-efficacy can help reduce the adverse effects of diabetes-related distress and depressive symptoms[22]. Individuals who believe in their ability to manage diabetes may be better able to cope with distress and depressive symptoms experienced better and have a stronger belief in their ability to overcome problems and manage their disease, thus reducing the level of distress. In addition to self-efficacy, the level of knowledge in diabetes mellitus patients is a factor associated with distress.

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The study found that most respondents who did not experience distress had good knowledge about diabetes and practical management skills in carrying out self-care, so patients were more confident in facing challenges related to their disease. This can reduce the level of distress they experience. Lack of knowledge about self-care can lead to deteriorating health and increased stress due to the inability to manage self-care effectively[23,24].

The results of the study can conclude that the incidence of diabetes distress that occurs in patients with type-2 diabetes mellitus must be considered because diabetes distress will have an impact on diabetes management in everyone. Factors that contribute to the non-occurrence of distress include high levels of self-efficacy, good knowledge about diabetes, and practical management skills in self-care. Although most respondents showed low levels of diabetes distress, it should be noted that there was a small proportion of respondents who experienced higher levels of distress. Factors such as more vulnerable mental health conditions, lack of social support, or lack of diabetes management knowledge and skills may be risk factors for higher levels of distress in these individuals[25].

Based on Table 6, the results are significant. The Kendall's Tau correlation test for family support and diabetes distress variables resulted in a significance level of 0.014, which indicates that the p-value is below the 5% error threshold (0.05). This shows a significant relationship between family support and diabetes distress in patients with type-2 diabetes mellitus. The strength of this relationship is reflected in the correlation coefficient of 0.229, which is included in the category of low relationship closeness. After applying Kendall's Tau test to the hypothesis, a significant value of 0.014 was found ($p < 0.05$). This suggests that the null hypothesis (Ho) is rejected, and the alternative hypothesis (Ha) is accepted. This demonstrates a significant relationship between family support and diabetes distress among type-2 diabetes patients at PKU Muhammadiyah Gamping Hospital. The correlation coefficient obtained was 0.229, suggesting that the strength of this relationship is categorized as weak.

The findings of this study align with those of a previous study involving 30 respondents with type-2 diabetes mellitus from the Kuningan Puskesmas work area, which employed a cross-sectional approach. The study employed total sampling and applied the Spearman Rank correlation test. The P-value obtained is (0.000), which is less than 0.05, which indicates a significant relationship between family support and the level of distress in the elderly with type-2 diabetes mellitus[26, 27]. Similarly, other studies show a significant negative relationship between family support and stress levels in patients with type-2 diabetes mellitus, with a correlation coefficient of -0.696 and a p-value of 0.000[13]. In contrast to other studies, this research found no significant relationship between family support and distress in patients with diabetes mellitus, as evidenced by a p-value of 0.155. This suggests no meaningful correlation between these two variables[12]. Adequate family support can influence the level of distress experienced by patients with type-2 diabetes mellitus.

The high family support felt by patients will lower the occurrence of diabetes distress so that there is no emotional response from patients to the demands and burdens of their illness and the worries felt by patients. A family environment that supports each other will lead to positive feelings. This is consistent with the theory put forward by Friedman (2013), which states that the family functions as information, advice, and instructions on how to solve problems; the family is expected to provide encouragement and supervision of health[25].

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Respondents need emotional support to feel that they are not alone in bearing the burden of their illness, but there are still other people who can provide attention in solving problems. Based on this, people with diabetes need family support in living their lives. Emotional help from the family can give feedback that can motivate and increase the patient's self-esteem to improve their health status.

The influence of family support lies in its ability to help manage the emotional responses to the challenges of the disease. Positive support and behavior from family members can significantly affect the level of distress experienced by patients. This is supported by research, which demonstrates that family support plays a crucial role in alleviating the concerns and emotional strain associated with type-2 diabetes mellitus, effectively reducing diabetes distress[7]. Family support includes assistance healthcare professionals provide in nursing interventions, recognizing that families actively contribute to alleviating the concerns and emotional burden of patients with diabetes mellitus. Research has shown that family support is a crucial factor associated with diabetes-related distress[8]. However, the closeness between the variables of family support and diabetes distress in this study is low, indicating that the influence between the two variables is not substantially strong.

Based on the discussion, the researchers concluded that family support significantly influences health outcomes, as families play an essential role in preventing, adjusting to, and improving health problems within the family environment. This study shows that patients who receive strong family support generally experience lower levels of distress. Although family support contributes to reducing diabetes-related distress in patients with diabetes mellitus, other factors, such as psychological, social, and environmental aspects, also affect distress levels. These factors should be considered when designing effective interventions or management strategies to reduce distress and improve the well-being of diabetic patients.

Conclusions and Recommendations

There is a significant correlation between family support and diabetes distress in patients with type-2 diabetes mellitus at PKU Muhammadiyah Gamping Hospital. Managing diabetes requires a daily commitment to tasks like blood glucose monitoring, meal planning, medication adherence, and exercise. Family members can offer practical support, such as helping with meal preparation, reminding patients to take medications, or accompanying them to medical appointments. This support can lighten the patient's load, making diabetes management less overwhelming.

Acknowledgment

The author would like to thank PKU Muhammadiyah Gamping Hospital for giving us the opportunity to carry out research smoothly.

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