

## Good Family Support Will Reduce Stress Levels In Type 2 Diabetes Patients

*Dukungan Keluarga yang Baik akan Menurunkan Tingkat Stress Pasien Diabetes Tipe 2*

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### ABSTRACT

**Background:** Patients with type 2 diabetes mellitus often experience stress as a consequence of the lifestyle changes required to manage this chronic condition. Family involvement and support play a crucial role in helping patients adapt and in reducing the levels of stress they experience.

**Objective:** This study aimed to evaluate the relationship between the level of family support and the level of stress among patients with type 2 diabetes mellitus who were hospitalized in one of the hospitals in Bali.

**Methods:** The study employed a correlational design with a cross-sectional approach. A total of 66 respondents were selected using a total sampling method from the inpatient ward. Data were collected using a family support questionnaire and the Depression Anxiety Stress Scale (DASS). Data analysis was conducted using the Spearman Rank correlation test.

**Results:** The findings indicated that the majority of patients received good family support (47%) and experienced low levels of stress (59.1%). Further analysis revealed a significant relationship between family support and stress levels ( $p = 0.000$ ;  $R_s = -0.401$ ).

**Conclusion:** The greater family support is associated with lower levels of stress among patients. Therefore, interventions to strengthen the role of family support are highly recommended, including providing education to families about their supportive role, assistance in disease management, and reinforcement of psychosocial aspects through effective communication and active family involvement in patient care.

**Keywords:** diabetes mellitus, family support, stress level

### ABSTRAK

**Latar Belakang:** Penderita diabetes melitus tipe 2 kerap mengalami stres sebagai konsekuensi dari perubahan gaya hidup yang diperlukan untuk mengelola kondisi kronis ini. Keterlibatan dan dukungan keluarga memiliki peran esensial dalam proses adaptasi pasien serta dalam menekan tingkat stres yang dialami.

**Tujuan:** Penelitian ini bertujuan untuk mengevaluasi hubungan antara tingkat dukungan keluarga dengan tingkat stres pada pasien diabetes melitus tipe 2 yang dirawat di salah satu rumah sakit di Bali.

**Metode:** Desain penelitian yang digunakan adalah korelasional dengan pendekatan potong lintang (cross-sectional). Sebanyak 66 responden dipilih melalui metode total sampling dari ruang rawat inap. Pengumpulan data dilakukan menggunakan kuesioner dukungan keluarga dan instrumen Depression Anxiety Stress Scale (DASS). Analisis data menggunakan uji statistik Spearman Rank.

**Hasil:** Temuan menunjukkan bahwa mayoritas pasien memperoleh dukungan keluarga dalam kategori baik (47%), serta mengalami stres dalam tingkat rendah (59,1%). Analisis lebih lanjut memperlihatkan adanya hubungan signifikan antara dukungan keluarga dengan tingkat stres ( $p = 0,000$ ;  $R_s = -0,401$ ).

**Kesimpulan:** Peningkatan dukungan keluarga berkorelasi dengan penurunan tingkat stres pada pasien. Oleh karena itu, intervensi untuk memperkuat peran keluarga sangat disarankan, antara lain melalui edukasi mengenai peran pendampingan, dukungan dalam pengelolaan penyakit, serta penguatan aspek psikososial melalui komunikasi yang konstruktif dan keterlibatan aktif dalam perawatan.

**Kata kunci:** diabetes mellitus, dukungan keluarga, tingkat stres

## INTRODUCTION

The prevalence of type 2 diabetes mellitus in the world in 2023 is around 462 million, equivalent to 6.28% of the world population.<sup>1</sup> The prevalence in Indonesia from Basic Health Research (Riskesdas) data is said to have increased in 2018 compared to 2013, namely from 6.9 percent to 8.5 percent.<sup>2</sup> The psychological impacts experienced by type 2 diabetes mellitus patients also include emotional changes, such as stress, anxiety, fear, feelings of sadness, helplessness, feelings of uselessness, and feelings of hopelessness.<sup>3</sup>

Stress in patients with type 2 diabetes mellitus can directly impact physical health, particularly by weakening the immune system and triggering long-term overactivity of the sympathetic nervous system. Furthermore, stress can also worsen health indirectly, for example, by increasing smoking, alcohol consumption, an unhealthy diet, and lack of physical activity.<sup>4,5</sup> Appropriate treatment can help reduce stress levels in patients. Additionally, patients are advised to implement effective coping strategies, such as engaging in positive activities they enjoy, using relaxation techniques to calm their minds, and gaining greater family support to improve their emotional well-being.<sup>6</sup>

Family support plays a crucial role in creating a sense of security and comfort for individuals, as it makes them feel valued and understood. This role becomes crucial, especially when individuals face significant challenges such as lifestyle changes or the management of chronic diseases. As the closest group to the patient, the family can provide consistent moral support, help maintain adherence to a healthy lifestyle, and adhere to prescribed therapy. In the context of type 2 diabetes mellitus, family involvement can increase patients' confidence in carrying out daily activities, ultimately supporting more optimal disease management and improving quality of life.<sup>7</sup> This study focused on analyzing the relationship between the level of family support and stress levels in type 2 diabetes mellitus patients undergoing treatment at a hospital in the Bali region.

## METHODS

### Study design

This study employed a correlational study with a cross-sectional approach to examine the relationship between family support and stress levels among patients with type 2 diabetes mellitus. The study was conducted in the inpatient ward of a hospital in Bali, Indonesia, from April 1 to April 30, 2024. The cross-sectional design was selected because the measurement of all variables was carried out simultaneously at one point in time without any intervention from the researchers.

### Data source and sampling procedure

The study used primary data obtained directly from respondents through questionnaire administration. The population consisted of all patients diagnosed with type 2 diabetes mellitus who were hospitalized in the inpatient ward during the study period, totaling 66 patients. The sampling technique applied was total sampling, which is categorized as a non-probability sampling method. Therefore, all eligible patients who met the inclusion criteria were included as study participants, resulting in a total sample of 66 respondents.

The inclusion criteria were patients diagnosed with type 2 diabetes mellitus, hospitalized during the study period, able to communicate effectively, and willing to participate in the study by providing informed consent. Patients with severe cognitive impairment or critical conditions were excluded from the study.

### **Variables of the study**

This study involved two main variables. The independent variable was family support, defined as emotional, informational, instrumental, and appraisal support provided by family members to patients with type 2 diabetes mellitus. The dependent variable was stress level, which refers to the psychological response experienced by patients when facing illness-related stressors.

### **Measurement and instruments**

Data collection was carried out using two standardized questionnaires. Family support was measured using a family support questionnaire consisting of several items assessing emotional, informational, instrumental, and appreciation support received by the patients. Stress level was assessed using the Depression Anxiety Stress Scale (DASS).<sup>7</sup>

The instruments used in this study had been widely applied in previous studies and demonstrated acceptable validity and reliability. All questionnaires were administered in Indonesian language to ensure participants' understanding during the data collection process.

### **Data Collection**

Data collection was conducted after obtaining permission from the hospital and ethical approval from the relevant ethics committee. Researchers first identified eligible participants based on the inclusion criteria. Respondents were then informed about the purpose, procedures, benefits, and confidentiality of the study before signing the informed consent form.

After obtaining consent, participants were asked to complete the questionnaires under the supervision of the researchers. Assistance was provided when respondents experienced difficulties in understanding specific questionnaire items. All completed questionnaires were checked to ensure completeness before data analysis was performed.

### **Ethical Considerations**

This study received ethical approval from the Health Research Ethics Committee of STIKES Wira Medika Bali with registration number 281/E1.STIKESWIK/EC/IV/2024. All participants voluntarily agreed to participate in the study and signed informed consent forms prior to data collection. Participant confidentiality and anonymity were strictly maintained throughout the study process, and all collected data were used solely for research purposes.

### **Data analysis**

Data processing was performed using bivariate analysis using the Spearman Rank test.

## **RESULTS**

### **Characteristics of research subjects**

Based on Table 1, the characteristics of the 66 respondents show that the majority were in the 46–55 age range (early elderly), with 27 respondents (40.9%). Most respondents were female, 39 (59.1%). The most common education level was high school graduate, 29 (43.9%), and the majority of respondents were unemployed, 19 (28.8%).

**Table 1. Respondent Frequency Distribution**

Characteristics	n	%
Age (years)		
26-35	6	9.1
36-45	22	33.3
46-55	27	40.9
56-65	11	16.7
Total	66	100.0
Gender		
Male	27	40.9
Female	39	59.1
Total	66	100.0
Education		
No formal education	2	3.0
Elementary School	8	12.1
Junior High School	19	28.8
Senior High School	29	43.9
Diploma/University	8	12.1
Total	66	100.0
Occupation		
Unemployed	19	28.8
Private	10	15.2
Self-employed	15	22.7
Farmers/Laborers	13	19.7
Civil servant	5	7.6
Retired	4	6.1
Total	66	100.0

**Results of observations of research variables**

**Table 2. Family Support for Type 2 Diabetes Mellitus Patients**

Family Support	n	%
Poor	12	18.2
Moderate	23	34.8
Good	31	47.0
Total	66	100

Table 2 shows that the majority of type 2 diabetes mellitus patients received family support in the good category, namely 31 respondents (47%). Table 4 shows that of the 66 respondents, the majority of type 2 diabetes mellitus patients (24 respondents) had low stress levels accompanied by good family support. The results of the Spearman Rank test showed  $p = 0.000$  with a power coefficient of  $R_s = -0.401$  and a negative correlation direction. From these results, it can be concluded that there is a significant relationship between family support and stress levels in type 2 diabetes mellitus patients treated at a hospital in Bali.

**Table 3. Stress Levels in Type 2 Diabetes Mellitus Patients**

Stress Level	n	%
Low	39	59.1
Moderate	24	36.4
High	3	4.5
Total	66	100.0

Table 3 shows that the majority of type 2 diabetes mellitus patients experienced relatively low levels of stress, namely 39 respondents (59.1%). Table 4 shows that of the 66 respondents, the majority of type 2 diabetes mellitus patients (24 respondents) had low stress levels accompanied by good family support. The results of the Spearman

Rank test showed  $p = 0.000$  with a power coefficient of  $R_s = -0.401$  and a negative correlation direction. From these results, it can be concluded that there is a significant relationship between family support and stress levels in type 2 diabetes mellitus patients treated at a hospital in Bali.

**Table 4. Relationship between Family Support and Stress Levels in Type 2 Diabetes Mellitus Patients**

Stress level	Family Support						Total		p:0.000 Rs:- 0.401
	Poor		Moderate		Good		n	%	
	n	%	n	%	n	%			
Low	4	6.1	11	16.7	24	36.4	39	59.1	
Moderate	5	7.6	12	18.2	7	10.6	24	36.4	
High	3	4.5	0	0	0	0	3	4.5	
Total	12	18.2	23	34.8	31	47.0	66	100	

\*Spearman's rank test

## DISCUSSION

### Family support for patients with type 2 diabetes mellitus

The study results showed that the majority of family support for type 2 diabetes mellitus patients was good. Families played a role in accompanying patients during treatment and worked together to ensure patients followed treatment recommendations correctly.<sup>12</sup> Furthermore, the family also plays a role in determining the type of care the patient requires at home. Home care often becomes the family's responsibility after the patient is discharged from the hospital. Therefore, an active family role in caring for the patient at home is crucial to supporting the patient's recovery process.<sup>13</sup>

The research findings show that of the 35 respondents at the Pakuniran Community Health Center, Probolinggo Regency, 94% of patients suffering from gangrenous wounds received good family support.<sup>14</sup> Good family support for gangrene patients includes assistance in treatment, ensuring patient compliance with treatment schedules and medication consumption, and providing emotional support to reduce anxiety and stress.<sup>15</sup> In addition, the family also plays a role in helping patients adjust their lifestyle, such as maintaining a healthy diet and regulating physical activity that is appropriate to the patient's health condition.<sup>14</sup> Research shows that family support for diabetes mellitus patients in the Tungoi Community Health Center area provides positive results, where the majority of respondents (38 people or 76%) received good family support.<sup>14</sup> In contrast, another study involving 86 respondents showed different results. In this study, the majority of respondents (50 people or 58.1%) received poor family support, which included a lack of family attention to patient care, low encouragement to follow recommended treatment or diet, and limited communication and attention to the patient's health condition. Meanwhile, 36 people (41.9%) received good family support.<sup>16</sup>

Researchers believe that family support for patients with type 2 diabetes mellitus plays a significant role in ensuring a smooth treatment process or program, given that family members, as the closest people, are always present when patients face various challenges and provide encouragement. Family support is generally positive, as those accompanying patients are members of the immediate family. This is reflected in demographic data, which demonstrates a close relationship between the immediate family and the patient.

### Stress levels in patients with type 2 diabetes mellitus

Research results show that the majority of patients with type 2 diabetes mellitus experience relatively low levels of stress. Stress in patients with type 2 diabetes can significantly impact their health, particularly through decreased immune system function and recurrent activation of body systems.<sup>17</sup> Stress can also have an indirect impact on a

patient's physical condition by influencing changes in their health behavior.<sup>4</sup> The greater the level of stress a patient experiences, the more emotional problems they experience, which can reduce their ability to adhere to their type 2 diabetes mellitus treatment. This leads to increased blood sugar levels, which ultimately reduces their quality of life. Consequently, poor adherence to medication and a healthy lifestyle further worsens blood sugar control and the patient's overall health.<sup>18</sup> The quality of life of patients with type 2 diabetes mellitus is significantly influenced by psychological factors, one of which is stress. Therefore, stress can negatively impact the recovery process of patients with type 2 diabetes mellitus.<sup>19</sup>

The findings of this study align with research conducted by Hidayat et al. (2023), which showed that stress levels in type II diabetes mellitus patients during the COVID-19 pandemic at the Rejosari Community Health Center. Of the 74 respondents, the majority, namely 27 people (36.5%), experienced severe stress. This severe stress can worsen their diabetes condition, as prolonged stress can disrupt blood sugar control. In type II diabetes mellitus patients, stress can increase cortisol levels, which impacts glucose metabolism, thereby worsening symptoms and increasing the risk of complications related to the disease.<sup>20</sup>

Researchers concluded that the study findings showed that the majority of patients with type 2 diabetes mellitus had low stress levels, indicating that they were beginning to adapt to the challenges they faced. Patients successfully managed the challenges posed by their disease, enabling them to cope with these difficulties and adapt to their health condition.

#### **The relationship between family support and stress levels in type 2 diabetes mellitus patients**

Based on the research results, the majority of type 2 diabetes mellitus patients have low stress levels, with good family support, as reflected in 24 respondents (36.4%). The Spearman Rank test results showed a p value = 0.000 ( $p < 0.05$ ) with a correlation strength of -0.401 (moderate category, between 0.400-0.599) and a negative correlation direction. This means that the null hypothesis ( $H_0$ ) is rejected and the alternative hypothesis ( $H_a$ ) is accepted, which concludes that there is a relationship between family support and stress levels in type 2 diabetes mellitus patients treated at a hospital in Bali. The moderate correlation strength and negative direction indicate that the better the family support, the lower the stress levels experienced by patients. Despite low family support, some respondents who have good coping mechanisms are still able to manage stress and overcome their problems independently, even though family support during the treatment process is lacking.<sup>21</sup>

Family support can help individuals adjust to various undesirable situations and events. This support has a positive psychological impact by creating a sense of security and acceptance. Furthermore, family support is expected to reduce stress levels in patients undergoing lifestyle changes, as family, those closest to the patient, and more understanding, play a greater role than support from outside parties or external factors.<sup>7</sup> Family support acts as a stress buffer that can prevent further damage to the body. This support also plays a role in reducing stress levels and reducing the risk of negative impacts that can harm the patient's health. For example, in patients with diabetes mellitus, family support can help them maintain a healthy diet, regularly monitor their blood sugar levels, and encourage them to remain committed to their treatment, thereby reducing the likelihood of serious complications such as kidney damage or vision impairment.<sup>22</sup>

The findings of this study align with those of Sholikhah et al. (2020), which revealed a relationship between family support and stress levels experienced by people with type

2 diabetes mellitus while dieting. The study was conducted in Nambangan Lor Village, Menguharjo District, Madiun City, with statistical test results showing a p-value of 0.021, indicating a significant relationship.<sup>16</sup>

Researchers argue that the better the family support received by patients with type 2 diabetes mellitus, the lower their stress levels. This indicates that families play a crucial role in reducing patient stress, both in preventing, helping them adapt to, and overcoming the health problems they face. Therefore, families can prevent excessive stress in patients. The moderate strength of the correlation indicates that, in addition to family support, other factors such as the patient's personal condition, environment, and coping mechanisms also play a significant role in managing the stress they experience.

## CONCLUSION

Based on the research results and discussions that have been conducted, it can be concluded that most patients with type 2 diabetes mellitus receive good family support, and their stress levels are mostly included in the low category. There is a significant relationship between family support and stress levels in patients with type 2 diabetes mellitus treated at a hospital in Bali. The better the family support received by the patient, the lower the stress level experienced, with a value of  $R_s = -0.401$  and a p value = 0.000. For future research, it is recommended that this study be further developed by considering other factors that may contribute to stress levels in patients with type 2 diabetes mellitus, such as psychosocial factors, social environment, or coping mechanisms used by patients in dealing with stress.

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