

Analysis of Knowledge and Family Support on Coping Strategy of Diabetes Mellitus Patients

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Abstract

Introduction: Diabetes is a chronic disease in the form of a metabolic disorder characterized by blood sugar levels that exceed normal limits. Diabetes mellitus patients use coping strategy to deal with stressors due to their illness. Good coping strategy are supported by knowledge and family support from people with diabetes mellitus. **Objective:** to analyze the relationship between knowledge and social support with coping strategy of diabetes mellitus patients. **Methods:** Quantitative research with a cross sectional study approach. Respondents in this study were 32 diabetes mellitus patients who were taken by accidental sampling at Tinggede Primary Health Center. Data collection used a questionnaire consisting of respondent characteristics, knowledge, family support, and coping strategy. Data were analyzed using the chi square test with a 95% confidence interval. **Result and Discussion:** The chi-square test results showed that the p value for knowledge was 0.047 (p value < 0.05), and the p value for family support was 0.01 (p value < 0.05). The results of the regression test showed that the significant value for family support (0.001) was smaller than long suffered (0.004) and knowledge (0.031). **Conclusion:** there is a significant relationship between knowledge and family support with coping strategy in diabetes mellitus patients.

Keywords: Knowledge; Family Support; Coping Strategy;

Introduction

Diabetes is a chronic disease in the form of a metabolic disorder characterized by blood sugar levels that exceed normal limits. Diabetes besides being a cause of premature death worldwide, this disease also causes blindness, heart disease, and kidney failure. The International Diabetes Federation (IDF) estimates that 9.3% of the population aged 20-79 years suffer from diabetes in 2019. The number of diabetes cases in Indonesia is 10.7 million, ranking 7th among the 10 countries with the highest number of sufferers in the world and is ranked 3rd in the Southeast Asia region with a prevalence of 11.3% (Pangribowo, 2020).

The number of diabetes mellitus cases in Central Sulawesi Province in 2021 was 195,117, while in Sigi Regency there were 15,244 and only 708 people with diabetes mellitus or 4.6% received health services according to standards. The low achievements of the diabetes mellitus prevention program are due to: sufferers do not routinely visit or check themselves back at the first level health facility (FKTP), people's understanding is still lacking in self-education to change a healthy lifestyle and related to diabetes mellitus, as well as the Integrated Development Post (Posbindu) Non-Communicable Diseases are not implemented properly, cross-program collaboration has not run optimally. Efforts to prevent and control diabetes mellitus are carried out through efforts to prevent risk factors such as: lack of physical activity, unhealthy diet, obesity, high blood pressure and increased blood sugar level (Dinas Kesehatan Provinsi Sulawesi Tengah, 2022).

Patients with diabetes mellitus are required to carry out complex disease management such as eating arrangements, physical exercise, controlling blood glucose and consuming drugs (Surjoseto and Sofyanty, 2022). More than two-thirds of patients diagnosed with type II diabetes mellitus (T2DM) in Indonesia experience health problems related to routine self-medication management. Management of this treatment can cause distress in patients with diabetes mellitus, both internal and external distress. Internal distress consists of disease burden, fatigue due to T2DM, fatigue not due to T2DM, emotional burden (fear, anxiety), and limited knowledge. Meanwhile, external distress is caused by distress involving health services, diet, routine medication, blood sugar checks monthly, interpersonal distress (family) and financial problems (Arifin, et. al , 2020).

People with diabetes mellitus who are new to their disease will experience anxiety because they are afraid of not being able to fulfill a healthy lifestyle (diet, physical activity, and taking medication) regularly and lack of experience to adjust to their new lifestyle. Sudden lifestyle changes in people with diabetes mellitus will cause negative psychological reactions such as anger, feeling useless, increased anxiety and depression because diabetes mellitus is a disease that cannot be cured (Diani et al, 2022). Diagnosis, implications, disease management, and lifestyle changes are stressors for people with diabetes mellitus. The feeling of helplessness that arises due to the uncertain health condition of people with diabetes mellitus can trigger stress (Larasati, et. al, 2017). Coping strategies are used by people with diabetes mellitus when dealing

with stressors. Coping strategies that focus on emotions are generally used by patients suffering from chronic diseases such as diabetes mellitus after they have been diagnosed with the disease.

Factors supporting the patient in selecting coping strategies include the severity of the disease, patient characteristics, and the environment (Rayanti et al, 2018). Coping strategies are behavioral changes made by individuals in their attitudes, thoughts and feelings towards the pressures they face. Patients who have been diagnosed with diabetes mellitus should ideally implement adaptive coping strategies as soon as possible to properly manage medication therapy (Napolion et al, 2021).

The results of Al-Khafaf, (2017) show that even though diabetes mellitus patients have good knowledge about their disease, they have less coping strategies. The existence of clear psychological pressure and low self-care makes it difficult for people with diabetes mellitus to adapt and overcome their disease. Diabetic patients really need social support in the process of treating their disease. Social support has an important role in helping diabetes mellitus patients overcome their illness and improve adherence to treatment (Ramkisson et al, 2017). The purpose of this study was to analyze the relationship between knowledge of diabetes mellitus patients and social support with coping strategy.

Method

The type of research used is quantitative with a cross sectional study approach. A cross-sectional study is a study that emphasizes the measurement/observation of independent and dependent variable data only once at a time (Nursalam, 2017). The independent variables in this study are knowledge and family support, while the dependent variable is coping strategy. Respondents in this study were all diabetes mellitus patients who came for treatment (accidental sampling) at the Tinggede Health Center during March 2023, totaling 32 people.

The research instrument used a questionnaire consisting of the characteristics of the respondents, as well as 10 statements each for the variables of knowledge, social support and coping strategy. The process of collecting data is done by filling out a questionnaire by respondents. The researcher explained in advance the aims and objectives of the research. The researcher guarantees the confidentiality of the identity (anonymity) and answers of the respondents. The information provided is only used for the purposes of this research. The researcher also asked the respondent's willingness to participate in this study and if they were willing, the respondent was asked to sign a informed consent form. Questionnaire sheets that have been filled in by respondents are then collected for data processing and analysis. All research activities were carried out after obtaining approval from the Head of the Tinggede primary health care as the person in charge of health service activities.

The data that has been collected is processed using the SPSS for windows program. Data were analyzed univariately to get an idea of the proportion of each variable, bivariately to find out the relationship between knowledge and family support

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variables and coping strategy using the chi-square test with a 95% degree of confidence. The regression test is used to measure the independent variable that has the most influence on the dependent variable.

Result and Discussion

Result

The results showed that of the 32 diabetes mellitus patients (Table 1) who were respondents in this study, 21 patients (65.6%) were more aged 40 years and over than patients who were less than 40 years old, totaling 11 patients (34.4 %). Diabetes mellitus patients who were male, the number was comparable to female patients, namely 16 patients (50%) each. Based on the level of education, 14 patients (43.8%) had senior high school, while only 3 patients (9.4%) had bachelor education. Most of the patients who came to visit during the study were housewives, totalling 16 patients (50%) and the least were patients who were civil servants, amounting to only 1 patient (3.1%). There were 21 patients (65.6%) who had diabetes mellitus for less than 5 years, compared to 11 patients (34.4%) who had diabetes mellitus for more than 5 years.

Table 1
Characteristic of Diabates Mellitus Patients

Characteristic	Coping Strategy				p-value
	Adaptive		Maladaptive		
	n	%	n	%	
Age					
< 40 years	16	50.0	5	15.6	1.00
≥ 40 years	8	25.0	3	9.4	
Gender					
Female	10	31.2	6	50.0	0,22
Male	14	43.8	2	6.2	
Level of Education					
Elementary School	6	18.8	3	9.4	0,86
Junior High School	5	15.6	1	3.1	
Senior High School	11	34.4	3	9.4	
Bachelor	2	6.2	1	3.1	
Occupation					
Trader	4	12.5	1	3.1	0,4
Farmer	9	28.1	1	3.1	
Civil Servant	1	3.1	0	0	
Housewife	10	31.2	6	18.8	
Long Suffered					
< 5 years	13	40.6	8	25.0	0.03
> 5 years	11	34.4	0	0	

Source: SPSS Output

The p value for age (1.00), gender (0.22), level of education (0.86), and occupation (0.4) shows a value greater than 0.05, which means that there is no relationship between age, gender, level of education, and occupation with coping strategy. While the p value for long suffered (0.03) is less than 0.05, which means that

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long suffered has a significant relationship with coping strategy in patients with diabetes mellitus

Table 2
Relationship of Knowledge, Family Support, and Coping Strategy

Variable (s)	Coping Strategy				<i>p value</i>
	Adaptive		Maladaptive		
	n	%	n	%	
Knowledge					
Good	21	65.6	4	12.5	0.047
Poorly	3	9.4	4	12.5	
Family Support					
Support	17	53.1	1	3.1	0,01
Less Support	7	21.9	7	21.9	

Source: Chi-Square Output Results

The study results in Table 2 show that patients with good knowledge of diabetes mellitus, 21 patients (65.6%) had adaptive coping strategy, while 4 patients (12.5%) were maladaptive. Patients with poor knowledge, 4 (12.5%) patients whose coping strategy are maladaptive and 3 patients (9.4%) adaptive. Diabetes mellitus patients who have family support, 17 patients (53.1%) have adaptive coping strategy and only 1 patient (3.1%) is maladaptive. Patients who lack family support, the number of patients whose coping strategy are adaptive is proportional to the number of maladaptive ones, namely 7 patients (21.9%) each.

The results of the chi square test obtained a p value for knowledge of 0.047 where the p value < 0.05 which means there is a significant relationship between knowledge of diabetes mellitus patients and coping strategy. The p value for family support is 0.01 (p value < 0.05) which also means that the relationship between family support and coping strategy is significant.

The analysis of the independent variables most related to coping strategy was carried out by a regression test (Table 3). P values for all independent variables namely long suffered (0.004), knowledge (0.031), and family support (0.001) are smaller than 0.05, which means that there is a significant effect together of long suffered, knowledge, and family support variables on coping strategy. The p value for family support is smaller than the p value for knowledge and long suffered. This means that the variable that most influences the coping strategy of diabetes mellitus patients at Tinggede Primary Health Care is family support.

Table 3
Multiple Linear Regression Analysis

Dependent Variabele	Independent Variable	Unstandardized Coefficients (B)	Standardized Coefficients (Beta)	t count	Significant	Conclusion
Coping Strategy (Y)	Constant	0.143		1.068	0.295	
	Long Suffered	0.374	0.410	3.164	0.004	Significant
	Knowledge	0.312	0.298	2.276	0.031	Significant
	Family Support	0.416	0.477	3.646	0.001	Significant

Source: Regression Output Results

Discussion

Coping strategies are active processes which use internal sources and develop new behaviors that aim to grow strength within the individual, reduce anxiety and even stress in life. Coping strategy efforts undertaken are adaptive and maladaptive. More patients with type 2 diabetes mellitus (73%) use adaptive coping, while only 27% of patients use maladaptive coping. This shows that diabetes mellitus patients use more adaptive coping strategies. Coping strategies used by diabetes mellitus patients are seeking social support, taking a spiritual approach, doing activities, seeking information about their illness and tips on maintaining their health, and looking for entertainment (Surjoseto and Sofyanty, 2022).

The results showed that diabetes mellitus patients had good knowledge. This is different from a study conducted by Najjar, et.al, (2020) where the level of knowledge of patients diagnosed with type 2 diabetes mellitus is relatively low. The results of his research also show that there is a significant positive correlation between knowledge and tackling spirit and diabetes integration coping strategy. The use of active coping strategies is associated with a higher level of knowledge, while the use of passive coping strategies is associated with a lower level of knowledge.

There are two main coping strategies, namely problem-focused coping to change or prevent a stressor from happening and emotion-focused coping to change reactions to stressors. Patients with type 2 diabetes mellitus use problem-focused coping through being active in limiting foods that must be avoided, being active in carrying out routine controls, pharmacological therapy, physical activity, carrying out alternative treatments such as consuming herbs and herbs. Emotion-focused coping strategies are carried out by diabetes mellitus patients through returning to religion by submitting to prayer, acceptance, rejection and avoidance, diversion (Larasati, et. al, 2017).

Parents who had more knowledge about diabetes were able to cope more effectively and were able to maintain better glycemic control of their children with diabetes. The most important coping scales affected by total knowledge scores was accepted responsibility. Increasing mother's knowledge about diabetes will increase the most coping scale by accepting responsibility and positive reappraisal (Mahfouz et al, 2018). Mother's knowledge about the role of sport in managing diabetes is higher than general knowledge about diabetes as a disease, its symptoms and complications. The

coping most widely adopted by mothers with children with diabetes mellitus is secondary control engagement coping (acceptance and wishful thinking). Cognitive restructuring, acceptance, and emotional numbing are coping strategies for mothers that have a significant relationship with the HbA1c levels of their diabetic children (Al-Khafaf, 2017).

Patients who have had diabetes mellitus for a long time will have more experience in managing their lifestyle and can adapt to their disease settings compared to patients who are new to knowing they have the disease. Patients who have more knowledge and information in dealing with their disease will more easily adapt and solve problems with their disease and use adaptive coping mechanisms in living their lives as diabetics (Diani et al, 2022).

Patients with diabetes mellitus get family support related to food, exercise, and collection of medicines. Treatment of diabetes requires drug intake or insulin injections, lifestyle modifications regarding food consumption and physical activity. Family members of diabetes mellitus patients collect medicines for patients, cook and serve food to them, help with physical activities. Family support for patients suffering from diabetes mellitus is very important for better outcomes, well-being, coping, and improving health status including prevention of complications (Mpasha et al, 2022).

Diabetic patients get support from those closest to them, such as their families, co-workers, friends, and even medical teams such as doctors and nurses. Family support is needed by people with diabetes mellitus because it really helps them to continue living such as support from husband/wife, children, and close relatives. Family support can be in the form of serving food and drinks, providing medicines, and providing motivation to recover (Rayanti et al, 2018). Families play an important role in meeting the care needs of individuals who need assistance due to illness. Family-centered care aims to promote well-being. Family bonds and coping play an important role in diabetes medication management as well as increasing motivation due to togetherness. Family support in helping and encouraging in the areas of diet, exercise, medication adherence, managing doctor's advice serves to protect against the adverse effects of stress on glycemic control (Mpasha et al, 2022).

Since family members can play an important role in the management of a patient's disease, such involvement in self-care interventions can positively influence patients' diabetes outcomes. Diabetes self-care is a very important aspect of disease management for adults with diabetes mellitus (Baig et al, 2015). Family support positively impacts healthy diets, increasing perceived support, higher self-efficacy, improving psychological well-being, and better glycemic control. Family involvement in Diabetes Self-Management Education (DSME) can be a useful direction for improving diabetes care (Pamungkas et al, 2017).

Social support is a description of various expressions of supportive behavior (support) received by individuals from people who are significant in their lives. Individuals who receive social support from meaningful people have a positive level of coping mechanisms. This makes them feel loved, valued, and a part of their social

environment. Social support has a significant relationship with coping mechanisms in diabetic ulcer patients. That most diabetic ulcer patients with high social support have adaptive coping mechanisms (Muhammad Ikhsan et al, 2022).

Support for diabetes mellitus patients is mostly obtained from the nuclear family, namely children and participants. However, support from outside the nuclear family is also found, such as from relatives or grandchildren. The support provided by the patient's family has a major impact on diabetes mellitus patients. They become stronger, more grateful, and accept their condition because of the support provided by their families (Wulandari et al, 2021). Social support has a significant positive relationship with coping strategies with psychological well-being. Social support can reduce the detrimental effects of chronic illness and help patients cope with their condition more effectively (Mojahed et al, 2019).

Connclusion

The results showed that there was a significant relationship between knowledge, family support and coping strategy in diabetes mellitus patients. Family support has the greatest influence on coping strategy in diabetes mellitus patients at Tinggede Primary Health Care. The importance of family support needs to be considered in providing health services to people with diabetes mellitus so that they have motivation and compliance in managing their diet, taking medication and checking blood sugar regularly.

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