



Stress and Associated with Coping Strategies in Type 2 Diabetes Mellitus Patients

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Abstract. The high level of stress experienced by people with diabetes mellitus and the number of patients with diabetes mellitus who adopt maladaptive coping strategies can increase the risk of complications and lead to poor management of therapy for patients with type 2 diabetes mellitus. Type 2 diabetes mellitus in Kartasura Public Health Center, Sukoharjo Regency. This research is a quantitative research with a cross sectional. The number of samples as many as 66 respondents with consecutive sampling technique. The data was collected using the Depression Anxiety Stress Scale-21 (DASS-21) questionnaire and the Brief Cope Inventory questionnaire. Data analysis used chi square with $p < 0.05$. It was found that most respondents (30.3%) had mild stress levels and some respondents (57.6%) adopted maladaptive coping strategies. The results of the chi square stated that there was a relationship between stress levels and coping strategies in people with diabetes mellitus ($p = 0.024$). The conclusion of this study is that there is a significant relationship between stress levels and coping strategies for people with diabetes mellitus at Kartasura Public Health Center, Sukoharjo Regency. It is recommended for health workers to educate and motivate patients with diabetes mellitus in order to adopt adaptive coping strategies so that the stress level experienced decreases. Sukoharjo Regency. It is recommended for health workers to educate and motivate patients with diabetes mellitus in order to adopt adaptive coping strategies so that the stress level experienced decreases. Sukoharjo Regency. It is recommended for health workers to educate and motivate patients with diabetes mellitus in order to adopt adaptive coping strategies so that the stress level experienced decreases..

Keywords: Stress Level · Coping Strategy · Diabetes Mellitus Type 2

1 Introduction

Diabetes mellitus is a disease caused by high levels of sugar in the blood due to the body's inability to produce or use insulin effectively (Wahyuni et al., 2019). The body needs insulin to help glucose enter the body's cells which are then used as an energy source. Therefore, if insulin is not available or the amount is not sufficient, it will cause glucose to be unable to pass through the body's cells and will continue to be in the blood

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in high amounts [2]. The category of diabetes mellitus includes type 1 diabetes mellitus which occurs in 5–10% of diabetes cases and is caused by damage to the pancreatic β -cells and type 2 diabetes mellitus, which occurs in 90–95% of diabetes cases and is caused by insulin resistance [3].

Based on data from International Diabetes Federation, (2019) [4] at least 9.3% (463 million) people in the world suffer from diabetes mellitus and it is estimated that it will continue to increase until it reaches 10.2% or 578 million people in 2030 and 10.9% or 700 million people in 2045. Indonesia itself ranks seventh as a country with the highest incidence of diabetes mellitus in the world with a prevalence of 6.2% or more than 10.8 million people in Indonesia suffer from diabetes mellitus. In Central Java, the prevalence of diabetes mellitus was 1.59% (Ministry of Health of the Republic of Indonesia, 2020).

According to the Central Bureau of Statistics for Sukoharjo Regency, the number of cases of diabetes mellitus in Sukoharjo Regency in 2019 was 18,596 cases. Sukoharjo Regency is ranked fourth in Central Java with the most cases of diabetes mellitus (Sukoharjo District Health Office, 2019). Based on a preliminary study at the Kartasura Health Center, Sukoharjo Regency, there were 703 cases of diabetes mellitus in 2021, of which 36% were suffered by men and 64% suffered by women.

Diabetes mellitus is a chronic disease that requires healing over a long period of time so that it can result in negative psychological responses or emotional disturbances in sufferers such as stress, anxiety and depression.[7]. Stress is the body's response to situations that increase pressure, transitions and emotional crises [8]. High stress levels in diabetics can affect blood sugar imbalances, so the higher the stress level in diabetics, the worse the diagnosis of diabetes [9]. Based on research conducted by Yan et al., (2017) [10] of 77 people with diabetes mellitus showed that 14.3% of sufferers experienced severe levels of stress, 68.8% of sufferers experienced moderate levels of stress, and 16.9% of sufferers experienced mild levels of stress. This condition is supported by research conducted by Derek et al., (2017) [9] who conducted a study of 75 people with diabetes mellitus with the result that 50.7% of sufferers experienced severe levels of stress, 36.0% of sufferers experienced moderate levels of stress, and 13.3% of sufferers experienced mild stress.

To avoid worsening the condition of people with diabetes mellitus who have high levels of stress, adaptive coping strategies are needed so that people with diabetes mellitus can face, adapt, and find the best solutions for their disease [11]. According to research conducted by Dewi et al., (2017) [12] showed that 51.2% of diabetics adopted maladaptive coping strategies. This is in line with research conducted by asmaria et al., (2018) [13] which showed that 60% of diabetics adopted maladaptive coping strategies. When a person is diagnosed with diabetes mellitus, they must immediately adopt adaptive coping strategies to carry out appropriate therapeutic management. But in reality, not all people with diabetes mellitus have adaptive coping strategies [14]. Coping strategies are not the same for everyone, influencing factors include age, gender, education, economic status, and health status [11] [15]. Coping skills are necessary in the management of diabetes mellitus because good coping can improve self-management, normal blood sugar control, and can reduce complications [7, 16].

2 Research Method

This study uses a quantitative research method, with a cross-sectional type of research. This research was conducted at the Kartasura Health Center, Sukoharjo Regency in the general poly section and was carried out in January 2022 - February 2022. The number of samples to be studied was 66 samples. The sampling technique used in this study was consecutive sampling Inclusion criteria: Age 35 – 69 years, Suffering from type 2 diabetes mellitus, Length of time suffering from diabetes mellitus ≥ 1 year, Minimum education is elementary school, Willing to be a respondent in the study. Exclusion criteria: the patient's daily activities are disrupted, Diabetics have co-morbidities. The questionnaire used is the Depression Anxiety Stress Scale-21 Questionnaire (DASS-21), the Brief Cope Inventory Questionnaire.

3 Result

Based on Table 1, it is known that most people with diabetes mellitus have a mild level of stress, namely as many as 20 respondents with 12 of them adopting maladaptive coping strategies, then no respondent has a very high stress level.

In the chi-square test, a variable is said to have a significant relationship if it has a p-value < 0.05 . Conversely, if a variable has a p-value > 0.05 , the variable is said to have no significant relationship. In Table 2, it is known that the p-value in this study is 0.024, which means the p-value < 0.05 so that H_0 is rejected. So it can be concluded that there is a significant relationship between stress levels and coping strategies in people with type 2 diabetes mellitus.

4 Discussion

Based on the results of the study, it is known that most people with type 2 diabetes mellitus at the Kartasura Health Center, Sukoharjo Regency, have a mild level of stress. The results of this study are in line with the results of research from Livana et al., (2018) [17] which shows that most of the respondents have a mild level of stress.

Stress levels in type 2 diabetes mellitus sufferers can be influenced by various factors, including gender, age, occupation, income, and duration of diabetes. This is in line with the results of research from Kountul et al., (2018) [18] which states that women are more at risk of experiencing stress because women in dealing with a problem more often use their feelings while men more often use their minds. In addition, there are differences between women and men in the hormones estrogen, oxytocin and stress hormones they have.

Research from Rumaiza & Khairani, (2020) [19] states that with age, a person will experience a physiological decline which can cause a person to decrease his ability to carry out daily activities so that it requires him to depend on others. This condition can cause a person to experience stress, it can be exacerbated if someone with old age suffers from a chronic disease such as type 2 diabetes mellitus.

Research from Rumaiza & Khairani, (2020) [19] which states that work has a relationship with the level of stress experienced by a person. Someone who does not have

Table 1. Frequency Distribution of Respondent Characteristics

| Characteristics of Respondents | Information | F | (%) |
|--------------------------------|--------------------|----|------|
| Gender | Man | 18 | 27.3 |
| | Woman | 48 | 72.7 |
| Age | 46–55 Years Old | 8 | 12.1 |
| | 56–65 Years | 47 | 71.2 |
| | 66–69 Years | 11 | 16.7 |
| Education | Elementary School | 28 | 42.4 |
| | Junior High School | 11 | 16.7 |
| | Senior High School | 13 | 19.7 |
| | D3/S1/Others | 14 | 21.2 |
| Work | Self-Employed | 10 | 15.2 |
| | Laborer | 3 | 4.5 |
| | Farmer | 3 | 4.5 |
| | Retired | 13 | 19,7 |
| | Doctor | 2 | 3.0 |
| | Doesn't Work | 30 | 45.5 |
| Income | Under UMR | 30 | 45.5 |
| | Umr | 26 | 39.4 |
| | Above UMR | 10 | 15.2 |
| Long suffered | 13 Years Old | 14 | 21.2 |
| | 4–6 Years | 15 | 22.7 |
| | 7–9 Years | 23 | 34.8 |
| | ≥10 Years | 14 | 21.2 |
| Total | | 66 | 100 |

Table 2. Cross-tabulation of Stress Levels with Coping Strategies

| | | Coping strategy | | Total | p-values |
|--------------|----------------------|-----------------|-------------|-------|----------|
| | | Adaptive | Maladaptive | | |
| Stress Level | Normal | 10 | 3 | 13 | 0.024a |
| | Light stress | 8 | 12 | 20 | |
| | Moderate stress | 6 | 9 | 15 | |
| | Heavy stress | 4 | 14 | 18 | |
| | Stress is very heavy | 0 | 0 | 0 | |
| Total | | 28 | 38 | 66 | |

a: chi square test

a job tends to be more stressed. This is because someone who does not have a job will feel himself burdening his family because he cannot make money. In addition, they also do not have activities to do everyday so they do not get satisfaction. This can cause a person to feel stressed.

Research conducted by Laili et al. (2019) [20] states that someone who has had diabetes mellitus for a long time tends to have a mild level of stress compared to someone who has just had diabetes mellitus. This is because someone who has long suffered from diabetes mellitus is more familiar with the disease he is experiencing and is accustomed to changes in life after being exposed to diabetes, causing low stress levels.

Based on the results of the study, it is known that most people with type 2 diabetes mellitus at the Kartasura Health Center in Sukoharjo Regency have maladaptive coping strategies. That most people with type 2 diabetes mellitus adopt maladaptive coping strategies [12].

Coping strategies in type 2 diabetes mellitus sufferers can be influenced by various factors, namely internal and external factors. Coping strategies are influenced by internal and external factors. Internal factors include individual characteristics, individual beliefs (religiosity), motivation, disease severity, and individual demographics. While external factors are family support, the role of health professionals, and the surrounding environment. [21].

According to research from [22] states that the coping strategies adopted by individuals affect the condition of the disease they experience. If individuals adopt adaptive coping strategies, this can reduce the causes that arise and can reduce physical and psychological complaints experienced by people with diabetes mellitus.

Based on the results of the study, it was found that there was a significant relationship between stress levels and coping strategies in patients with type 2 diabetes mellitus at Kartasura Health Center, Sukoharjo Regency. The results of this study are in line with the results of research from Hasanah, (2017) [23] which shows that there is a relationship between stress levels and coping strategies.

This is in line with research from Kamariyah & Rudini, (2018) [22] which states that coping strategies greatly affect the level of stress a person has. If the individual adopts a good (adaptive) coping strategy then the diabetic is successful in dealing with the problem he is experiencing.

The results obtained in this study show an interesting phenomenon where the majority of type 2 diabetes mellitus patients at the Kartasura Health Center who experience mild stress levels adopt maladaptive coping strategies. This can be influenced by the level of education possessed by type 2 diabetes mellitus sufferers at the Kartasura Health Center, most of whom have the last level of education in elementary school. This statement is in line with the results of research from Fijianto et al. (2021) [24] which states that there is a relationship between the level of education and coping strategies adopted by a person. This research explains that the higher the level of education, the more appropriate the selection of coping strategies is, conversely, the lower the level of education, the more inappropriate the selection of coping strategies will be.

According to Putra et al. (2017) [11] states that adaptive coping strategies can reduce the level of stress experienced by a person and vice versa, maladaptive coping strategies can worsen the level of stress experienced by a person. In this study, most people with

diabetes mellitus had mild stress and 60% of them adopted maladaptive coping strategies. This, of course, will have a very bad impact on the health conditions of diabetics if not treated immediately.

5 Conclusion

The level of stress in patients with type 2 diabetes mellitus at the Kartasura Health Center, Sukoharjo Regency, showed that most of the respondents had mild stress levels. Coping strategies for people with type 2 diabetes mellitus at Kartasura Public Health Center, Sukoharjo Regency, showed that most of the respondents adopted maladaptive coping strategies. There is a significant relationship between stress levels and coping strategies in patients with type 2 diabetes mellitus at Kartasura Public Health Center, Sukoharjo Regency.

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