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## Anxiety Levels and Coping Mechanisms in People with Diabetes Mellitus During the Covid 19 Pandemic

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### Abstract

**Background:** The psychological condition of diabetic patients affects blood glucose. Assessment of anxiety levels and coping mechanisms is important where diabetic patients are prone to psychosocial problems that affect glycemic control. **Objectives:** To analyze anxiety levels and coping mechanisms in diabetic mellitus patients during the COVID 19 pandemic. **Methods:** Descriptive methods of analytics with a cross sectional approach. Sampling with non probability sampling through purposive sampling in 66 diabetic patients at Idaman Banjarbaru Hospital. **Results:** The result of the analysis with p-value = 0.538 > 0.05, concluded Ho accepted. So there is no relationship between anxiety and coping mechanisms in diabetic mellitus patients during the COVID 19 pandemic. **Discussion:** Coping is considered a factor of a person's equilibrium in the adjustment of anxiety conditions. Coping manages the problems faced, with adaptive coping then a person succeeds in solving the problem that makes the level of anxiety decrease.

**Keywords:** diabetes mellitus, anxiety, coping mechanisms

### Introduction

Non-communicable diseases are already a public health problem, both globally, regionally, nationally and locally. This causes non-communicable diseases to be the number one cause of death in the world (63.50%)<sup>1</sup>. One of the non-communicable diseases in the spotlight is diabetes mellitus. Diabetes mellitus is a metabolic disease that has a collection of symptoms due to increased blood glucose levels above normal values (hyperglycemia) due to a decrease in the

body's ability to react with insulin, impaired insulin secretion, or both<sup>2-4</sup>.

According to data states that in the age range of 20-79 years, the number of people with diabetes in the world in 2019 as many as 463 million people, and this number is projected to reach 578 million by 2030, and 700 million by 2045<sup>5</sup>. According to data for the prevalence of diabetes mellitus in the Southeast Asia region, in 2014 there were 96 million cases in 11 Southeast Asian member countries. It also showed an increase from 4,1% in the 1980s to 8,6% in 2014<sup>2</sup>.

As for the prevalence of diabetes mellitus in Indonesia occupies the seventh position in the world as a country with the 2 highest incidence of diabetes

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mellitus with a total estimated sufferer of 10 million people<sup>5</sup>. The population data of diabetes mellitus in Indonesia increased from 2013 by 6.9% and increased until 2018 by 8,5%<sup>6</sup>.

People with diabetes mellitus experience many changes in their lives, ranging from dietary regulation, exercise, blood sugar control, and others that must be done throughout their lives. Sudden life changes make people with diabetes mellitus show some negative psychological reactions including anger, feeling useless, increased anxiety and depression. In addition to these changes if people with diabetes mellitus have experienced complications it will add anxiety in sufferers because with complications will make sufferers spend more costs, negative views about the future, and others<sup>7</sup>.

When the individual faces changes in his health status at that time the individual faces changes in cognitive balance and affective. Individuals can experience changes in relationships with others as a result of their expectations of themselves in a negative way. The appearance of tension and changes in balance result in problem-solving behavior or coping mechanisms appear in him to relieve tension by finding a way out of the problem or tension faced by the individual.

Research on coping mechanisms that most coping mechanisms of people with chronic Diabetes Mellitus are maladaptive coping mechanisms with factors related to the coping mechanism of patients<sup>8</sup>. Qualitative research on coping mechanisms in people with Diabetes Mellitus uses emotional coping mechanisms focused coping (self-control, accepting responsibility and taking positive meaning) and using coping mechanisms problem focused coping (social support and problem solving)<sup>9</sup>.

At the end of 2019, a new type of coronavirus emerged, which was later named COVID-19.

Identified as the cause of pneumonia. It was first discovered in Wuhan City, Hubei Province, China. Its rapid spread even globally led the WHO to designate COVID 19 as a pandemic because it has infected more than 114 countries. Patients with diabetes mellitus have a higher level of risk than patients who do not have the disease. Although COVID 19 infection causes mild to moderate respiratory symptoms and will heal without special treatment, people who have a history of chronic diseases such as cardiovascular disease, diabetes mellitus, chronic respiratory disease, and cancer have the possibility to cause more serious symptoms and even death<sup>10</sup>.

Psychosocial assessment of anxiety levels and coping mechanisms is very important because it is nursing practice based on proof, where diabetic patients are susceptible to psychosocial problems that affect each other with glycemic control. Based on this phenomenon, prospective researchers examined the level of anxiety and coping mechanisms in people with diabetes mellitus during the COVID 19 pandemic.

## Method

This type of research is descriptive analytical research using a cross sectional approach. The population in this study were all diabetic mellitus whose sampling was done by non probability sampling method through purposive sampling. Data collection in the form of primary data is done by filling out demographic data of sufferers and questionnaires. In this study the variables were described through univariate analysis which included demographic characteristics, anxiety levels and coping mechanisms of patients, as well as bivariate analysis tests using Chi square.

## Results and Discussions

### Characteristics of Respondents

**Table 1. Characteristics of Respondents**

<b>Characteristics of Respondents</b>	<b>N</b>	<b>%</b>
<b>Age</b>		
20-30 years	2	3,0
31-40 years	3	4,6
41-50 years	21	31,8
51-60 years	25	37,9
>60 years	15	22,7
Total	66	100,0
<b>Gender</b>		
Male	34	51,5
Female	32	48,5
Total	66	100,0
<b>Education</b>		
Primary school	12	18,2
Junior high school	11	16,7
Senior high school	27	40,9
Diploma	2	3,0
S1 (Bachelor)	13	19,7
S2 (Master)	1	1,5
Total	66	100,0
<b>Profession</b>		
Not working	27	40,9
Civil servant	13	19,7
Soldier	3	4,5
Police	3	4,5

**Table 1. Characteristics of Respondents**

Retired	41	6,1
Self-employed	15	22,7
Employee	1	1,5
Total	66	100,0
Long Suffering		
< 1 years	13	19,7
1-5 years	33	50
6-10 years	17	25,8
> 10 years	3	4,5
Total	66	100,0

Characteristics of the age of the majority of respondents aged 51-60 years, namely as many as 25 people (37.9%). The majority of these ranges are classified as elderly<sup>11</sup>. Degenerative factors are particularly associated in the decrease in insulin production by beta cells in the process of glucose metabolism that cause a person over the age of 46 years to have a high risk of diabetes mellitus<sup>12</sup>. In addition, the lack of sensitivity of pancreas in producing insulin is also due to the factor of increasing age<sup>13</sup>.

Characteristics of respondents based on gender in the results of the study of the majority of the male sex as many as 34 respondents (51,5%). Men have uncontrolled blood sugar control over women. Men pay less attention to a healthy lifestyle in an effort to control blood sugar levels in the body such as diet efforts, physical activity, or regular treatment<sup>14</sup>. However, women are more likely to have diabetes mellitus. This happens especially in the post-menopause. The hormones estrogen and progesterone that are in charge of increasing insulin sensitivity will

decrease, so that insulin production activity will be reduced in the blood<sup>15</sup>.

Characteristics of respondents based on the education of the highest majority of senior high school which is as many as 27 respondents (40,9%). Knowledge of health is more owned by a highly educated person than someone who is poorly educated. A person who has a higher education also has a higher awareness in living a healthy lifestyle, while in a low-educated person has a fairly low awareness in maintaining a healthy lifestyle in order to reduce the risk of developing a disease<sup>16</sup>.

Characteristics of respondents based on the highest majority of jobs did not work, which was 27 respondents (40,9%). A person who does not work will have physical activity that is relatively mild, so the burning of energy in the body will decrease. The excess energy will be processed in the body into fat. Furthermore, metabolic and endocrine functions will undergo changes that make them easily obese. With a lot of fat buildup in the body causes a person to have

a high risk of developing diabetes mellitus because fat piles will inhibit the process of insulin production<sup>17</sup>.

Characteristics of respondents related to long suffering obtained the highest majority of respondents, namely respondents did not know long they had diabetes mellitus as many as 31 respondents (47%). The majority of both respondents with a long suffering period of 1-5 years, namely as many as 23 respondents (34,8%). The longer a person has diabetes, the more experienced they are in controlling the disease, because they have long had the opportunity to learn about problems related to the disease they have<sup>18</sup>.

#### Anxiety Levels in Diabetes Mellitus Patients During the COVID 19 Pandemic

**Table 2. Anxiety Levels in Diabetes Mellitus Patients During the COVID 19 Pandemic**

Anxiety Level	N	%
Anxious	45	68,2%
Not anxious	21	31,8%
Total	66	100%

The results of the study based on anxiety level variables were the highest majority of respondents who had anxiety as many as 45 respondents (68,2%). The results of this study are in line with who reported as many as 100% of respondents had anxiety<sup>19</sup>.

The anxiety level of diabetic mellitus sufferers is related to the length of time the patient has diabetes mellitus. Based on the results of the study obtained the highest majority of respondents (47%) did not know long they had diabetes. A person who does not know or just know his illness will experience anxiety

about his illness. This is because people with diabetes mellitus must always regulate their lifestyle regularly which includes diet, physical activity, and taking medication, as well as other reasons diabetes mellitus is a disease that cannot be cured. This is what makes new sufferers experience anxiety for fear of not being able to meet a healthy lifestyle regularly, and lack of experience in new lifestyle adjustments.

Conversely, in someone who has long known if diabetes will have low anxiety, because they have experience in regulating their lifestyle, and have long undergone treatment of the disease that must be done, so they have begun to be able to adapt to the regulation of the disease rather than someone who does not know and only know the disease. In line with research that explains that a person's self-adaptation ability will increase if they have long lived life as a diabetic mellitus, so their anxiety levels are lower than someone who has long known to have diabetes mellitus<sup>20</sup>.

Anxiety levels are also related to a person's level of education. Based on the results of the study obtained as many as 75,8% of respondents with education levels from elementary to senior high school. In line with the study had respondents with the level of respondents from elementary to senior high school as much as 83.3% resulting in as much as 86,7% of respondents who had anxiety<sup>21</sup>. The level of education affects the behavior that a person has. A person with a higher education is easier in his understanding in receiving information. With this high understanding, a person with higher education is easily adaptable in the acceptance and treatment of his disease. This makes the anxiety level of someone with higher education lower than someone with a low education<sup>22</sup>.

#### Level of Coping Mechanism in Diabetes Mellitus Patients During the COVID 19 Pandemic



**Table 3. Level of Coping Mechanism in Diabetes Mellitus Patients During the COVID 19 Pandemic**

Level of Coping Mechanism	N	%
Adaptive	64	97,0%
Maladaptive	2	3,0%
Total	66	100%

The results of the study based on the variable level of coping mechanisms are the majority with the most adaptive coping mechanisms as much as 97%. Effective mechanism strategies make a person easily adapt to the problems they face, but if the coping used is not effective it will have an impact on physical and mental disorders<sup>23</sup>.

Coping mechanisms are influenced by the level of education. A person with a higher level of education has more knowledge and information in dealing with his illness, so they are more adaptable and solve problems to the disease they have<sup>24</sup>. But not everyone who has a higher education solves the problem with adaptive coping. A highly educated person also uses maladaptive coping in solving the problem. Conversely, a person who has a low education does not always use a maladaptive coping mechanism. A poorly educated person who solves his problem with an adaptive coping<sup>25</sup>.

In this case, the coping mechanism is also affected by age and long suffering. The influence of age and long suffering will have an impact on the experience a person has<sup>23</sup>. With the older a person's age and followed by the length of time diabetes will be more experience has of the disease. Based on the experience

of sufferers so that they have a lot of knowledge about the treatment of the disease.

Sufferers will try to adapt and live a life in accordance with a healthy lifestyle. Thus, the level of education is less influential in the process of coping mechanisms used. If the patient has a higher level of education but does not have much experience, then the sufferer does not necessarily always use adaptive coping mechanisms in living his life as a diabetic.

This is in accordance with the results of research obtained by the age of respondents as much as 60,6% aged 50-60 years and above who are classified as elderly. Respondents who are classified as elderly have lived a long life and get a lot of life experience during their lifetime. Plus based on the results of long-suffering research with diabetes, which is in the range of 1 year to more as much as 48,4%. The length of diabetes experienced by respondents is also related to the experience he had as a diabetic mellitus. With this experience, patients already have their own adjustment to the disease and lifestyle, so that respondents can deal with the disease with adaptive coping mechanism response.

**Relationship of Anxiety and Coping Mechanisms in Diabetes Mellitus Patients During the COVID 19 Pandemic**

**Table 4. Relationship of Anxiety and Coping Mechanisms in Diabetes Mellitus Patients During the COVID 19 Pandemic**

Anxiety Level	Coping Mechanisms				Total		P
	Adaptive		Mal Adaptive		N	%	
	N	%	N	%			
Not Anxious	20	95,2	1	4,8	21	100,0	0,538
Anxious	44	97,8	1	2,2	45	100,0	
<b>Total</b>	64	97,0	2	3,0	66	100,0	

Statistical test result with  $p\text{-value} = 0,538 > 0,05$ , which can be concluded that  $H_0$  is accepted. This means that there is no link between anxiety and coping mechanisms in patients with diabetes mellitus during the COVID 19 pandemic.

In contrast to the study mentions that there is a relationship between anxiety and coping mechanisms in diabetic patients ( $p\text{-value} = 0,002 < 0,05$ ). The results were 12,5% with mild anxiety, 43,8% with moderate anxiety, and 43,8% with severe anxiety. Then based on the level of coping mechanism obtained as many as 62,5% of respondents with adaptive coping mechanisms<sup>26</sup>.

Coping mechanisms are strategies that individuals use in dealing with changes in their lives, as well as a response to threats or dangers that cause physical and psychological damage. Anxiety is a feeling of insecurity and pleasure caused by fear, tension, and insecurity that pervade his mind<sup>27</sup>.

When someone experiences a threatening situation, they will cause a fearful reaction. With excessive encouragement and accompanied by the

injection of completing the stimulus will make an anxiety reaction in a person. So that with the condition of anxiety can be resolved through the arrangement of one's coping<sup>28</sup>. Maladaptive coping will make the risk of disease increase. A person's knowledge of the use of coping will make the coping response that everyone has varies.

The coping mechanism process exists that controls emotions in solving the problem and there are also those who face the problem directly or only focus on the problem. Problem solving is done dynamically based on the coping mechanism that a person has. Each individual with the other individual has a different coping behavior response to each other<sup>29</sup>.

Anxiety levels are distinguished into mild, moderate, and severe anxiety. The anxiety of each individual has causes that underlie the onset of anxiety such as worrying about the development of the disease, worrying if the disease will not heal, worrying about not being able to maintain a healthy lifestyle in a sustainable manner, and anxiety about death. But in addition to these reactions, individuals



can also respond by frequently asking questions related to the problem of the disease even though previous questions have been answered, can not sleep (insomnia), restless, and not appetite<sup>28</sup>.

Individuals who have inner calm in themselves will reduce the high level of anxiety. Inner calm can be done with the support of those closest to you such as family<sup>29</sup>. With the support of the family can give attention, advice, and positive encouragement to the individual, so that they can manage their anxiety emotions and able to follow the rules and procedures in controlling the disease. So that with low levels of anxiety will make the individual coping behavior response becomes good (adaptive) in solving the problem<sup>28</sup>.

Individuals who have a maladaptive coping behavior response due to feelings that are not able to themselves, feelings of anxiety will not be able to solve a problem, there are feelings of fear, tension, weakness that affect a person's psychological that in the end will lead to reduced behavior in the fulfillment of needs in the management of disease and basic needs. Feelings arising from anxiety will make the individual use a maladaptive coping behavior response<sup>30</sup>.

Coping is considered an equilibrium factor that manages a person in adjusting to stressful and anxiety conditions<sup>23</sup>. Coping creates a mechanism to manage the problems faced, with the adaptive coping of a person then one succeeds in solving his problems that make a person's psychological level including anxiety decrease, but if a person is not successful in solving the problem it will affect his psychological with increased anxiety<sup>31</sup>.

### Conclusions and Recommendations

Conclusions from the results of research related to anxiety levels and coping mechanisms in people with diabetes mellitus during the COVID 19 pandemic were obtained by respondents who had anxiety as

many as 45 respondents (68,2%) and respondents with adaptive coping mechanisms as much as 97%. The results of statistical tests found no association between anxiety and coping mechanisms in patients with diabetes mellitus during the COVID 19 pandemic with a p-value of  $0,538 > 0,05$ .

The results of this study are expected to be literature on future studies such as research on factors that affect anxiety levels and coping mechanisms in diabetic patients. By knowing the level of anxiety and coping mechanisms so as to minimize psychosocial problems of patients that affect each other's glycemic control. This requires the role of health workers in reducing anxiety and improving the coping mechanisms of patients.

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