

DETERMINANTS AFFECTING ANXIETY IN PATIENTS WITH TYPE 2 DIABETES MELLITUS AT MEURAXA HOSPITAL

Hilma Dentalistya ^{1*}, Riyan Mulfianda ², Jubir ³

Department of Public Health, Faculty of Health Science, Abulyatama University, Aceh, Indonesia

* Correspondence Email: ryanmulfianda@abulyatama.ac.id

Abstract: Diabetes mellitus is a metabolic disease characterized by hyperglycemia. Diabetes mellitus is known as a silent killer, meaning it kills people slowly. The purpose of this study was to determine the determinants that influence anxiety in patients with type 2 diabetes mellitus. This study was a descriptive correlational study with a cross-sectional design. The population in this study consisted of all 369 patients with type 2 diabetes mellitus, with a purposive sampling technique of 79 people. The results of this study showed that there was an effect of stress and anxiety on patients with type 2 diabetes mellitus, with a p-value of 0.016. There is an effect of family support and anxiety on patients with type 2 diabetes mellitus with a p-value of 0.032, there is an effect of disease complications and anxiety on patients with type 2 diabetes mellitus with a p-value of 0.000, and there is an effect of blood sugar levels and anxiety on patients with type 2 diabetes mellitus with a p-value of 0.000. The conclusion of the study is that there is an effect of stress, family support, disease complications, and blood sugar levels on patients with type 2 diabetes mellitus at Meuraxa Hospital. It is hoped that the respondents, namely patients with type 2 diabetes mellitus, can reduce excessive anxiety caused by various factors so that they can improve their quality of life during treatment.

Keywords: *Anxiety, Stress, Family Support, Disease Complications & Blood Sugar Levels*

1. Introduction

Non-communicable diseases (NCDs) remain a problem that must be addressed among the community. One type of non-communicable disease is diabetes mellitus (DM). DM is classified as a complex chronic disease that requires ongoing medical care to control the body's glycemic function, characterized by hyperglycemia caused by impaired insulin secretion. Diabetes mellitus has two main types: type 1, where patients are insulin-dependent or *Insulin Dependent Diabetes Mellitus* (IDDM), and type 2, where patients are not insulin-dependent or *Non Insulin Dependent Diabetes Mellitus* (NIDDM)(1).

(2) There are 537 million adults living with diabetes, and that number is expected to increase to 784 million by 2045. The number of people with diabetes in Indonesia reached 19.5 million in 2021 and is predicted to jump to 28.6 million by 2045, with a prevalence in Indonesia of 11.7% and the largest proportion coming from type 2 diabetes(3). There were 16,796 cases in Aceh Province in 2023, while the city of Banda Aceh showed a significant increase from 10,008 cases in 2023 to 17,770 in 2024(4). The number of type 2 DM patients undergoing treatment at Meuraxa Hospital also continues to increase, from 270 people in 2022 to 369 people in 2024.

The high number of type 2 diabetes mellitus cases shows that this disease not only affects organ function, but also causes psychological problems such as anxiety. The level of anxiety in type 2 diabetes patients can be influenced by various factors, such as stress, the possibility of complications due to uncontrolled blood sugar, and a lack of social support, especially from family. Stress can worsen the physical condition of patients by increasing blood sugar levels, which in turn can contribute to the development of serious complications. On the other hand, complications arising from type 2 diabetes will further add to the psychological burden of patients, worsening anxiety and reducing quality of life(5) .

2. Literature Review

2.1 Diabetes Mellitus DM

Diabetes mellitus is a non-communicable disease classified as a metabolic disorder. This disease is characterized by high blood sugar levels (hyperglycemia) caused by problems with insulin secretion, insulin function, or both. If blood sugar levels remain high for a long period of time, this can damage several parts of the body's systems, including the heart, kidneys, and nerves, which can ultimately lead to stroke and even death(6) .

According to(7) , diabetes mellitus is divided into two categories:

Type 1 diabetes occurs due to the autoimmune destruction of insulin-producing beta cells. Type 1 diabetes is an autoimmune disease in which the body's immune system destroys the pancreatic cells responsible for insulin production, so that when the pancreas stops producing insulin, blood glucose levels increase. Common symptoms include polyuria, polydipsia, and drastic weight loss. Meanwhile, type 2 diabetes mellitus is a condition characterized by hyperglycemia, which is an increase in blood glucose levels, caused by a slight increase in insulin sensitivity in the serum. Insulin resistance in the body can vary, sometimes falling below normal levels. This disease is often referred to as non-insulin-dependent diabetes because the pancreas is unable to effectively produce insulin from beta cells.

2.2 Anxiety

Anxiety is a condition in which a person feels emotional and is followed by an autonomic response (the individual is unaware of its origin and it is unclear) and anticipation of danger that can cause fear and worry(8) . Fear can be a warning sign of an impending event, so that individuals can take action to deal with the threat(9) .

2.3 Stress

Stress is a condition that affects a person's mental health due to pressure from the situations they experience. Stress levels can be divided into three categories: mild, moderate, and severe. Naturally, people experience stress in a systematic way. The negative feelings that arise can interfere with their desires and threaten their emotional well-being, which in turn can increase blood glucose levels. Stress can affect blood glucose control in people with T2DM. The stress response to the endocrine system causes an increase in blood sugar, which in turn can worsen diabetes and increase anxiety. Stress activates the endocrine organs to release epinephrine, which has a significant impact on triggering the process of gluconeogenesis in the liver. This process results in the release of large amounts of glucose into the bloodstream in a short period of time. As a result, blood glucose levels increase when a person experiences stress or tension(10) .

2.4 Family support

Family support can be understood as a process of interaction between the family and its social environment. This process continues throughout life, with the sources and types of

support provided influencing various stages in the family life cycle. There are three important dimensions in family support interactions, namely: reciprocity (which includes the habits and frequency of interaction), advice or feedback (which refers to the quantity and quality of communication), and emotional involvement (which serves to increase closeness and trust in social relationships)(11) .

2.5 Blood sugar levels

Poor blood sugar control in patients with Type 2 Diabetes Mellitus (T2DM) can be prevented by checking blood sugar levels regularly. Regular checks help patients monitor their blood glucose levels, enabling them to detect any abnormal increases or decreases early on. With this information, patients can immediately adjust their medication, diet, or physical activity to keep their blood sugar levels stable. Research shows that regular blood sugar monitoring can reduce the risk of diabetes complications, such as neuropathy, retinopathy, and cardiovascular disease. In addition, regular checks also give patients confidence because they feel more capable of managing their disease. Support from health workers in the form of education on how to monitor blood sugar and understand the results is also very important for successful blood sugar control(12) .

2.6 Complications of the disease

Complications of type 2 diabetes mellitus can vary greatly and affect various organ systems in the body. Chronic complications include heart disease, stroke, kidney damage, retinopathy, neuropathy, and wounds that are difficult to heal. Acute complications can occur if blood sugar levels are too high or too low, such as diabetic ketoacidosis or hypoglycemia(6).

3. Method

This study used a descriptive correlational design with a cross-sectional study approach. The study population consisted of all 369 type 2 diabetes mellitus patients at Meuraxa Regional General Hospital in Banda Aceh, with purposive sampling techniques used to obtain 79 respondents who met the inclusion criteria. The research instruments used structured questionnaires, namely the Hamilton Anxiety Rating Scale (HARS) to measure anxiety, the Perceived Stress Scale (PSS) to measure stress, and the Hensarling Diabetes Family Support Scale (HDFSS) to assess family support. The study was conducted from May 5 to 31, 2025, with data collection procedures involving the direct distribution of questionnaires to respondents. The data were analyzed univariately and bivariately using the Chi-Square test to determine the determinants that influence anxiety in patients with type 2 diabetes mellitus.

4. Findings and Discussion

Table 1.
Frequency Distribution based on characteristics of Type 2 DM Patients

No	Demographic Data	f	%
1	Age (Indonesian Ministry of Health)		
	Adults (26-45 years old)	17	21.5
	Elderly (46-65 years old)	62	78.5
2	Gender		
	Male	27	34.2
	Female	52	65.8
3	Education		

	High	29	36.7
	Secondary	40	50.6
	Basic	10	12.7
4	Occupation		
	Civil servant	10	12.7
	Self-employed	4	5.1
	Contract employee	3	3.8
	Civil servant retirees	8	10
	Merchant	5	6.3
	Farmers	5	6.3
	Laborer	4	5.1
	Housewife	34	43.0
	Not working	6	7.6
5	Duration of Type 2 Diabetes		
	New (≤ 2 years)	12	15.2
	Long-term (> 2 years)	67	84.8
	Total	79	100.0

Based on the table above, it shows that out of 79 respondents, most of the patients were elderly (46-65 years old), totaling 62 respondents (78.5%), with 52 respondents (65.8%) being female. Most patients had a secondary education (40 respondents, 50.6%) and worked as housewives (34 respondents, 43.0%). Most patients had a long history of type 2 diabetes, i.e., > 2 years (67 respondents, 84.8%).

Table 2.
The Effect of Stress on Anxiety in Patients with Type 2 Diabetes

Stress		Anxiety								p- value
		Mild		Moderate		Severe		Total		
		f	%	f	%	f	%	f	%	
1.	Low	12	46.2	8	30.8	6	23.1	26	100.0	0.016
2	Moderate	5	13.5	14	37.8	18	48.6	37	100.0	
3	Height	3	18.8	3	18.8	10	62.5	16	100.0	
	Total	20	25.3	25	31.6	34	43.0	79	100	

Table 3.
The effect of family support on anxiety in patients with type 2 diabetes mellitus

No	Family Support	Anxiety								p-value
		Mild		Moderate		Severe		Total		
		f	%	f	%	f	%	f	%	
1.	Support	15	36.6	9	22.0	17	41.5	41	100.0	0.032
2	Not supported	5	13.2	16	42.1	17	44.7	38	100.0	
	Total	20	25.3	25	31.6	34	43.0	79	100.0	

Table 4.

The effect of blood sugar levels on anxiety in patients with type 2 diabetes mellitus

No Blood Sugar Level		Anxiety								p-value
		Mild		Moderate		Severe		Total		
		f	%	f	%	f	%	f	%	
1.	Prediabetes	8	72.7	1	9.1	2	18.2	11	100.0	0.000
2	Diabetes	12	17.6	24	35.3	32	47.1	68	100.0	
	Total	20	25.3	25	31.6	34	43.0	79	100	

Table 5.

The effect of disease complications on anxiety in patients with type 2 diabetes mellitus

No	Disease Complications	Anxiety								p- value
		Mild		Moderate		Severe		Total		
		f	%	f	%	f	%	f	%	
1.	There is	6	9.8	22	36.1	33	54.1	61	100.0	0.000
2	None	14	77.8	3	16.7	1	5.6	18	100.0	
	Total	20	25.3	25	31.6	34	43.0	79	100.0	

Discussion:

This study shows that type 2 diabetes mellitus patients with moderate stress levels tend to experience more severe anxiety. These results are in line with the studies(13) and(14) , which both found a relationship between stress and anxiety in people with diabetes. Stress affects anxiety through the release of stress hormones that increase heart rate, psychological tension, and blood sugar levels, so it is important for patients to be able to manage stress in order to maintain stable health. In addition to stress, this study also found that patients with family support still experienced severe anxiety in most cases, indicating the influence of family support on anxiety. These results are supported by the studies(15) and(16) , which state that family support is closely related to the anxiety levels of patients with diabetes mellitus. Family support plays an important role in providing motivation, a sense of security, and reducing the emotional burden on patients, so researchers assume that a lack of family support can increase anxiety, while good support can help reduce it.

Furthermore, the results of the study also show that blood sugar levels and disease complications have a significant relationship with anxiety in patients with type 2 diabetes mellitus. These findings are consistent with the studies(5) and(17) , which found a correlation between blood sugar levels and anxiety, and are reinforced by the studies(13) and(18) , which show that disease complications are related to the anxiety levels of diabetic patients. Uncontrolled blood sugar levels can worsen anxiety, while high anxiety can also cause blood sugar levels to become unstable. Similarly, both acute and chronic complications can worsen physical conditions and cause psychological stress due to the many treatments that must be undergone. Therefore, researchers assume that the higher the blood sugar levels and the more complications experienced by patients, the higher the level of anxiety felt, making blood sugar control and complication prevention important aspects in the care of type 2 diabetes mellitus patients.

5. Conclusion and Recommendation

The results of the study indicate that stress, family support, blood sugar levels, and disease complications have an effect on anxiety in patients with type 2 diabetes mellitus at Meuraxa Hospital.

The researchers suggest that researchers themselves should assess the weaknesses and provide recommendations for further research on the determinants that influence anxiety in patients with type 2 diabetes mellitus. Respondents and families are expected to pay attention to risk factors such as stress, family support, blood sugar levels, and disease complications in order to improve the quality of life of patients. Meuraxa Hospital is expected to improve its services through good room conditions, health education, complementary therapy, and optimization of diabetes management. Educational institutions, particularly the Nursing Science Study Program at Abulyatama University, can use this study as a reference and strengthen research methodology learning. For future researchers, it is recommended to conduct studies with different designs, consider other factors, and use more varied samples to enrich studies on type 2 diabetes mellitus.

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