

THE RELATIONSHIP BETWEEN STRESS LEVELS IN TYPE II DIABETES MELLITUS PATIENTS WITH DIABETIC ULCERS IN KOLANG HEALTH CENTER 2021

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ABSTRACT

Stress level is a stimulus that can cause an imbalance in individual homeostasis, both physiologically and psychologically. The risk of diabetic ulcers is a condition in which infection is found in the ulcer and/or its destruction to the deepest skin tissue on the feet in patients with diabetes mellitus due to nerve abnormalities and peripheral arterial blood vessel disorders at the Kolang Health Center. The research method uses a descriptive analytic design with a cross-sectional design. The results of this study showed that there were 5 respondents with mild stress (21.7%), moderate stress 13 people (56.5%) and 5 people with severe stress (21.7%). In addition, there were 2 respondents with low risk of diabetic ulcers (8.7%), 10 people (43.5%) moderate diabetic ulcer risk and 11 people (47.8%) high risk respondents. In this study, in addition to stress levels, the results of measurements of abnormal blood sugar levels were also found in 17 respondents (73.9%). Statistical results using the Chi Square test indicate that the χ^2 value is 0.020, which means the p value is $0.020 < 0.05$, it can be concluded that there is a relationship between stress levels and the risk of diabetic ulcers. The next step is to further examine and deepen insight into stress levels with the risk of diabetic ulcers and is expected for further researchers.

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1. Introduction

The cause of stress in people with Diabetes Mellitus is due to a condition where a person with Diabetes Mellitus has one of the complications of diabetic ulcer risk so that it can cause psychological disorders in the form of stress (Wohpa et al., 2015). According to the World Health Organization (WHO), it is known that there are 422 million DM patients in the world. The prevalence of DM in Indonesia based on Regional Health Research (Risksdas) continues to increase, from 1.1% in 2014 to 2.1% (Ministry of Health, 2016). One of the provinces in Indonesia with the highest incidence of DM is South Sulawesi.

The prevalence of DM in South Sulawesi in 2016 which was diagnosed by doctors was 3.4%, where the highest prevalence was found in Gowa Regency, South Sulawesi Province as much as 3.2%, and in Makassar City as much as 2.5%. However, other studies reported that the highest incidence of DM based on doctor's diagnosis was Makassar city of 5.3%.

Based on research conducted (Hakim, 2013), 92% of patients with diabetic foot ulcers experience mild stress. Meanwhile, based on research by Astuti in (Hasena, 2019), 31% of diabetic foot ulcer sufferers experience severe stress, 40% experience moderate stress, and 18% experience mild stress. As many as 72% of the respondents stated that they were stressed due to fear of wounds that took a long time to heal.

The data obtained from the Jongaya Health Center with type II DM in 2018 were 445 people, in 2019 as many as 282 people, and in 2020 from January to April as many as 80 people. So the purpose of this study was to determine the relationship between stress levels in type 2 DM patients with the risk of diabetic ulcers at the Kolang Health Center.

2. Research Methods

2.1 Research Type and Design

This research was carried out at the Kolang Public Health Center in June-August 2021. The type of research used in this study was a descriptive analytic design with a cross sectional design.

2.2 Population And Sampel

The population in this study were all patients with type II Diabetes Mellitus who were recorded at the Kolang Health Center, namely 80 type II DM patients who were spread in every working area of the Kolang Health Center. The sample in this study were all patients with Type II Diabetes Mellitus at the Kolang Health Center. The sampling technique used in this study is total sampling, which is a technique part of the population that represents the sampling to be taken, the number of samples is 23 respondents

2.3 Analysis Techniques

The sampling technique used is purposive sampling technique by applying inclusion and exclusion criteria. The research instrument used a questionnaire.

3. Result And Discussion

3.1 Result

This univariate analysis aims to explain or describe the characteristics of each variable studied (Nursalam, 2019). Univariate analysis was used to describe the characteristics of each respondent, namely age, gender, education, occupation, duration of suffering from DM, blood sugar levels, stress levels, diabetic feet. Bivariate analysis at answering the research objectives and testing the research hypotheses to determine the relationship between the independent and dependent variables using the chi-square test.

TABLE 1
FREQUENCY DISTRIBUTION OF THE CHARACTERISTICS OF TYPE II DM RESPONDENTS AT THE PUSKESMAS

	Karakteristik		%
Umur	55-65Tahun	13	56,5
	66-74Tahun	6	26,1
	75-90Tahun	4	17,4
Jeniskelamin	Laki-laki	11	47,8
	Perempuan	1	5,2
Pendidikan	SD	2	8,7
	SMP	3	13,0
	SLTA	13	56,5
	Diploma/Sarjana	5	21,7
Pekerjaan	Tidakbekerja	8	36,0
	Pedagang	2	8,7
	Petani	5	21,7
	Wiraswasta	5	21,7
	Pegawainegeri	3	13,0

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Based on table 1 it can be concluded that of the 23 respondents based on the majority of gender in women, 12 (52.5%) respondents. At the age of majority aged 55-64 years as many as 13 (56.5%) respondents. In the majority of high school level education as many as 13 (56.5%) respondents. And the majority do not work as much as 8 (36.0%). From the results of research conducted at the Jongaya Public Health Center Makassar, the majority of patients with type II diabetes mellitus experienced moderate stress levels as many as 13 (56.5%) respondents, while those who experienced type II DM patients who had a high risk of diabetic ulcers were 11 (47.8%) respondents (Table 2). Based on the results of the analysis in table 4, it can be seen that the Asmp.Sig value is 0.019, which means the asimp.sig value is $0.019 < 0.05$, it can be concluded that there is a relationship between the type of stress level and the risk of diabetic.

TABEL 2
DISTRIBUSI FREKUENSI RIWAYAT KESEHATAN RESPONDEN DM TIPEII DI PUSKESMAS

Riwayat Kesehatan	n	%
Lama Menderita		
<5 Tahun	14	60,9
5-10 Tahun	9	39,1
Kadar Gula Darah		
Normal	6	26,1
Tidaknormal	17	73,9
Tingkat Stres		
Ringan	5	21,7
Sedang	13	56,5
Berat	5	21,7
Resiko ulkus diabetik		
Rendah	2	8,7
Sedang	10	43,5
Tinggi	11	47,8

TABEL 3
HUBUNGAN TINGKAT STRESS DENGAN RESIKO ULKUS DIABETIK PADA PENDERITA DM TIPE II

Tingkat stress	2	8,7	3	13,0	0	0,0	5	21,7	
Ringan	2	8,7	3	13,0	0	0,0	5	21,7	
Sedang	0	0,0	6	26,1	7	30,4	13	56,5	0,019
Berat	0	0,0	1	4,3	4	17,4	5	21,7	
Total	2	8,7	10	43,5	11	47,8	23	100	

Based on the results of the study, it was found that from 23 respondents who had studied stress levels in type 2 DM patients at Jongaya Health Center, there were moderate stress levels with a percentage of 13 (56.5%) respondents. , so that respondents experience moderate stress levels that last more than a few hours. until a few days such as during disputes, unfinished work agreements, excessive family problems, and this situation that causes a person's health condition to become out of control. While the level of severe stress is more dangerous because it is chronic stress that occurs from a few weeks to several years caused by several factors such as age, work, economy and others.

This can be seen from the DASS questionnaire questions that have been used in this study, respondents with type 2 DM who experience stress levels find it difficult to be patient in the face of disturbances in what they are doing. Characteristics of type 2 DM patients in this study such as age, occupation, and length of suffering from DM can trigger this. The age of type 2 DM patients in this study was mostly 65 years old, at that age it is possible that some people actually have poor self-control so that signs of stress level disturbances can appear, most type 2 DM patients do not work, resulting in impatience or control. bad self in dealing with a disturbance so that he feels himself getting angry because of trivial things, tends to overreact to a situation, irritable, easily gets angry, finds it difficult to calm down after something that upsets him, and is difficult to be patient in the face of disturbance. Several questions from the questionnaire illustrate that type 2 DM patients experience poor stress conditions.

This is in line with research conducted (Rahmat, 2017) stress is a disorder in the body and mind caused by changes and demands of life, which are influenced both by the environment and the appearance of individuals in that environment. According to (Izzati & ., 2015) the need for diabetes

mellitus patients to change their lifestyle so that blood sugar in the body remains balanced can make them vulnerable to stress, because stress will occur if a person feels there is a mismatch between resources they have and the demands of the situation to be carried out. When the demands of the situation are felt to be different from the previous situation and too heavy, then stress will occur.

Based on the results of the study showed that the highest risk of diabetic ulcers was the high risk of ulcers with a percentage of 11 respondents (47.8%) of respondents. According to (Mustafa, 2016), people with type 2 diabetes mellitus may develop neuropathy at the time of diagnosis of diabetes mellitus. Loss of sensation in the periphery will exacerbate the development of foot ulcers in people with diabetes mellitus.

This is in line with research conducted (Yoh&Mutaqqijn, 2017) which showed that the risk of diabetic foot ulcers in the Inpatient Room of the Tangerang District Hospital was known to have the most respondents with high ulcer risk. According to Norwood (2011) which states that the risk factors that can cause diabetic foot ulcers are diabetes with neuropathy (immunity, tingling in the feet), peripheral vascular disease, using inappropriate footwear, foot deformity.

Based on the results of research conducted on 23 respondents, it was found that 5 people with mild stress, 13 people with moderate stress and 5 people with severe stress. In addition, there were 2 respondents with low diabetic ulcer risk, 10 moderate diabetic ulcer risk and 11 high risk respondents. This shows that respondents with severe stress levels will have a high risk of developing diabetic ulcers in patients with type II diabetes. In this study, in addition to stress levels, the results of measuring blood sugar levels were not normal in 17 respondents (73.9%). The statistical results using the Chi Square test show that the Asmip.Sig value is 0.019, which means the asimp.sig value is $0.019 < 0.05$, it can be concluded that there is a significant relationship between the type of stress level and the risk of diabetic ulcers.

This is related to the research conducted by Pratiwi et al. 2014 in (Widowati&Djafar, 2021) which states that the stress experienced by DM sufferers can result in disruption of the process of controlling blood sugar levels. In stressful conditions, it can result in an increase in cortisol which is used by the body to stop the effects of insulin, resulting in an increase in sugar levels in the body. Cortisol is a disruptor of insulin function which should be able to overcome high blood sugar levels. According to (Suprihatin&Purwanti, 2021) uncontrolled blood sugar levels will lead to the risk of diabetic foot ulcers. If these risks are not treated immediately and seriously, they will develop into diabetic foot ulcers and even amputation. High blood sugar levels due to not being controlled properly will cause atherosclerosis, especially in the leg area. The presence of narrowing of the arteries in the legs can affect the work of the leg muscles resulting in reduced blood supply in the leg area. If the disorder occurs over a long period of time, it can result in tissue death or gangrene in the lower extremities that develop into diabetic foot ulcers (Smeltzer& Bare, 2016).

Jamaluddin, 2012 in (Widowati&Djafar, 2021) said that when a person experiences stress, the response to stress will increase levels of the adrenal hormone which converts glycogen stores into glucose. Increased glucose levels that occur for a long time can lead to complications in DM patients, including acute and chronic complications. Patients with DM complications, namely diabetic ulcers, to manage various diabetes treatments cause several problems that will be experienced, one of which is feeling weak because they have to go on a diet, from changes in health that can be a stressor or a stressor for everyone (Izzati& ., 2015). that uncontrolled blood glucose levels are 2.265 times more at risk of developing foot ulcers compared to patients with normal blood sugar levels (Prabowo&Puspitasari, 2018).

4. Conclusion

Based on bivariate analysis using the Chi Square test, it shows that the Asmip.Sig value is 0.020, which means the asimp.sig value is $0.020 < 0.05$, it can be concluded that there is a significant relationship between the type of stress level and the risk of diabetic ulcers.

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