



Prospective Effect of Pruritus Intensity on the Quality of Life of Neurodermatitis Patients at the NTB Provincial Hospital

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Abstract: Neurodermatitis is a skin condition that is very itchy and chronic. Its characteristics are characterized by the presence of one or more plaques that experience thickening of the skin. One characteristic of the skin surface of patients with neurodermatitis is tree bark, which is caused by repeated rubbing or scratching responses. The aim of this study was to prospectively determine the effect of pruritus intensity on the quality of life of neurodermatitis patients in Mataram City in August - September 2022. This study was a cross-sectional study to determine the effect of pruritus intensity on the quality of life of neurodermatitis patients in the period August - September 2022. Data on psoriasis patients obtained from the Provincial Hospital of West Nusa Tenggara. Pruritus intensity was measured by VAS and 5D. Quality of life was assessed using the DLQI. There is a significant correlation between the intensity of pruritus and the quality of life of neurodermatitis patients as seen from the value of $P=0.000<0.05$. Based on the intensity of pruritus, the severity of VAS was obtained in the severe category, namely 36 respondents (50.0%) and 5D in the moderate category, namely 42 respondents (58.3%), and the quality of life was moderately affected by 31 respondents (43.1%). Based on the results of the study, it was found that there was a relationship between the intensity of pruritus and the quality of life of neurodermatitis patients in the city of Mataram. This statement is in accordance with the results of the data that the majority of neurodermatitis patients with moderate-severe pruritus intensity have a quality that has a moderate effect on the patient's life.

Keywords: Neurodermatitis; Pruritus intensity; Quality of life

Introduction

Neurodermatitis is a skin condition that is very itchy and chronic. Its characteristics are characterized by the presence of one or more plaques that experience thickening of the skin. One of the characteristics of the skin surface of neurodermatitis patients is tree bark, which is caused by repeated rubbing or scratching responses (An et al., 2013; Ariyanti & Suyoso, 2014).

Neurodermatitis can be found all over the world and is more common in adults with a higher ratio of women than men. The prevalence of neurodermatitis worldwide has reached more than 12% of the total population. Based on the age range, the prevalence of neurodermatitis is in the range of 30-50 years (An et al., 2013; Charifa et al., 2021).

In neurodermatitis there are non-dermatological predisposing factors, such as anxiety, obsessive-compulsive disorder, and pruritus. All of these factors predispose the patient to initiate and continue the itch-scratch cycle causing skin lesions. Previous studies have supported a higher rate of depression in neurodermatitis patients (Goyonlo et al., 2017; Liao et al., 2014).

Neurodermatitis is not a life-threatening disease, but can have an impact on quality of life and cause a psychosocial burden (Georgieva & Vankova, 2016; Peng et al., 2020). The symptoms of pruritus in neurodermatitis are triggered by emotional stress or other itchy stimuli. Previous studies have stated that the presence of psychological disorders in neurodermatitis patients is closely related to the severity of pruritus (Georgieva & Vankova, 2016).

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Previous studies that conducted research on Quality of Life (QoL) stated that there was a very large impact on the quality of life of neurodermatitis patients (An et al 2013; Liao et al., 2014; Georgieva and Vankova, 2016). However, there have been no studies that have evaluated the effect of pruritus intensity on quality of life in the Province of NTB, especially Mataram City. The purpose of this study was to prospectively determine the effect of pruritus intensity on the quality of life of neurodermatitis patients in the city of Mataram in August - September 2022.

Method

This research is a cross-sectional study using quantitative methods with total sampling. The subjects of this study were neurodermatitis sufferers who were in the NTB Provincial Hospital during the period August - September 2022. The number of respondents obtained was 72 respondents.

Quantitative data were obtained from the NTB Provincial Hospital including: general characteristics of respondents, namely age, gender, occupation, history of smoking, stress, diabetes mellitus, family history and history of therapy. Data on the severity of pruritus was measured using the Visual Analogue Scale (VAS) and 5D scores. Data relating to the quality of life of neurodermatitis sufferers is obtained from the DLQI characteristics. Before carrying out regression analysis to determine the effect of pruritus intensity on quality of life, a data normality test was performed. The data was said to be normal with a significance level of 5% and then a multiple linear regression analysis was performed using the ANOVA test to determine the effect of pruritus intensity on the quality of life of neurodermatitis patients. All data analysis was performed using univariate and bivariate using IBM SPSS 22.

Result and Discussion

Result

General Characteristics of Respondents

Based on the questionnaire that was distributed to 72 respondents, the general characteristics of the respondents were obtained, such as age, gender, occupation, history of smoking, stress, sweating, history of atopy, diabetes mellitus, family history and history of therapy. The results obtained were that of the 72 respondents who filled out the questionnaire, the most respondents were in the age range > 50 years, namely 40 respondents (55.6%) with the number of female respondents as many as 27 respondents (37.5%) (Table 1).

Table 1. General Characteristics of Respondents

General Characteristics		Frequency	Percentage (%)
Age	18-36	16	22.2
	37-50	16	22.2
	>50	40	55.6
Gender	Male	45	62.5
	Female	27	37.5
Work	Private	16	22.2
	Laborer	2	2.8
	Teacher	2	2.8
	Housewife	10	13.9
	Farmer	5	6.9
	Student	5	6.9
	Retired	12	16.7
	Doesn't work	6	8.3
	Government employees/army	14	19.4
Smoke	No	67	93.1
	Yes	5	6.9
Stress	No	56	77.8
	Yes	16	22.2
Sweat	No	55	76.4
	Yes	17	23.6
History of Atopy	No	53	73.6
	Yes	19	26.4
Diabetes mellitus	No	66	91.7
	Yes	6	8.3
Family History	No	55	76.4
	Yes	17	23.6
Therapy History	No	7	9.7
	Yes	65	90.3

VAS characteristics

From the results analyzed, the results obtained were that of the 72 respondents, most respondents were included in the severity of the VAS category in the severe category, namely 36 respondents (50.0%), then 23 respondents (31.9%) were included in the moderate category, 3 respondents (4.2%) were in the mild category, and 10 respondents (13.9%) in the very heavy category (Table 2).

Table 2. Characteristics of VAS

Category	Score	Frequency	Percentage (%)
No Itching	0	0	0
Light	1-3	3	4.2
Middle	4-6	23	31.9
Heavy	7-8	36	50.0
Very heavy	9-10	10	13.9

Characteristics of 5D

From the results analyzed, the results obtained were that of 72 respondents, to determine the degree of severity of 5D 2 respondents (2.8%) were included in the non-itchy category, 21 respondents (29.2%) were in the middle category, 42 respondents (58.3%) moderate, 7 respondents (9.7%) were included in the severe category and there were no respondents in the very severe

category. Thus, it can be concluded that most respondents have a degree of severity of 12-17 which is included in the moderate category (Table 3).

Table 3. Characteristic 5D

Category	Score	Frequency	Percentage (%)
No Itching	≤ 8	2	2.8
Middle	9-11	21	29.2
Moderate	12-17	42	58.3
Severe	18-21	7	9.7
Very Severe	≥ 22	0	0

Characteristics of DLQI

From the results analyzed, it was found that out of 72 respondents, to determine the degree of severity of DLQI 1 respondent (1.4%) was included in the no effect at all category, 15 respondents (20.8%) were in the small effect category, 31 respondents (43.1%) moderate effect, 25 respondents (34.7%) were included in the very large effect category and no respondents were included in the extremely large category. Thus, it can be concluded that most respondents have a degree of severity of 6-10

which is included in the moderate effect category (Table 4)

Table 4. Characteristics DLQI

Category	Score	Frequency	Percentage (%)
No effect at all	0-1	1	1.4
Small Effect	2-5	15	20.8
Moderate effect	6-10	31	43.1
Very large effect	11-20	25	34.7

Relationship between Pruritus Intensity and Quality of Life in Neurodermatitis Patients

The ANOVA test was conducted to find out whether the VAS and 5D variables together have a significant effect on the DLQI variable. From the results obtained, it can be seen that the value of $P = 0.000 < 0.05$ so that it can be concluded that the 5D and DLQI variables together influence the DLQI variable. This means that it can be concluded that the intensity of pruritus affects the quality of life of neurodermatitis patients (Table 5).

Table 5. Effect of Pruritus Intensity on the Quality of Life of Neurodermatitis Patients (ANOVA)

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	311.723	2	155.862	11.063	.000 ^b
1 Residual	972.152	69	14.089		
Total	1283.875	71			

a. Dependent Variable: DLQI

b. Predictors: (Constant), 5D, VAS

Discussion

One of the symptoms of neurodermatitis is pruritus. Pruritus creates a stimulus to scratch the skin, initiating the itch-scratch cycle, thereby exacerbating the inflammatory response and exacerbating the severity of the disease. Even if only in a form that elicits a scratch response, this symptom is often overlooked. Many studies have highlighted that this neglected symptom is chronic in nature with a large impact on the patient's quality of life.

A study conducted by Jonathan, et al states that itching on the skin is a subjective sensation. Itching of the skin also depends on certain conditions such as stress and anxiety (Silverberg et al., 2018). Although it is subjective, there are several instruments and scales for measuring the severity of pruritus, namely using the VAS and 5D (Phan et al., 2012; Reich et al., 2017).

Quality of Life in Neurodermatitis Patients

This study shows that based on the DLQI score, the majority of neurodermatitis patients have a moderate effect on patient life (43.1%) with a DLQI score of 6-10. The same scale was demonstrated by a study by Filka, et al., with the result that pruritus was a major symptom in neurodermatitis and had an impact on all QoL-domains

for all 190 neurodermatitis patients ($p < 0.001$) (Georgieva & Vankova, 2016).

The study of Jin-Gang An, et al reported the same thing as this study. The study, which was conducted on 149 patients, involved men and women whose quality of life was measured while experiencing neurodermatitis. Reported results of 49 respondents (32.9%) including moderate effect, followed by 42 respondents (28.2%) very large effect, and 40 respondents (26.8%) small effect 11 respondents (7.4%) had an extremely large effect, and 7 respondents (4.7%) had no effect at all. It can be concluded that in the study of Jin-Gang An, et al stated that neurodermatitis has a moderate effect on the patient's quality of life. Relationship between Pruritus Intensity and Quality of Life in Neurodermatitis Patients

In this study, the majority of respondents were included in the severity of the VAS category, namely 36 respondents (50.0%). Whereas in 5D most respondents have a degree of severity of 12-17 which is included in the moderate category. This study also showed a significant correlation between the intensity of pruritus as measured by the VAS and 5D on the quality of life of neurodermatitis patients using the DLQI. The same conclusion was drawn from previous studies which stated that the condition of neurodermatitis patients

significantly affects the quality of life (Georgieva & Vankova, 2016; Goyonlo et al., 2017; Peng et al., 2020).

Conclusion

Based on the results of the study, it was found that there was a relationship between the intensity of pruritus and the quality of life of neurodermatitis patients in the city of Mataram. This statement is in accordance with the results of the data that the majority of neurodermatitis patients with moderate-severe pruritus intensity have a quality that has a moderate effect on the patient's life.

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