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Relationship of Sleep Quality to the Incidence of Recurrent Aftosa Stomatitis, Study in Dentistry Students of Baiturrahmah University, Indonesia

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Abstract:- Sleep patterns are reported as triggers for Recurrent aphthous stomatitis (RAS). Students with several academic assignments influence the pattern. This study aimed to determine the relationship between sleep quality and RAS in dental students at Baiturrahmah University, Indonesia. This study used a cross-sectional approach. The data collection uses google form in 2022, which operates 73 samples with a simple random sampling technique, while data analysis uses a chi-square test. The results showed that the sleep quality was moderate in 53 people (72.6%), the highest incidence of RAS was negative in 44 people (60.3%), and there was no relationship between sleep quality and the incidence of RAS (p=0.526). The study concluded no association between sleep quality and RAS in dental students at Baiturrahmah University.

Keywords:- *Sleep Quality, SAR, Dentistry Students*

I. INTRODUCTION

Recurrent aphthous stomatitis is a recurring condition characterized by round or oval-shaped ulcers, usually gray or yellow (Akintoye and Greenberg, 2014). Recurrent aphthous stomatitis is a relatively mild disease because it is not life-threatening and contagious, but it is bothersome for some people, especially in function. Even with this disorder, mastication, swallowing, and speech can decrease body condition if it occurs for a long time with frequent occurrences (Preeti et al., 2011).

The etiology of RAS is not known with certainty, but several predisposing factors are thought to be associated with the occurrence of RAS. These factors include nutritional deficiencies, trauma, genetics, stress, hormones, and allergies. Literature states that sleep pattern factors are also suspected of triggering RAS (Rao et al., 2015).

Sleep is a basic need that everyone needs. Everyone needs adequate sleep so that the body can function normally. Sleep is a condition of an organism resting regularly and repeatedly and can return to a state where the threshold of stimulation to external stimuli is higher than the state of wakefulness (Irwin et al., 2016). Sleep consists of two stages: Rapid Eye Movement (REM), namely active sleep, and Non-Rapid Eye Movement (NREM). Nonrapid eye movement, namely quiet sleep, functions to repair the body's organs (Estefane, 2017). Rapid eye movement will affect the formation of new connections in the cortex and the neuroendocrine system leading to the brain. Nonrapid eye movement will affect the anabolic process and the synthesis of Ribonucleic Acid (RNA) macromolecules (Wulf, 2017).

Sleep quality disorders in Indonesia are not known for sure. Adolescents or adults who work have poor sleep quality. Many medical students do not consider sleep a top priority (Azad et al., 2015). Medical students are more exposed to and at risk of experiencing sleep disorders than other students due to the high demands of academic assignments. In addition, medical students are very vulnerable to sleep deprivation due to their long duration, high learning intensity, many tasks, and lifestyle choices (Chattu et al., 2018).

Dissatisfaction with sleep quality can be expressed as a complaint about a lack of sleep. Lack of sleep has a prevalence rate of between 20% to 41.7%, and approximately 17% have severe sleep disorders. Lack of sleep is associated with the immune system (immune). Individuals with a higher incidence of immunity will be susceptible to RAS (Roth, 2007). Sleep is also related to the secretion of hormones, such as growth hormone (GH) and adrenocorticotropic cortisol (Hirotsu et al., 2015). The peak of growth hormone secretion begins at night and lasts for several hours. Still, in individuals who experience sleep deprivation, the height of its secretion will be disturbed, affecting fibroblast proliferation, keratinocyte migration, and T cell differentiation (Abedelmalek et al., 2013). Reduced growth hormone secretion can increase growth hormone secretion—occurrence of RAS and delayed healing. Therefore, sleeping late can increase inflammation and allergic reactions, affecting RAS incidence (Shukur et al., 2021).

II. MATERIAL AND METHODS

A. Research design

The type of research used is descriptive research with a cross-sectional research design. The research sample was 73 dental students at Universitas Baiturrahmah, Sumatra Barat, Indonesia. The sampling technique in this study is Simple Random Sampling, a method for determining the sample by entering the population at random.

B. Subject Variables and Criteria

This study uses the independent variable is sleep quality, while the dependent variable is RAS. The inclusion criteria consisted of dental students who were active at Baiturrahmah University, besides being willing to be respondents in the study, who had a sleep duration of 6-8 hours per day, besides that the subject had a history of RAS in the last 1-3 months and respondents who returned informed consent. Exclusion criteria included respondents who did not complete the questionnaire and did not return the results of the questionnaire. In addition, including respondents who experience insomnia and RAS with hormonal disorders and trauma. Exclusion factors also include respondents who took sleeping pills within 1 (one) month before data collection

C. Google Form Settings

Researchers prepared a questionnaire in a google form and distributed informed consent to research subjects. The researcher shares a zoom link to the topic to guide the research. Next, the google form is distributed to the issue via zoom. The researcher gave 15 minutes to the subject to fill out the questionnaire (google form). The data obtained is then analyzed and presented in tables and percentages.

D. Statistical Analyses

The analysis was carried out in two approaches. In univariate analysis, the data that has been collected is processed and presented in the form of tables and percentages. While the bivariate data, the observational data obtained were statistically analyzed using SPSS 26. The statistical test used was chi-square to find the relationship between two variables to determine the relationship between sleep quality and RAS in research subjects.

III. RESULTS AND DISCUSSION

Table 1 reports the epidemiological data of the subjects, the most dominant gender being female (62 people; 84.9%) and male (11 people: 15.1%). The highest age was 21 years (58.9%), with the highest sleep quality in the moderate group (53 people; 72.6%) with SAR 29 people (39.7%) and without RAS 44 people (60.3%). Table 2 shows 73 subjects with positive RAS, 29 people (39.7%) more on moderate sleep quality, namely 21 people (28.8%). The chi-square statistical test obtained a p = 0.171 (p>0.05), meaning no relationship between sleep quality and RAS incidence.

Based on the research, the results obtained from 73 students at Baiturrahmah University, the sleep quality was moderate, namely 53 people (72.6%), light sleep quality was 15 people (20.5%), good sleep quality was three people (4.1%), and the least is poor sleep quality as much as two people (2.7%). The frequency distribution of the sleep quality variable in this study differs from the results of Altun et al., 2012. It was found that students were more dominant in having a poor sleep than good sleep quality. Sleep during lectures tends to worsen due to various external factors that can cause suppression of melatonin secretion, which can cause sleep disturbances (Altun et al., 2012).

Research on sleep quality by (Bianca, 2021)16 on the description of sleep quality of students of the Medical Education study program, Faculty of Medicine, Udayana University At the Preclinical and Clinical Stage, it was found that (74.8%) students had poor sleep quality,(Bianca et al., 2021) and research (Zaini, 2019) obtained quality The sleep quality of dentistry students at the University of North Sumatra towards RAS is relatively poor, namely (41.5%) (Zaini, 2019).

Variables	N	Frequency (%)
Sex:		
Male	11	15,1
Female	62	84,9
Ages (years):		
20	7	9,6
21	43	58,9
22	16	21,9
23	7	9,6
Sleep Quality:		
Good	3	4,1
Mild	15	20,5
Moderate	53	72,6
Bad	2	2,7
RAS Diseases:		
Negative	44	60,3
Positive	29	39,7

Table 1:- Distribution and frequency of variable subjects

Sleep quality is a person's level of satisfaction with sleep, including quantitative and qualitative aspects of sleep such as length of sleep, the time needed to fall asleep, frequency of awakening, and the depth and depth of sleep. A person is said to have good sleep quality if the person meets the following criteria: having more sleep time in bed (85%), being able to fall asleep within 30 minutes, waking up from sleep no more than once per night, and waking up during 20 minutes after falling asleep (Harvey et al., 2008). Poor sleep quality can have adverse effects on daily life, such as getting tired quickly, having difficulty staying focused and making decisions, irritability, and long-term effects such as heart problems and diabetes (Medic et al., 2017).

The results from 73 subjects show that most cases of RAS were negative. Namely, 44 people (60.3%) and 29 (39.7%) were positive for RAS. This study's results align with previous research conducted by Hutajulu (2021). Thirty-six respondents (27.7%) were positive for RAS, and 94 respondents (72.3%) were negative based on age (Hutajulu, 2021). It was found that of 73 students of Baiturrahmah, the most age is 21 years. Namely, 43 people (58.9%) and the most gender is female, 62 people (84.9%).

The results of this study support previous research by Rajmane (2017), which found the highest prevalence of RAS at the age of 20-29 years (56.94%). This age belongs to the age group of the second and third decades, the age of the most vulnerable person. Affected by RAS because that age is

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included in the adolescent age group and most of the people in that age group are students, the number of students affected by RAS is thought to be related to stress which is one of the predisposing factors for RAS (Rajmane et al., 2017).

This study reports that RAS is more common in women. Following research by Hutajulu (2021), RAS incidence is more common in women (30.3%). A higher incidence of RAS in women is often associated with hormonal imbalances. The luteal phase ages during the menstrual cycle (Hutajulu, 2021). The decrease in the hormones progesterone and estrogen levels in the luteal phase is thought to cause women to be susceptible to RAS. If there is a decrease in estrogen, the degree of epithelial keratinization tends to decrease so that the chances of developing RAS increase (Aritonang et al., 2017).

Sleep quality	Recurrent Aphthous **Stomatitis**						P-value
	Negative		Positive		Total		
	F	%	*F*	%	*F*	%	
Good	3	4,1	0	0	3	4,1	0,171
Mild	9	12,3	6	8,2	15	20,6	
Moderate	32	43,8	21	28,8	53	72,6	
Bad	0	0	2	2,7	2	2,7	
Total	44	60,3	29	39,7	73	100,0	

Table 2:- The Relationship Between Sleep Quality With The Incidence Of Recurrent Aphthous Stomatitis

The results were obtained from 73 students at Baiturrahmah University who experienced positive RAS as many as 29 people (39.7%) more on moderate sleep quality, namely 21 people (28.8%). The results of statistical tests using the chi-square test obtained a value of p = 0.171 (p> 0.05), meaning there is no relationship between sleep quality and the incidence of RAS in the subjects studied. This study's results differ from previous research conducted by Zaini (2019) (Zaini, 2019). The results obtained a relationship between quality of life and the incidence of SAR in dentistry students at the University of North Sumatra. Still, in line with research. (Maharani, 2016) found no relationship between sleep patterns and SAR in undergraduate students of the Faculty of Dentistry, Gadjah Mada University. This study shows that the predisposing factor of RAS experienced by students is not only one factor but can be triggered by several predisposing factors. RAS is caused by multifactorial, one of which can be caused by stress factors. According to research by Najla (2017), stress is the predisposing factor that causes the most RAS occurrence, as many as 126 people (50.2%) (Najla, 2017).

IV. CONCLUSION

Based on the research findings regarding the relationship between sleep quality and the incidence of RAS among students at Baiturrahmah University, it can be concluded that there is no statistically significant relationship between sleep quality and the incidence of RAS also was detected in two samples with poor sleep quality.

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