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THE RELATIONSHIP OF ANXIETY LEVELS WITH SLEEP QUALITY IN MEDICAL STUDENTS WHO ARE WORKING ON THESIS AT MULAWARMAN UNIVERSITY

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ABSTRACT

Thesis is a scientific work to get a degree. Problems or difficulties in preparing thesis can cause anxiety to students. Excessive anxiety will have an impact on increasing tension and difficulty in starting sleep. This difficulty will interfere with students getting good sleep quality. This study aims to determine the relationship of anxiety levels with sleep quality in medical students who are working on thesis at Mulawarman University. This study was an observational analytic study with cross-sectional design. The research sample was 62 samples. Samples were selected by purposive sampling. Data collection uses the Zung Self-rating Anxiety Scale to assess anxiety levels and Pittsburgh Sleep Quality Index to assess sleep quality. The results of this study show that most students have mild anxiety level of 31 students (50%) and poor sleep quality of 43 students (69.4%). The analysis test using Spearman showed that anxiety levels was related with sleep quality (p = 0,000), the value of the level of closeness was very strong (r = 0.898). Based on the results of this study it can be concluded that there is a relationship between the level of anxiety with sleep quality in medical students who are working on thesis at Mulawarman University.

Keywords: Anxiety Level, Sleep Quality, Thesis

INTRODUCTION

Higher education in Indonesia has been established and regulated in Government Regulation No. 12 of 2012[1]. The regulation states that, students are registered students and study at education units that carry out education at a higher level than secondary education in the school education pathway. Every activity and learning progress of students is assessed periodically in the form of semester exams and final exams of study programs and other forms of examinations in accordance with statutory provisions. Requirements for graduation of undergraduate programs at Mulawarman University (Unmul), which have made at least 1 (one) scientific article that is ready to be published and approved by the supervisor and has passed the thesis examination. Thesis is scientific writings of the results of research that describe a scientific phenomenon to answer simple questions. The main purpose of preparing a thesis, namely to train undergraduate students in making literature reviews, making observations, and writing reports that are scientific based on guidelines for writing the final project applicable to the Faculty in Unmul[2]. Thesis becomes the evaluation material of lecturers on student performance in the context of fulfilling graduate learning outcomes[3].

For final year students, thesis must be completed to end the period of education. It means students must complete the thesis to obtain a bachelor's degree. The problem is that many students are overwhelmed when making a thesis. These problems can arise for various reasons. It could be because students do not understand what is written and discussed in the thesis, it is difficult to add what is in their minds into writing, feel or consider the thesis as a heavy demand and burden. Most students who finish their studies late are not because they are hampered in completing their courses but because they are late completing their thesis[4]. A research result at the University of Michigan USA states that there are 15.6% of students who have not graduated experience anxiety disorders[5].

Anxiety is an internal warning tool that gives danger signals to individuals[6]. Anxiety can include feelings of worry, discomfort, uncertainty or feeling very afraid as a result of a threat or threatening feeling where the real source of anxiety is not known with certainty[7]. The prevalence of anxiety in the world population in 2015 was 3.6% and was more prevalent in women (4.6% world level) than in men (2.6% world level). In Indonesia the prevalence of people experiencing anxiety disorders as much as 3.3% (8.12 million people)[8]. In Skopje University Medical school in 2008, there were 65.5% of medical students experiencing symptoms of anxiety disorders with the highest prevalence distribution in female medical students as much as 69.2% compared to male medical students as much as 55% [9]. The results of the study at Stikes Aisyah Yogyakarta found a level of severe anxiety as much as 84.7%, and moderate anxiety as much as 10.2% in students who were working on thesis[10]. The results of the study at STIKES Muhammadiyah Klaten stated that 47.2% of students who were working on their thesis experienced mild anxiety[11]. Anxiety experienced by students can cause difficulties to think logically, increase motor activity, increase vital signs and difficulty sleeping[6].

Adults need time to sleep for 7-9 hours each night. Increases and decreases in sleep duration are associated with increased morbidity and mortality[12]. Prevalence of sleep deprivation ranges from 20% - 41% in the general population and poor sleep quality ranges between 8% - 18 , 5%[13]. Some problems experienced by students related to the quality and quantity of sleep that is lacking, namely: 1) takes more than 30 minutes to fall asleep (33%), 2) often wake up every night (43%), and 3) experience drowsiness or fatigue during the day day (33%)[14].

In the study of medical students in Brazil, 22% of the final semester students experienced drowsiness or were unable to maintain their waking conditions during the day[15]. Research in Taiwan found that as many as 49% of medical students experience less than 7 hours of sleep every night[16]. Research in Malaysia found that 35.5% of medical students were sleepy during the daytime and 16% experienced poor sleep quality[17]. Research in Lithuania obtained as many as 59.4% of medical students who experience poor sleep quality, this study compares sleep problems that occur in medical students with law and economics students. Medical students get the highest prevalence of lack of sleep and poor quality of life compared to a group of other majors students[18]. The result of the study at Stikes Aisyah Yogyakarta found that poor sleep quality was 94.9% for students working on thesis[10]. The results of the study at STIKES Muhammadiyah Klaten also stated that as many as 60.4% of students who were working on their thesis experienced poor sleep quality[11]. Poor sleep quality will cause impaired physiological and psychological balance. Physiological effects that occur due to poor quality of sleep, among others, a decrease in daily activities, fatigue, decreased endurance and instability of vital signs. Psychological effects that occur due to lack of good quality of sleep, including anxiety and concentration[19]. Based on the description above, researcher are interested in conducting research on the relationship between anxiety levels and sleep quality in medical students who are working on thesis at Mulawarman University.

MATERIAL AND METHOD

The design of this study was observational analytic with cross sectional method. This research uses primary data. The collection of primary data through the completion of two questionnaires that will be filled out by respondents based on existing instructions and guidance from researchers. The questionnaire used was the Zung Self-rating Anxiety Scale (ZSAS) questionnaire to assess anxiety levels and the Pittsburgh Sleep Quality Index (PSQI) to assess sleep quality. Sampling is done by purposive sampling. The analysis test uses Spearman to determine the relationship of anxiety levels with sleep quality in medical students who are working on thesis at Mulawarman University. This research was conducted in the Medical Education Study Program of the Faculty of Medicine, University. The variables examined in this study were the level of anxiety and sleep quality. The data obtained is tabulated according to frequency, distribution and percentage. Data processing and data presentation were performed using Microsoft Word 2010, Microsoft Excel 2010 and Statistical Product and Service Solution (SPSS) version 22.

RESULTS AND DISCUSSION

This research was an observational analytic study using data from the filling out of two questionnaires (ZSAS and PSQI), conducted by students of the Faculty of Medicine at Mulawarman University who were working on their thesis willingly to be respondents. Respondents will be selected according to the inclusion and exclusion criteria set by the researcher.

Table 1. General Characteristics

Characteristics	Frequency (f)	Percentage (%)
Male	12	19.4%
Female	50	80.6%
total	62	100%

Source: Primary data, 2020

Based on table 1, the number of samples obtained in this study according to inclusion and exclusion criteria was 62 respondents. The distribution of respondents by sex was dominated by women, with 50 students (80.6%).

Table 2. Distribution of Respondents based on Anxiety Levels

Anxiety Level	Frequency (f)	Female	Male
Normal	26	20	6
(%)	41.9%	32.3%	9.7%
Mild	31	26	5
(%)	50%	41.9%	8.1%
Severe	5	4	1
(%)	8.1%	6.5%	1.6%
Panic	0	0	0
(%)	0%	0%	0%
Total	**62**	**50**	**12**
Total (%)	**100%**	**80.6%**	**19.4%**

Source: Primary data, 2020

Based on table 2, the results of the analysis of anxiety levels in medical students who are doing thesis at Mulawarman University show that most students have mild to severe anxiety. The number of samples that have the most anxiety at mild anxiety levels is 31 students (50%) and as many as 5 students (8.1%) had severe anxiety. This is in line with the results of other studies on STIKES Aisyah Yogyakarta students who are working on thesis, using the same questionnaire and research design as this study, the ZSAS questionnaire, showing a level of severe anxiety (84.7%), moderate anxiety level (6.8%), and the level of anxiety panic as much (5.1%)[10]. Anxiety experienced by 50 female respondents as many as 30 respondents (60%) and anxiety experienced by 12 male respondents as many as 6 respondents (50%). Anxiety experienced by female respondents is mostly a mild anxiety level of 26 students (41.9%). The majority of male respondents experienced normal anxiety levels of 6 students (9.7%). Anxiety in female respondents is higher than male respondents. The results of this study are in line with other studies, namely from 94 respondents who were female, who experienced anxiety as many as 23 respondents (24%) and from 50 respondents who were male, only 6 respondents (12%) experienced anxiety[20]. Anxiety in female respondents is higher than male respondents. This happens because men and women have different levels of anxiety. Women tend to be more easily offended, very sensitive to their emotions, highlight their feelings and see life or events they experience in more detail, so they are more sensitive to feelings of anxiety[6]. Anxiety in women occurs due to fluctuations in estrogen and progesterone hormones in women which are believed to increase the body's response to stress thereby increasing anxiety susceptibility[21]. Estrogen has anxiogenic effects mediated by estrogen receptor α (ERα). Estrogen activity in ERα will increase hypothalamo-pituitary adrenal axis activity so that stress hormone secretion also increases[22].

Men have masculine characteristics that tend to be dominant, active, more rational, and do not accentuate feelings6. Men are psychologically different from women, where men tend to be more adaptable and have better coping mechanism (coping behavior) under stressful environmental conditions[23]. The presence of androgen hormones in men will inhibit hypothalamo-pituitary adrenal axis activity so that the secretion of stress hormones is also lower than in women[22].

Anxiety is a feeling of worry, anxiety, insecurity, in the form of subjective feelings with unclear causes, and associated with feelings of uncertainty and helplessness. Anxiety will make individuals spend their energy, cause anxiety, and prevent individuals from performing their functions adequately in situations interpersonal and social relations[24]. Mild anxiety is associated with mental stress which causes the individual to be alert and increase the perception of his field. In the condition of anxiety there is a decrease in the field of perception of the problem, focus more on the things that are important at the time and put aside other things. Severe anxiety makes individuals tend to focus on something detailed and specific and not think about anything else, the goal is to reduce the mental stress experienced. Individuals who experience severe anxiety require a lot of direction to focus on other areas[25].

Based on the results of the study there are still mild to severe anxiety problems among medical students who are working on their thesis at Mulawarman University. Problems or difficulties experienced by students while working on their thesis can cause mental stress and trigger anxiety. The obstacle that is often faced by students is finding problems, looking for effective titles, systematic proposal, difficulty finding literature or references, difficulty in working on research methods and data analysis[26]. Another obstacle to the completion of thesis completion, namely students do not understand what is written and discussed in the thesis, it is difficult to feel what is in his mind into a writing[4]. According to Hidayat, the obstacles experienced by students in the preparation of the thesis can develop into a negative attitude which can eventually lead to anxiety for students[27]. If this anxiety is experienced continuously for a long time and without any further treatment, it will negatively affect health[24]. Negative consequences arising, namely difficulty in thinking logically, increased motor activity, increased vital signs and difficulty sleeping[6].

Table 3. Respondents Distribution based on Sleep Quality

Sleep Quality	Frequency (f)	Female	Male
Good	19	14	5
(%)	30.6%	22.6%	8.1%
Poor	43	36	7
(%)	69.4%	58.1%	11.3%
Total	**62**	**50**	**12**
Total (%)	**100%**	**80.6%**	**19.4%**

Source: Primary data, 2020

Based on table 3, the results of sleep quality analysis of medical students who are working on their thesis at Mulawarman University show that most students have poor sleep quality of 43 students (69.4%), while good sleep quality is 19 students (30.6%). This is in line with the results of other studies on students of STIKES Muhammadiyah Klaten who are working on their thesis, using the same questionnaire as this study, the PSQI questionnaire also showed the same thing, most of the students experienced poor sleep quality (60.4%), and sleep quality good as much (39.6%)[11]. Based on the results of the study there are still problems of poor sleep quality among medical students who are working on their thesis at Mulawarman University. Sleep quality is the ability of individuals to be able to sleep and obtain the amount of rest in accordance with needs[28]. Poor sleep quality on respondents will result in physical and psychological health problems. Poor sleep quality is characterized by physical and psychological signs, such as dark areas under the eyes, swelling in the eyelids, redness of the conjunctiva and sunken eyes, excessive sleepiness (often yawning), inability to concentrate (lack of attention), and visible signs signs of fatigue such as blurred vision, nausea, and dizziness. Low quality of sleep can also result in emotional instability, lack of confidence, apathy, and decreased response, feeling unwell, lazy speaking, decreased memory, confusion, hallucinations, and visual or auditory illusions, decreased ability to give judgment or decisions[27].

Table 4. Spearman Test Relationship of Anxiety Levels to Sleep Quality

Anxiety Level	Sleep Quality				Total		*Coeffisient Correlation*	*P-value*
	Poor		Good					
	f	%	f	%	N	%		
Normal	7	11.3%	19	30.6%	26	41.9%	0.898	0,000
Mild	31	50%	0	0.0%	31	50%		
Severe	5	8.1%	0	0.0%	5	8.1%		
Panic	0	0%	0	0.0%	0	0%		
Total	**43**	**69.4%**	**19**	**30.6%**	**62**	**100%**		

Source: Primary data, 2020

Based on table 4, the results of the analysis related to the relationship of anxiety levels with sleep quality in medical students at Mulawarman University who were working on the thesis showed that of 62 respondents who conducted the study there were 31 students (50%) had mild anxiety levels with poor sleep quality, and there were 3 students (4.8%) had severe anxiety with poor sleep quality, and there were 7 students (11.3%) had normal anxiety levels with poor sleep quality. The cause of poor sleep quality in 7 respondents based on component data is the subjective sleep quality of respondents ranging from good enough to bad, most of the duration of sleep 5-6 hours each night, most of the latency of sleep is 15-40 minutes each night, often experience drowsiness when on the move in during the day and often experience disturbances during sleep (wake up in the middle of the night, feel cold, and have nightmares). In this study to get the results of the analysis of the relationship of researchers using the Spearman Test, this is very appropriate because the data taken are ordinal data, both data on independent variables and data on the dependent variable and have abnormal normality data testing. From the results of data analysis it is known that the p-value (0,000) <α (0.05). So it can be concluded that there is a meaningful or significant relationship between anxiety levels with sleep quality. The magnitude of the value of the level of closeness of the relationship between anxiety levels with sleep quality is equal to 0.898, this shows a very strong relationship between anxiety levels with sleep quality in medical students who are working on thesis at Mulawarman University.

The results of this study are in line with observational analytic studies with cross-sectional research designs and bivariate tests using Spearman on the Nursing Faculty students at Jember University, conducted by Hotijah, which is the same as this study which states that there is a significant relationship between anxiety levels and sleep quality with p = 0,000[29]. Another study on medical education students at the Faculty of Medicine, University of General Achmad Yani Cimahi, conducted by Fitriansyah using the same research design as this study revealed a significant relationship between sleep quality with anxiety levels with a p value = 0,000[30]. The results of this study are in accordance with the theory that excessive anxiety will make individuals think too hard, making it difficult to control their emotions which have an impact on increasing mental tension[31]. This mental tension causes difficulties to start sleeping[19].

The response of the autonomic nervous system to a stressor that causes anxiety, can cause involuntary activity in the body as a form of self-defense. Sympathetic nerve fibers activate vital signs whenever receiving a stressor. The adrenal glands release adrenaline (epinephrine) which can make the body need more oxygen , dilates the pupils and increases arterial pressure and increases heart frequency. When there is no parasympathetic stressor, the body will return to normal[6]. Anxiety increases the level of norepinephrine in the blood through the sympathetic nervous system, this chemical causes changes in the reduction of NREM and REM stage 4 sleep and increases the frequency of awakening during sleep. When the sleep cycle is reduced and regular headaches can affect sleep quality[32].

CONCLUSION

Based on research conducted by researchers, it can be concluded that:

1. Most medical students who are working on their thesis at Mulawarman University experience mild anxiety and none of the respondents experienced panic. Anxiety is experienced more by female respondents than male respondents.
2. Most medical students who are working on thesis at Mulawarman University experience poor sleep quality.
3. There is a significant relationship and a very strong closeness between the level of anxiety with sleep quality in medical students who are working on thesis at Mulawarman University based on the results of analytical calculations using Spearman rho'(p = 0,000; r = 0.898).

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