The Relationship between Stress Level and Insomnia in 8th Semester Students at Faculty of Public Health of Ahmad Dahlan University Yogyakarta

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Abstract— Stress is a body response emerging as a reaction to external demand that is considered dangerous or threatening. Sleep is a human basic need that must be fulfilled. Lack of sleep may lead to poor well-being. High level of academic stress can lead to poor quality of sleep resulting in insomnia. Insomnia may affect students' academic achievement index. Furthermore, severe stress can cause a person to behave negatively. This study examined the relationship between stress level and insomnia in university students. The research used correlative descriptive method with cross-sectional approach. The population of the study was 227 8th semester students. The sample selection technique was simple random sampling with a total of 162 students. The data collection instruments were questionnaire and data analysis by using Chi Square correlation test. The statistical test showed that there is a significant correlation between stress level and insomnia in 8th semester students with p= 0,001. Thus it can be concluded that there is a relationship between stress level and insomnia in 8th semester students at Faculty of Public Health of Ahmad Dahlan University Yogyakarta.

Keywords: stress, insomnia, student

I. INTRODUCTION

Going to colleges or other higher education institutions often change students' lifestyle as their social environment and autonomy also change. In addition, students face new demand in the college such as maintaining academic performance. The change in lifestyle and the burden from academic life influence students' well-being especially the latter. The pressure from academic life increases when students come at the end of their study as they are required to make a research called thesis or final project in order to graduate.

Stress is a response of a person's body towards external demand that is considered dangerous or threatening. Research shows that stress contributes 50-70 % to most diseases such as cardiovascular disease, hypertension, cancer, skin diseases, infections, and metabolic and hormonal diseases. A person who experiences severe stress may show signs of fatigue, headache, loss of lust, forgetfulness, confusion, nervousness, loss of sexual desire, digestive disorders, and high blood pressure. In general, stress is a pattern of reaction and general adaptation.

Reaction deal with internal or external stressors which can be real or unreal [1].

High level of stress is considered to be a burden of disease. According to World Health Organization (WHO) [2], there are 350 million people in the world experiencing stress and 1 million people die every year that signifies 3000 deaths every day due to suicide. The prevalence of severe mental disorder in Indonesia is 14.3% and as high as 18.2% in rural population. Regions with the largest case include Special Region of Yogyakarta, Aceh, South Sulawesi, Bali, and Central Java. High level of stress case in the Special Region of Yogyakarta can be found in college students that come to the city from various areas [3].

A study by Khamelina,2014 [4] found that majority of students who are preparing thesis experience moderate stress level with a prevalence of 78.6%. According to Gupita[5], students are likely suffering from stress when completing their academic tasks, facing exam, and adapting to lecture life and language differences. Other issues such as tuition fees, social assessment, time management, and individual assumptions towards final project completion also affect students' stress level. Final year students, especially, are prone to stress as they are pressured to finish their final project as a condition to obtain the degree. There are some studies that examined high level of stress among students who are working on the final project. A study by Abdulghani (2008) [6] that involved 494 participants in Saudi Arabia showed that the prevalence of stress on medical faculty students was 57% of which 21.5% experienced mild stress, 15.8% experienced medium stress, and 19.6% experienced severe stress. Another study conducted by Kusumaningrum (2013) [7] involving 75 students revealed that 77.3% experienced moderate stress, 16% experienced light stress, and 6.7% experienced severe stress.

Research conducted by Khoirunnisa '(2014) [8] revealed that one of the impacts of stress on students is insomnia. Insomnia is the most common sleep disorder and is a well-known public health problem. The results of research on sleep disorders in America showed that there was 35.4% incidence of insomnia in adults (over 18 years) (Lopes et al, 2012) [9]. According to The American Academy of Sleep Medicine, the prevalence of insomnia is about 30% in

adults, and about 10% of adults experience severe insomnia. Less than 10 percent of adults tend to have chronic insomnia. Some pressures or conditions may not be solved or resolved in such a short time that they may continue and cause insomnia. A person with insomnia can experience fatigue, furrows, irritability, daytime sleepiness, anxiety about sleep, lack of concentration, poor memory or forgetfulness, poor performance in school or workplace, lack of motivation or energy, headache or tension, abdominal pain, and even cause accidents at work or while driving [10].

Oryza (2016) [11] found that the prevalence of students experiencing stress in writing thesis was 51.9% while the incidence of insomnia was 44.4%. This indicates that students who were writing thesis can experience stress and in turn suffer from sleep disorders such as insomnia. College students face various obstacles when doing thesis. Some final year students who still take courses have difficulty dividing the time between doing college or thesis. Final students who are unable to cope with such condition will be prone to stress [12]. Zuama (2013) stated that students in semester 1 or 2 (first year) and semester 7 or 8 (year four) tend to experience stress [13]. Students of Public Health Faculty of Ahmad Dahlan University are also prone to stress. This is supported by preliminary study result where 83,33% students experienced medium-level stress, 16,67% student experienced severe stress, and 46,67% students experienced insomnia. Based on the result of preliminary study where the high level of stress and insomnia correlated, we were interested to study the relationship of stress level and insomnia on student of semester VIII at Faculty of Public Health, Ahmad Dahlan University Yogyakarta.

II. METHODS

The type of this research is quantitative. The design of the research is descriptive correlative that is a research conducted to identify something objectively and to determine the relationship between two variables. The time approximation method used in this study is cross sectional where the data concerning independent variable or risk and the dependent variable or the resultant variable will be collected in one time [14].

The population of this research was 227 students in semester VIII, Faculty of Public Health at Ahmad Dahlan University Yogyakarta. The sampling technique used in this study was simple random sampling that involved 162 students. The respondents were students of semester VIII in accordance with inclusion criteria.

The data collection tool in this research was PSS-10 (The Perceived Stress Scale) to identify stress level and KSBPJ-IRS (Insomnia Rating Scale) to identify the incidence of insomnia in semester VIII students of Faculty of Public Health at Ahmad Dahlan University Yogyakarta.

III. RESULTS

A. Result of Univariate Analysis

The characteristics of respondents in terms of sex, residence, parental status, and activities other than lectures are presented in Table 1.

TABLE I. FREQUENCY DISTRIBUTION OF RESPONDENT CHARACTERISTICS BY SEX, RESIDENCE, STATUS OF PARENTS, AND ACTIVITIES

Characteristics	Frequency	Percentage
Sex		
Man	26	16,05 %
Women	136	83,95 %
Total	162	100
Residence		
Hostel	1	0,62 %
Rented house	4	2,47 %
Boarding house	140	86,42 %
Home	17	10,49 %
Total	162	100
Status of Parents		
Married	157	96,91 %
Divorced	2	1,23 %
Others	3	1,85 %
Total	162	100
Activities Besides Lectures		
Work	9	5,56 %
Work And Organization	4	2,47 %
Lecture	1	0,62 %
Babysitting sister	1	0,62 %
Organization	28	17,28 %
Nothing	118	72,84 %
Business	1	0,62 %
Total	162	100

Source: Primary data, 2018

In terms of sex, respondents are dominated by women with a total of 136 (83.95%) while the number of male respondents is 26 (16.05%). Regarding residence, 140 respondents (86,42%) live in boarding house. 4 people (2,47%) live in a rent house, and 1 person (0,62%) live in dormitory. Then, as much as 17 (10.49%) live with their parents. The frequency distribution of respondent's characteristics based on the parent status are as follows. 157 (96,91%) respondents reported that their parents still married whereas the parent status of the respective respondent has 2 (1,23%), and the other is 3 (1,85%). In terms of activities other than lectures, 118 (72,84%) respondents stated that they do not have activities other than lectures while 9 (5,56%) people stated that they work. 4 (2.47%) respondents had both work and organizational activities, 1 lecture (0.62%), 1 parenting (0.62%), 28 organization (17.28%), and 1 (0.62%).

TABLE II. FREQUENCY DISTRIBUTION OF RESPONDENTS BASED ON STRESS AND INSOMNIA LEVEL

Research Variables	Frequency	Percentage (%)
Stress level		
Severe	9	5,56 %
Medium	138	85,19 %
Light	15	9,26 %
Total	162	100
Insomnia		
Insomnia	90	55,56 %
No Insomnia	72	44,44 %
Total	162	100

Source: Primary data, 2018

Table 2 shows the frequency distribution of students' stress level. There were 9 (5.56%) people who suffered severe stress, 138 (85.19%) experienced moderate stress level, and 15 (9, 26%) experienced light stress. In terms of insomnia, 90 (55.56%) respondents experienced insomnia while 72 (44.44%) others did not experience insomnia.

B. Results of Bivariate Analysis

Bivariate analysis was done using chi square test to determine the relation between stress level and insomnia on 8th semester students of Faculty of Public Health Ahmad Dahlan University Yogyakarta. The results are presented in Table 3.

TABLE III. RELATIONSHIP ANALYSIS BETWEEN STRESS LEVEL AND INSOMNIA

Stress Level	Incidence of Insomnia		PR (CI 95%)	p-value
	Yes	No		
Medium	88	59	4,49	
	59,86%	40,14%	(1,227-16,425)	0,001
Light	2	13	1	
	13,33%	86,67%		

Source: Primary data, 2018

Table 3 shows that students who had moderate level stress tend to experience insomnia rather than those who did not (59,86%). In addition, students with mild stress have even lower insomnia rate. The results of Chi square test show that there is a significant relationship between stress level and the incidence of insomnia on the semester VIII students of Faculty of Public Health Ahmad Dahlan University, Yogyakarta. Ho is rejected while Ha is accepted with p value (0.001) <(0.05). In addition, students who experience stress are 4,490 times more at risk to experience insomnia rather than students who are not experiencing stress.

IV. DISCUSSION

A. Stress level in 8th Semester Students of Faculty of Public Health Ahmad Dahlan University Yogyakarta

The results of the research showed that 138 students had medium stress level (85,19%), 15 students (9,26%) had mild stress, and 9 students (5,56%) had severe stress. Thus, it can be seen students' stress are largely at moderate level. This is in accordance with research conducted by Wulandari, et al (2017) in which most students (67) had moderate level stress. Moderate stress is a stress that occurs from several hours to several days (<6 months) [15]. Students of semester VIII might experience stress due to internal factors and external factors. The most dominant internal factor is intellectual intelligence [16]. The research conducted by Muldianto, et al (2015) showed that the difficulty in writing thesis can lead to stress. Such stressors can be caused by the difficulty in getting references, limited time of research, repeated revisions, difficulty in finding themes, titles, samples, and measuring tools to be used in research. The most dominant external factor is social environment. Some studies indicate that students who do not live with parents such as living in boarding house or dormitory experience stress [17]. This is in line with research conducted by Sari who revealed that there is a relationship between family support and student's stress level in the preparation of the thesis. Further, the higher the level of family support, the lower the stress level on the students [18].

B. Insomnia Case in 8th Semester students of Faculty of Public Health University Ahmad Dahlan Yogyakarta

The results showed that 90 respondents (55.56%) experienced insomnia while 72 respondents (44.44%) did not. This suggests that more students experienced insomnia than those who were not. Internal factors that can cause insomnia include illness, psychological stress, and anxiety [19]. This is in line with Susanti's research (2015) who showed that a disease suffered by a person can affect his/her quality of sleep [20]. In addition, according to Ernawati [21], there is a significant relationship between lifestyle and insomnia. Lifestyle such as smoking habit can also affect the incidence of insomnia in students. Mushoffa et al. (2013) stated that there is a relationship between smoking behavior with the incidence of insomnia [22].

C. Relationship between Stress Level and The Incidence of Insomnia in 8th Semester Students of Faculty of Public Health Ahmad Dahlan University Yogyakarta

The results of this study also answered the initial hypothesis that has been made by the researcher that there is a relationship of stress level with the incidence of insomnia in VIII student of Faculty of Public Health University Ahmad Dahlan Yogyakarta. Based on the calculation using chi-square formula, the value of correlation coefficient is 4,490 and the significancy level is p 0,001 (p <0,05) hence Ho refused and Ha accepted. It indicates that there is relationship between stress level and insomnia on 8th semester students of Faculty of Public Health Ahmad Dahlan University Yogyakarta. In addition, students who experience stress are 4,490 times at risk to experience insomnia than students who are not experiencing stress. This result is in accordance with research conducted by Oryza (2016) where the result showed a significant result between stress levels and the insomnia in students. A study conducted by Waqas.et al. (2015) showed the same result in which there is a significant relationship between stress and insomnia [23]. This shows that most 8th semester students of Faculty of Public Health, Ahmad Dahlan University Yogyakarta stressed because of academic demands such as completing the thesis on time thus experiencing insomnia.

V. CONCLUSION

The results of research at the Faculty of Public Health, Ahmad Dahlan University Yogyakarta can be summarized as follows: In terms of stress level, 138 respondents (85.19%) experienced moderate stress, 15 respondents (9,26 %) experienced mild stress, and 9 respondents (5.56%) experienced severe stress. There was no respondent who did not experience stress (0,0%). Regarding insomnia, the results show that 90 respondents (55.56%) experienced insomnia while 72 others (44.44%) did not experience it. In general, the results of this study indicate that there is a relation between stress level and insomnia on 8th semester student at Faculty of Public Health Ahmad Dahlan

University Yogyakarta with p-value 0,001 (p-value <0,05) and coefficient correlation value 4,490. Thus, it can be concluded that stressful students are 4,490 at risk to experience insomnia than students who are not experiencing stress.

Further study needs to be carried out to find the solutions regarding stress or insomnia among students. Students who are experiencing stress due to final project should remain positive about what they are experiencing. Positive thinking will lessen the stress and reduce the risk of experiencing insomnia.

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