RESEARCH

The Relationship Between the Anxiety Level and Menstruation Cycle of Female Undergraduate Students Majoring in Medicine of Andalas University in 2019

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Abstract

Background: The medical education system is known as a stressful environment that might cause anxiety for the students. Student at the pre-clinical last degree (fourth degree) are also required to do a thesis so that the final year students will had anxiety even though they have adapted to the lecture environment. Anxiety can influence fluctuation Folikel Stimulating Hormone (FSH) and Lutenzing. Hormone (LH) level until the proliferation and secretion process indicate shorten or elongated that cause disruption on the menstruation cycle.

Objective: To determine the relationship between anxiety level and menstrual disruption to student the fourth degree at Faculty of Medicine in Andalas University.

Method: This research was an observational analytic with a cross-sectional approach. This research was done by a guided interview to 137 female medical students the last degree at Faculty of Medicine in Andalas University. The anxiety level was measured by using the Taylor Minnesota Anxiety Scale (TMAS) questionnaire while the menstrual disruption was acceded by using a menstruation questionnaire.

Results: The univariate analysis showed 47.4% of the respondents had a low anxiety level, 19% of the respondents had a middle anxiety level, and 33.6% of the respondents had a serious anxiety level. Meanwhile, the study also showed that 76.6% of the respondents had normal menstrual patterns, while 10.2 % of them were having polymenorrhea. The statistical analysis Chi-square showed p-value was 0.232 (p > 0.05).

Conclusion: The conclude that there was no significant relationship between anxiety level and menstrual disruption to student the last degree at Faculty of Medicine in Andalas University

Keywords: stress, anxiety level, menstruation disruption

INTRODUCTION

Anxiety is a feeling of fear that is thorough, unpleasant, vague, and often comes with autonomic symptoms, such as headache, palpitation, ligh gastric disorder, or sweating. Anxiety is a respond to a certain threatened situation and a normal thing to occur that goes

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along with the development, change, and new experience that have never been done, and also in determining the self-identity and meaning of life.[1]

Basic Health Research (*Riset Kesehatan Dasar, shortened to Riskesdas)* in 2018 showed that 9,8% of people with an age range 15 years above in Indonesia experience an anxiety. In other words, 25,97% of population in Indonesia experience an emotional mentality disorder that is shown by anxiety symptoms. Besides that, the emotional mentality disorder to women is higher than men. Meanwhile, in West Sumatra there was a higher prevalence than the national prevalence, which 13,5%.[2]

Chandratika & Purnawati (2014) stated that medicine students also have a high anxiety level because of their important roles in their field.[3] Medicine education is known as a stressful environment that gives a negative impact to the process of academic, physical health, and students psychosocial. Therefore, Singh (2013) concluded that medicine students have higher anxiety, depression, and stress level than the general population in the same group with the same age group.[4]

In the last stage of a pre-clinic (fourth stage) of a Undergraduate programme majoring in Medicine, students are required to work on a thesis or final project, so the senior level students will experience anxiety even though they have adapted to the study environment. A thesis becomes a fear to the senior level students since working on thesis is not an easy thing and thesis is worked on while doing the block as usual. Therefore, their minds are divided into thesis and the blocks they are currently doing.[5]

Students must be able to overcome the anxiety, so they can finish their thesis well. Yet, in the reality, students are unable to overcome their anxiety. This caused their thesis to be delayed and create an anxiety feeling.[6] These factors are potential to be the causation of the thesis delay and it will lead to anxiety to the senior level students since there are many things that must be prepared in order to graduate and obtain a Bachelor's degree in Medicine.[5]

Menstruation is a blood discharging because of the shed o the endometrium that contains a lot of blood vessels.[7] The menstruation cycle is the time since the first day of the menstruation to the other menstruation in the next month. Meanwhile, the length of the menstruation cycle is the gap between the date of the previous menstruation started and the date of the menstruation in the current month. Normally, the menstruation cycle of a woman is approximately 21 – 35 days and only 10 – 15% of them have 28 days of the menstruation cycle with the menstruation period 3 - 5 days, and there are some of them whose menstruation period is 7 – 8 days. Kusmiran (2013) said, the factors that affect the menstruation cycle are body mass, physical activities, stress and anxiety, diet, environmental exposure and working environment condition, social and environment interactions.[9]

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METHODS

This research is an observational analytic with *cross sectional* research design. It was done in November 2019. The population of this research is all 4th year female Undergraduate students of Faculty of Medicine at Andalas University in an education year 2019/2020. The inclusion criteria of the research is all 4th year female students who were present in the research and willing to be the research respondents. Meanwhile, the exclusion criteria of the research is students who did not completely fill the questionnaire, informer consent form, and those who forgot their menstruation cycle in the past 3 months. The subject that will be research is 71 people. The sampling technic used in the research is probability method where samples were chosen through a *proportial simple random sampling.* Each individual of the sample population has the same chance to be the research sample.[12]

The variable of the research consists of the independent variable, which is 4th year female Undergraduate students of Faculty of Medina at Andalas University while the dependent variable is the students' anxiety.

The anxiety is measured through *The Taylor Minnesota Anxiety Scale* (TMAS) questionnaire that has 50 questions in statement forms. The questions illustrate the tendency of someone experiencing an anxiety. The researcher divides the anxiety into three levels:

1. Score <20: Light Anxiety
2. Score 20-25: Moderate Anxiety
3. Score >20: Heavy Anxiety

The menstruation cycle is measured through a menstruation cycle questionnaire. The researchers categorize the menstruation cycle patterns into 4 categories:

1. Regular cycle if the menstruation cycle is around 21 – 35 days
2. Short cycle (*polymenorrhagia)* if the menstruation cycle is < 21 days
3. Long cycle (*oligomenorrhagia*) if the menstruation cycle is > 35 days
4. Secondary Menorrhagia if no menstruation occurred for at least > 90 days / 3 months in a row after *menarche*.

The data analysis of this research uses univariate analysis to see the frequency distribution and bivariate analysis to see the relationship between the independent and dependent variables using *chi square test* with a significant degree (α) 0,05. If *p-value<α*, it means that there is a meaningful relationship between 2 variables.

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RESULTS AND DISCUSSION

Univariate Analysis

This research was done in November 2019 in the Faculty of Medicine Andalas University. The research subject is 181 female students of batch 2016. The data is generated from the questionnaire spreading and there are 145 people who filled up and returned it. From that number, 137 questionnaires fulfill the inclusion and exclusion criteria to be used for the research sample.
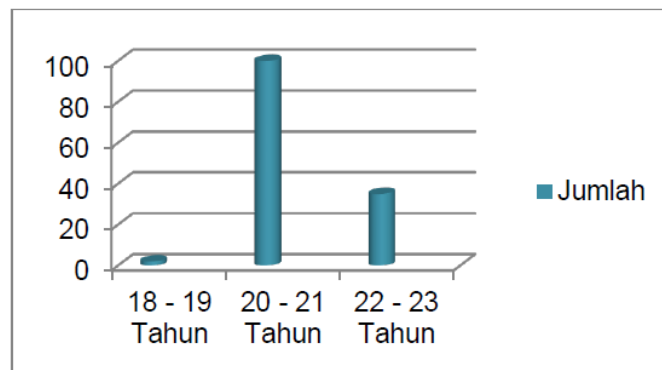

Figure 1. Frequency Distribution of Age Fourth Level Undergraduate Students of Medicine, Faculty of Medicine, Andalas University in 2019

Based on the picture above, the research respondent age is between 18 and 23 years old, with the most range 20 – 21 years old. There are 100 respondents.
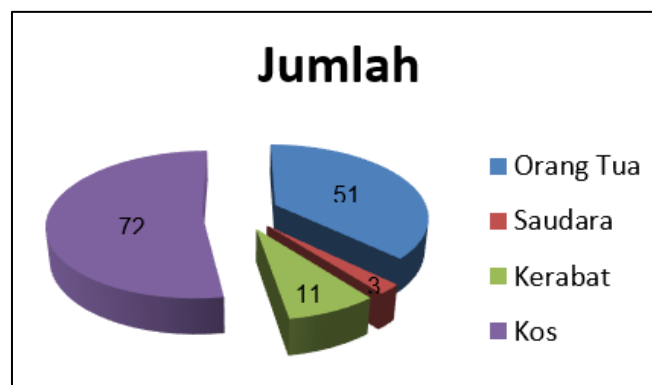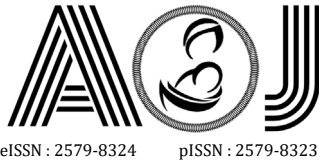

Figure 2. Frequency Distribution of Residence for Level Four Undergraduate Students of Medicine, Faculty of Medicine, Andalas University in 2019

It is obtained more than a half of the respondents live independently and separated from their family. In the respondents' data, the 52,6% or 72 respondents live in the boarding house.

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Table 1. Frequency Distribution of Anxiety Levels for Level Four Undergraduate Students of Medicine, Faculty of Medicine, Andalas University in 2019

Anxiety Level	N	%
Mild	65	47,4
Moderate	26	19
Severe	46	33,6
Total	137	100

Based on the table above, the anxiety level that is often experienced by the 4th year female students is the light anxiety, 65 students or 47,4% experience this. 46 students or 33,6% experience a heavy anxiety and the last one, 26 students or 19% experience the moderate anxiety.

Table 2. Frequency Distribution of Menstrual Cycles for Fourth Level Undergraduate Students of Medicine, Faculty of Medicine, Andalas University in 2019

| Menstrual Cycles	N	%
Polymenorrhea	14	10,2
Normal	105	76,6
Oligomenorrhea	13	9,5
Secondary Amenorrhea	5	3,7
Total	137	100

Based on the table above, after combining the respondent groups that suffer from the menstruation cycle, such as polymenorrhagia, oligomenorrheic, and secondary amenore , it shows that not until a half of the respondents (23,4%) suffer from the menstruation cycle disorder. The ones who suffer from the polymenorrhagia menstruation cycle disorder has got the biggest percentage, which is 10,2% or 14 respondents.

Bivariate Analysis
Bivariate analysis is performed to evaluate the differences of each variable using a *chi-square* statistic examination with a significant degree (α)0,05.

Table 3. The Relationship between Anxiety Level and Menstrual Cycle in Fourth Level Undergraduate Students of Medicine, Faculty of Medicine, Andalas University in 2019

Anxiety Level	Menstrual Cycles				Total		p-value
	Regular		Irregular				
	N	%	N	%	N	%	
Mild	54	51,4	11	34,4	65	47,4	
Moderate	18	17,2	8	25	26	20	0,232
Severe	33	31,4	13	40,6	46	33,6	
Total	105	100	32	100	137	100	
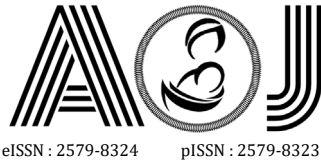
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Based on the table above, it is known that among 137 respondents, 105 respondents (76,6%) experience the regular menstruation cycle while the rest 32 respondents (23,4%) experience the irregular menstruation cycle. Besides, the most anxiety level that is suffered by the respondents with irregular menstruation cycle is the heavy anxiety level, 13 respondents (40,6%).

The *chi-square* examination result from the table above shows that *p-value* (*person chi-square*) score is 0,232 (p-value > 0,05). It shows that there is no meaningful relationship between the anxiety level and the menstruation cycle to the 4th year Undergraduate students of Faculty of Medicine Andalas University in 2019.

DISCUSSION

Based on the research result, it shows that the respondent age in this research is in the range of 18 – 23 years old and dominated by those who are 21 years old. The data obtained based on the Greta research (in Lovani C, 2019) states that the average of the undergraduate students age is 18 -24 years old.[13] This age shows that respondents have experienced menstruation, based on the Riskesdas data in 2010 that states woman whose age is > 13 years old has experienced menarche.[14]

The research result shows that more than a half of the total population lives in a boarding house. It is possible to affect the anxiety level of the respondents. This statement is supported by the research result that is done to the Faculty of Medicine students of UNILA. It shows that more than a half of the respondents who live in a boarding house have an anxiety.[15] Someone who lives separately from the family during the college time often experiences the academic competition, economic problem, difficulties to handle a time management independently. Therefore, it becomes a stressor to the student.[13] If someone does not have an adequate adaption skill toward the stressor enhancement, it can cause an anxiety toward a student.[16]

The analysis result about the distribution of the anxiety level to the 4th year undergraduate students of Faculty of Medicine Andalas University shows that more than a quarter respondent experiences a heavy anxiety. Meanwhile, the most anxiety levels are light anxiety and the last one moderate anxiety. The high number of the anxiety to these Faculty of Medicine undergraduate students is caused by many factors. The Faculty of Medicine students have to follow the tight lecture schedules, tutorial activities, practicum, skills lab, and the demand to do a self-study out of the lectures time. Hence, the pressure and burden to the physical and mental conditions of the students is heavier than other education fields.[17]

This goes along with the research done by Ariana (2016) about anxiety to her students in the Faculty of Medicine Tanjungpura University, Pontianak who will do the thesis defense. It is obtained that most of the students experienced anxiety.[18] The suitability of the research
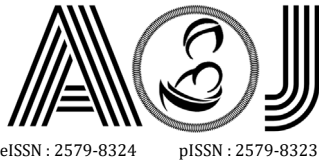
perhaps occurs because there is a characteristic similarity of the respondents. The respondents are the final year students of pre-clinic Faculty of Medicine.

Based on the research result, it is obtained that less than a half of the respondent experiences irregular menstruation cycle, with a polymenorrhagia menstruation cycle disorder. This disorder has the most percentage. This goes along with the research done by Lovani C (2019) to the final year students of pre-clinic Faculty of Medicine Andalas University. It shows that almost a half of the respondents experiences a menstruation disorder.[13] The similarity of the research perhaps occurs because there is a similar respondent characteristics, which is undergraduate student of Faculty of Medicine Andalas University. A menstruation cycle that is considered as normal if it happens with an interval 22-35 days (from the first day to the beginning of the next menstruation period). If it is less or more than the normal menstruation cycle, it can be classified to the irregular menstruation cycle. The menstruation cycle disorder generally occurs in the beginning and the end of the reproductive period, which is below 19 years old and above 39 years old.[19]

The *chi-square* examination result from the table above shows that *p-value* (*person chi-square*) score is 0,232 (p-value > 0,05). It shows that there is no meaningful relationship between the anxiety level and the menstruation cycle to the 4th year Undergraduate students of Faculty of Medicine Andalas University in 2019. This does not go along with the research done by Saodah I (2018) to the final year students of Faculty of Nursing Islamic University of Sultan Agung Semarang that states there is a meaningful relationship between the anxiety level and the menstruation cycle. [20]

These different results can be affected by some factors, one of them is respondent factors. Even though the students are exposed to the same risk factors, it does not guarantee that all students will show the same adaptation responds and anxiety leves.

Besides, the menstruation disorders are also affected by the body mass, physical activities, stress, diet, and environment exposure also the working / studying condition.[9]

This can cause the anxiety disorder with a regular / normal menstruation cycle to the respondents.

CONCLUSION

There is no meaningful relationship between the anxiety and the menstruation cycle to the fourth-year undergraduate students of Faculty of Medicine Andalas University.
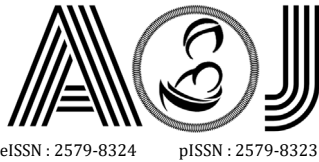
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