CORRELATION OF STRESS LEVEL WITH MENSTRUAL CYCLE REGULARITY IN STUDENTS OF THE FACULTY OF MEDICINE, WIDYA MANDALA CATHOLIC UNIVERSITY, SURABAYA

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ABSTRACT

Introduction: The impact of irregular menstruation can be serious if not treated quickly. Irregular menstruation can be a sign that the cycle they are going through is not ovulating so a woman who experiences this tends to have difficulty having children. The cause of irregular menstrual cycles can be due to several factors, including hormonal changes caused by stress.
Objective: To determine the relationship between stress levels and menstrual cycle regularity in female students at the Faculty of Medicine, Widya Mandala Catholic University, Surabaya.
Method: The design used in this research is observational analytic with a cross-sectional study approach. The total sample for this study was 116 respondents taken using simple random sampling techniques. Data collection was carried out online using a Google form which contained a questionnaire related to stress levels and menstrual cycle regularity.
Results: Most respondents experienced moderate stress, 49.1%, and 50.9% experienced irregular menstrual cycles. Based on the results of statistical tests using the Spearman correlation test, the values obtained were p = 0.000 and r = - 0.938, which shows that there is a negative and significant correlation between stress levels and menstrual cycle regularity in students at the Faculty of Medicine, Widya Mandala Catholic University, Surabaya.
Conclusion: There is a relationship between stress levels and menstrual cycle regularity in female students at the Faculty of Medicine, Widya Mandala Catholic University, Surabaya.

Keywords: Stress, menstrual cycle, stress level, menstrual cycle regularity

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INTRODUCTION

Menstrual cycle disorders consist of amenorrhea, oligomenorrhea, and polymenorrhoea. Amenorrhea is divided into primary amenorrhea and secondary amenorrhea.[1,2] The impact of irregular menstruation can be serious if not treated quickly, irregular menstruation can be a sign that the cycle is unovulatory (not ovulating) so a woman who experiences This tends to make it difficult to have children.[3]

The results of Basic Health Research (RISKESDAS 2010) show that as many as 68% of women in Indonesia aged 10 to 59 years experience normal menstrual cycles and 13.7% experience abnormal menstrual cycle disorders.[4] The causes of irregular menstrual cycles are caused by several factors including hormonal changes caused by stress.[5] Stress is the pressure that occurs due to discrepancies between situations and desired expectations, where there is an imbalance between environmental demands and the skills each individual has to fulfill them.[6] When stressed, the hypothalamus will secrete Corticotropic Releasing Hormone (CRH). CRH can trigger the secretion of Adenocorticotropic Hormone (ACTH) from the anterior pituitary. Then, ACTH will trigger the adrenal cortex to secrete cortisol.[7] Cortisol has a role in inhibiting the release of Luteinizing Hormone (LH).[1]

Stress can occur in students who are studying medicine or the medical profession. The cause of stress in medical students can occur due to stressors originating from within or outside. Stressors that cause stress in medical students consist of stressors related to academics, intrapersonal, and interpersonal stressors.[8] This is research conducted by Achmad et al (2021) on students from the 2017 Faculty of Medicine, Indonesian Christian University, showing that the highest stressors experienced by female students are stressors related to academics, followed by stressors related to intrapersonal and interpersonal relationships. The results of Achmad et al's research in 2021 also found that as many as 55.8% of female students experienced severe stress and 32.7% experienced irregular menstrual cycles.

In this study, it was found that there was a significant relationship between stress levels and the regularity of the menstrual cycle.[9] However, research carried out by Fitriani et al (2021) on students from the Medical Study Program, Faculty of Medicine and Health, Muhammadiyah University, Jakarta, showed that the majority of female students experienced stress. (55.5%) where 25% experienced menstrual cycle

disorders while the other 31% experienced normal menstrual cycles. This shows that the incidence of stress among students at the Faculty of Medicine and Health, Muhammadiyah University, Jakarta is quite high, but the impact of stress on menstrual cycle disorders is low. In this study, there was no significant relationship between stress and menstrual cycle disorders.[10]

Menstrual cycle disorders are an important indicator that can describe changes in ovarian function.[11] Based on this background, researchers are interested in examining whether stress levels are related to menstrual cycle regularity disorders in female students at the Faculty of Medicine, Widya Mandala Catholic University, Surabaya.

METHOD

The design used in this research is observational analytics with a cross-sectional study approach. The population used in this research were students from the Faculty of Medicine, Widya Mandala Catholic University, Surabaya. The sample used in this research was students from the Faculty of Medicine, Widya Mandala Catholic University, Surabaya who were still active and met the inclusion and exclusion criteria. The sampling technique used in this research is probability sampling, namely simple random sampling. This research was taken using a stress questionnaire created by the researcher himself by referring to the statement by Ross et al (2008) in research conducted by Musabiq et al (2018) regarding examples of stressors that are divided into intrapersonal, interpersonal, environmental, and academic stressors which have been modified. by researchers.[12]

The classification of stress levels in this study was divided into mild stress, moderate stress, and severe stress. This study also used a questionnaire related to the menstrual cycle based on the theory of Anwar et al by asking whether the menstrual cycle was regular within a period of 21 to 35 days.[1] Both variables in this study used an ordinal scale so this study used data analysis techniques in the form of the Spearman correlation test and data processing using the Statistical Product and Service Solution (SPSS) application

RESULT

Based on the results of data collection carried out by researchers, a sample distribution was obtained based on the stress level of 116 respondents.

Table 5.1 Sample distribution based on stress level.

Stress Level	Frequency (n)	Percentage (%)
Mild Stress	56	48,3%
Moderate Stress	57	49,1%
Severe Stress	3	2,6%
Total	116	100%

Table 5.1 shows that 56 people experienced mild levels of stress (48.3%), 57 people experienced moderate levels of stress (49.1%), and 3 people experienced severe levels of stress (2.6%).

Table 5.2 Sample distribution based on menstrual cycle regularity.

Menstrual Cycle	Frequency (n)	Percentage (%)
Regular	57	49,1%
Irregular	59	50,9%
Total	116	100%

Table 5.2 shows that 59 respondents (50.9%) had irregular menstrual cycles, while 57 respondents (49.1%) had regular menstrual cycles.

Table 5.3 Relationship between stress levels and menstrual cycle regularity.

Stress Level	Menstrual Cycle Regularity				Total	
	Irregular		Regular			
	(n)	(%)	(n)	(%)	(n)	(%)
Mild	1	0,9%	55	47,4%	56	48,3%
Moderate	55	47,4%	2	1,7%	57	49,1%
Severe	3	2,6%	0	0,0%	3	2,6%
Total	59	50,9%	57	49,1%	116	100%

Based on Table 5.3 regarding the relationship between stress levels and the regularity of the menstrual cycle, data shows that 56 respondents experienced mild stress, of which 1 person experienced an irregular menstrual cycle and 55 other people experienced a regular menstrual cycle. 57 respondents experienced moderate stress, of which 55 people experienced irregular menstrual cycles and 2 other people experienced regular menstrual cycles. Meanwhile, 3 respondents experienced severe stress, of which 3 people experienced irregular menstrual cycles.

Table 5.4 Spearman correlation test results

Variable	*Correlation Coefficient* (r)	p-value	Frequency (n)
Stress Level	-0.938	0.000	116
Menstrual Cycle Regularity			

The results of statistical tests using the Spearman correlation test from data on stress levels and menstrual cycle regularity show a value of p = 0.000 and r = - 0.938. This means that: there is a negative and significant correlation between stress levels and the regularity of the menstrual cycle in female students at the Faculty of Medicine, Widya Mandala Catholic University, Surabaya. The results of this research indicate that the hypothesis proposed is correct.

DISCUSSION

The results of the study showed that: 56 female students experienced mild stress, only 1 experienced an irregular menstrual cycle, while 55 of the 57 female students experienced moderate stress and 3 of the female students who experienced severe stress experienced an irregular menstrual cycle. This is because mild stress does not damage physiological aspects or disease unless faced continuously, whereas moderate stress and severe stress have a risk of disease and can affect a person's health.[13]

This research is in line with research conducted by Achmad et al (2021) which shows that there is a significant relationship (p=0.006) between stress levels and the menstrual cycle in students at the Faculty of Medicine, Indonesian Christian University class of 2017. (9) What is different about this research namely, that research conducted by Achmad et al (2021) found that more female students experienced severe levels of stress compared to those who experienced mild, moderate, or very severe stress. These differences could be due to differences in the instruments used or differences in underlying stressors. The questionnaire used by Achmad et al (2021) is the Medical Student Stressors Questionnaire (MSSQ) with the stressors used namely Academic Related Stressors (ARS), Intrapersonal and Interpersonal Related Stressors (IRS), Teaching and Learning Related Stressors (TLRs), Social Related Stressors (SRS), Drive and Desire Related Stressors (DRS), Group Activities Related Stressors (GARS) and the number of items in the questionnaire is 40 question items.[14]

Meanwhile, in this study, researchers used a self-made questionnaire with only 15 items and there were four stressor domains, namely intrapersonal, interpersonal, environmental, and academic stressors.

Research that is not in line with the researcher's research is that conducted by Fitriani et al (2021). The results of this study showed that there was no significant relationship (p=0.0717) between stress and the menstrual cycle in students of the Medical Study Program, Faculty of Medicine and Health, Muhammadiyah University, Jakarta, class of 2019.[10] In this study, the results were found to be 55.5 Only 25% of female students who experienced stress experienced menstrual cycle disorders, in contrast to research conducted by researchers where 96.6% of female students who experienced moderate and severe stress experienced menstrual cycle disorders.

The results of this study are in accordance with the theory which explains that when stress occurs the release of the hormone cortisol, where the hormone cortisol has a role in inhibiting the release of LH. This can lead to an imbalance of hormones that play a role in the menstrual cycle, namely oestrogen and progesterone, resulting in disturbances in the menstrual cycle.[1,7] Meanwhile, Fitriani et al's research does not match this theory where many female students experience stress but few female students experience menstrual cycle disorders. This can be caused because stress is one of the factors that causes menstrual cycle disorders, there are still many factors that can cause menstrual

cycle disorders such as age, drugs, intrauterine devices, pregnancy, pregnancy disorders, and genetic disorders.[8] What differentiates the previous research from that carried out by the researcher is also the stress instrument used, where in the previous study the Depression Anxiety Stress Scale 42 (DASS 42) instrument was used, so that the research results obtained from the two studies above are the same as the research carried out by the researcher. may also experience differences.

One of the impacts of menstrual irregularities is infertility (difficulty in having children) which can play a role in the bio-psycho-social well-being of those who experience it.[3] In addition, the impact of menstrual cycle disorders has been associated with an increased risk of diseases such as ovarian cancer and breast cancer. This is because increased exposure to the hormone estrogen can increase the risk of breast cancer, and increased estrogen hormones influence accelerating proliferation resulting in malignant transformation of the ovarian epithelium.[15,16]

CONCLUSION

Based on the research results, it was found that the majority of students at the Faculty of Medicine, Widya Mandala Catholic University, Surabaya experienced moderate levels of stress, and most also experienced menstrual cycle disorders. This shows that the impact of stress that is not controlled properly can disrupt the menstrual cycle. The results obtained from research that has been conducted regarding the relationship between stress levels and menstrual cycle regularity show that there is a negative and significant correlation between stress levels and menstrual cycle regularity in female students at the Faculty of Medicine, Widya Mandala Catholic University, Surabaya.

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