THE EFFECT OF STRESS LEVEL ON MENSTRUAL CYCLE IN FINAL STUDENTS AT THE FACULTY OF HEALTH SCIENCES UNIVERSITY OF APRIL ELEMENT

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Article Info	ABSTRACT
	Menstruation or as know as haid in Indonesia is physiological changes in a woman's body that occur periodically and are influenced by reproductive hormones. Stress is a physiological and behavioral response of humans trying to regulate and adapt to both internal and external stresses. Physical activity is any form of body movement produced by skeletal muscles that requires energy. There are two variables in this research, namely the independent variable and the dependent variable. The type of this research is quantitative research that is descriptive cross sectional. The results of the statistical tests used univariate analysis and bivariate analysis using the Uji Chi-Square Test to determine the relation between the variables studied. This research shows that there is a significant relation between stress levels and menstrual cycle patterns with the acquisition of p-value 0,006, and there is no significant relation between physical activity and menstrual cycle patterns with p-value 0,092. The results of the research, it can be concluded that the stress level variable has a relation with the menstrual cycle pattern in female students in Faculty of Ilmu Kesehatan Universitas Sebelas April in 2022. And the physical activity variable has no relation with the menstrual cycle pattern in female students in Faculty of Ilmu Kesehatan Universitas Sebelas April in 2022. It is hoped that female students can be used as input and evaluation materials related to the relation between stress levels and physical activity on female students in Faculty of Ilmu Kesehatan Universitas Sebelas April in 2022.

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1. INTRODUCTION

Stress is a physiological and behavioral response of humans trying to regulate and adapt to both internal and external stresses. Stress or stressors stimulate the HPA (hypothalamus-pituitary-adrenal cortex) axis, so that the hormone cortisol will cause hormonal imbalances including reproductive hormones and an irregular menstrual cycle will occur. According to the World Health Organization, physical activity is all forms of body movement produced by skeletal muscles that require energy expenditure. Menstruation or menstruation is a physiological change in a woman's body that occurs periodically and is influenced by reproductive hormones.

Menstrual periods usually occur every month between the ages of puberty and menopause. (Sri Martini, p-18 2021) Menstrual cycle disorders consist of 2 kinds, namely polimenorrhea and oligomenorrhea.

Polymenorrhea is a menstrual cycle with a number of days spanning less than 21 days and or blood volume equal to or more than the usual menstrual blood volume. Oligomenorrhea is a menstrual cycle with a duration of more than 35 days. The volume of bleeding is generally less than the volume of normal menstrual bleeding. This type of disorder results in infertility in the long term because eggs are rarely produced so fertilization does not occur (Farida, p-14, 2019). According to the World Health Organization (WHO) in 2015 it was stated that the problem of adolescents in the world is around problems regarding menstrual disorders (38.45%). According to 2018 Basic Health Research data, most 68% of women in Indonesia aged 10-59 years reported regular menstruation and 13.7% experienced irregular menstrual cycle problems in the last 1 year due to excessive physical activity such as excessive exercise. resulting in drastic weight loss. In West Java, the percentage of women aged 10-59 years who experience irregular menstruation is 14.4%. (Riskesdas, 2018). The percentage of irregular menstruation in West Java is influenced by several things, such as hormonal imbalance, weight, age and physical activity. According to the Research Journal of Wulan and Yanti about "Self Hypnosis Has Influence In Reducing Menstrual Pain Levels in Young Women at SMKN 2 Sumedang" Mentioned that the menstrual cycle is irregular in Sumedang Regency, especially in the first year after menarche, around 80% of young women experience delayed menstruation 1 to 2 weeks and about 7% of adolescent girls whose menstruation comes earlier, due to ovulation that has not yet occurred (Wulan and Yanti, 2020). According to the results of Kartini's research at the University of North Sumatra on undergraduate nursing students, it was stated that (62.7%) experienced irregular menstrual cycles and (32.3%) experienced regular menstrual cycles. In addition, Debora's research in 2013 said that menstruation was not normal (46%) and menstruation was normal (60%). The cause of irregular menstruation is due to lack of physical activity and the influence of high stress.

According to a preliminary survey on April 16, 2022 conducted at the Faculty of Health Sciences, Sebelas April University, Sumedang, 10 students from grades 1-4 both from the Public Health and Nursing study programs found that 6 female students (60%) had abnormal menstrual cycles and 4 female students (40%) experienced normal menstrual cycles. And respondents said that they often experience excessive anxiety, unstable emotions, tired easily, and not eager to carry out activities.

2. METHOD

The type of research used is a quantitative descriptive cross sectional research. Descriptive research is a research conducted to describe or describe a phenomenon that occurs in society. Cross sectional research is a study that approaches, observes, or collects data all at once (point time approach), (Notoatmodjo, 2018).

3. RESULTS AND DISCUSSION

No	Category	Frequency	Percentage
1	Normal	35	44,9%
2	Abnormal	43	55,1%
	Total	78	100%

Source: Primary Data

It can be seen that the percentage of respondents mostly with the category of abnormal menstrual cycle patterns as many as 43 (55.1%) respondents.

2. Stress level

No	Category	Frequency	Percentage
1	Normal	22	8,2%
2	Light	39	50%
3	Currently	13	16,7%
4	Critical	4	5,1%
	Total	78	100%

Source: Primary Data

it can be seen that the percentage of respondents mostly with mild stress category as many as 39 (50%) respondents.

3. Physical activity

No	Category	Frequency	Percentage
1	Tall	22	28,2%
2	Low	56	71,8%
	Total	78	100%

Source: Primary Data

it can be seen that the percentage of respondents is mostly in the low category as many as 56 (71.8%) respondents.

a.   bivariate analysis

1.   The relationship between stress levels and menstrual cycle patterns

No	Independent variable	Category	Dependent variable		Total F (%)	P-Value
			Menstrual cycle pattern			
			Normal	Abnormal		
			F (%)	F (%)		0,006
1	Stress	Normal	5 (14,3%)	17 (39,5%)	22	
		Light	17 (48,6%)	22 (51,2%)	39	
		Currently	9 (25,7%)	4 (9,3%)	13	
		Critical	*4* (11,4%)	*0* (0,0%)	*4*	
		Total	*35* (100%)	*43* (100%)	*78* (100%)	

The table above explains the relationship between stress and menstrual cycle patterns among female students at the Faculty of Health Sciences, Universitas Sebelas April 2022, where 22 people are normal, 39 people are mild, 13 people are moderate, and 4 people are severe, with a total of 78 respondents.

From statistical calculations, it was found that the p value was 0.006 with a value of = 0.05, meaning that the p value had a relationship between stress and menstrual cycle patterns in female students at the Faculty of Health Sciences, Sebelas April University in 2022.

2.The relationship between physical activity and menstrual cycle patterns

No	Independent variable	Category	Dependent variable		Total F (%)	P-Value
			Menstrual cycle pattern i			
			Normal	Abnormal		
			F (%)	F (%)		0,092
1	Physical activity	Tall	13 (59,1%)	9 (40,9%)	22	
		Low	22 (39,3%)	34 (60,7%)	56	

Total	*35 (100%)*	*43 (100%)*	*78 (100%)*

tween physical activity and menstrual cycle patterns in female students at the Faculty of Health Sciences, Sebelas April University in 2022, where 22 people are high and 56 people are low with a total of 78 respondents. From statistical calculations, it was found that the p value was 0.092 with a value of = 0.05, which means that there is no relationship between physical activity and menstrual cycle patterns in female students at the Faculty of Health Sciences, Sebelas April University in 2022.

4. DISCUSSION

In this section, the authors present the results of research based on the results of data processing and questionnaires from 78 respondents statistically univariate and bivariate statistics regarding the relationship between stress levels and physical activity on menstrual cycle patterns in students of the Faculty of Health Sciences, Sebelas April University in 2022.

1. Univariate analysis

a. Menstrual cycle pattern

Based on the results of statistical tests on menstrual cycle patterns, it can be seen that the percentage of respondents at the Faculty of Health Sciences, Sebelas April University in 2022, mostly in the category of abnormal menstrual cycle patterns, namely 43 respondents (55.1%).

The menstrual cycle pattern is a pattern that describes the distance between the first day of menstruation and the first day of the next menstruation. The menstrual cycle pattern is said to be normal if it is not 28-35 days and does not exceed 35 days. The pattern of the menstrual cycle is influenced by age, stress levels, drugs, contraceptives in the womb, pregnancy and pregnancy disorders, and genetic disorders (Nurul Aini, 2017).

This is similar to Sri Martini's (2021) research on "The Correlation of Academic Stress Levels With Menstrual Cycle During the Covid-19 Pandemic At SMA Muhammadiyah 2 Palembang" with the results of a study of 44 respondents that 26 respondents (59.1%) experienced irregular menstrual cycle patterns. normal due to stress due to online learning, causing abnormal menstrual cycles.

Thus, researchers assume that the pattern of the menstrual cycle can change due to several factors including: stress, hormonal changes, food, and physical activity. Likewise, from the research results obtained by researchers that female students at the Faculty of Health Sciences, Sebelas April University experienced irregular menstrual cycle patterns due to the stress faced by female students. So in particular, stress can cause hormonal imbalances where hormones can affect ovarian function and make menstrual periods shorter. So the higher the stress level, the more cortisol levels are produced by the body.

b. Stress

Based on the results of the stress level statistical test, it can be seen that the percentage of respondents in students at the Faculty of Health Sciences, Sebelas April University in 2022, mostly with the category of mild stress levels, namely 39 respondents (50%).

Stress is a general pattern of reactions and adaptations, in the sense that the pattern of reactions to stressors, which can come from within or outside the individual concerned, can be real or unreal (Musrakidinur, 2016). Stress has several levels including mild, moderate, and severe stress (Priyoto, 2019).

This is similar to Pande Putu Novi's (2020) research on "The Relationship between Stress Levels and Menstrual Changes in Adolescents" with the results of a study of 92 respondents that 59 respondents (64%) experienced moderate levels of stress caused by the tension of preparing for exams, causing teenage girls to go to junior high school. experiencing stress.

Researchers assume that stress is a change in the reaction of a person's body when facing a new threat, pressure or situation. When faced with stress, the body releases the hormones cortisol and adrenaline. In such conditions, the heart rate and blood pressure will increase so that breathing becomes faster and the

muscles in the body become more tense. And when stressed, the part of the brain that regulates the menstrual cycle (hypothalamus) will be disturbed. In this condition, the hormones that regulate the menstrual cycle are produced not in balance so that menstruation becomes irregular.

c. Physical activity

Based on the results of statistical tests of physical activity, it can be seen that the percentage of respondents in students at the Faculty of Health Sciences, Sebelas April University in 2022, mostly with low physical activity categories, namely 56 respondents (71.8%).

The World Health Organization states that physical activity is any form of body movement produced by skeletal muscles that requires energy expenditure. Not doing physical activity has been identified as the fourth highest cause of global mortality (6% of global deaths) (WHO, 2017).

This is similar to Putri Anindita's research (2016) on "The Correlation of Daily Physical Activity with Menstrual Disorders in Students of the Faculty of Medicine, Andalas University" with the results of a study of 90 respondents that 30 respondents did moderate physical activity such as walking and doing sports.

Researchers assume that physical activity is a body movement that increases energy expenditure or energy and energy burning. Physical activity itself is categorized as sufficient if someone does physical exercise or sports for 30 minutes every day or at least 3-5 days a week. Physical activity itself affects the pattern of the menstrual cycle as well.

2. Bivariate analysis

a. The relationship between stress levels and menstrual cycle patterns in female students at the Faculty of Health Sciences, Universitas Sebelas April 2022

From the results of statistical tests obtained p value = 0.006 (p <0.05), it can be concluded that there is a relationship between stress levels and menstrual cycle patterns in female students at the Faculty of Health Sciences, Sebelas April 2022. According to WHO (2003) stress is a reaction/response body against psychosocial stressors (mental stress/life burden (Priyoto, 2014) while the menstrual cycle pattern is a pattern that describes the distance between the first day of menstruation and the first day of the next menstruation. The menstrual cycle pattern is said to be normal if it is not less than 21 days and does not exceed 35 days (Yudita, 2017). Irregular menstrual cycle patterns in students of the Faculty of Health Sciences, Sebelas April University are caused by academic stress, where academic stress is a subjective perception of an academic condition or response experienced by a person (student) either in the form of physical reactions, negative behaviors, thoughts, and emotions that arise as a result of demands school or academic. Most students from the Faculty of Health Sciences, Sebelas April University experience stress that starts from the mind because of the tight academic demands.

A similar study was conducted by Kartini (2019) at the University of North Sumatra on nursing students that the stress experienced by students of the nursing science faculty at the University of North Sumatra was mostly due to intense academic stress. this is evidenced by the results of the test, the value obtained is p = 0.001, meaning that there is a relationship between stress levels and the menstrual cycle in nursing students at the University of North Sumatra.

Thus, researchers assume that stress is a factor that affects the pattern of the menstrual cycle. Because stress stimulates the HPACA or hypothalamus pituitary adrenal cortex axis so that the hormone cortisol is produced. The hormone cortisol causes hormonal imbalances including reproductive hormones, thus affecting the pattern of the menstrual cycle. The ways to regulate the pattern of the menstrual cycle include:

1. Get enough rest
2. Manage stress, because stress can make menstrual cycle patterns irregular
3. Eat nutritious food
4. Doing enough physical activity

Thus the pattern of the menstrual cycle will return to normal.

b. The relationship between physical activity and menstrual cycle patterns in female students at the Faculty of Health Sciences, Universitas Sebelas April 2022

From the statistical test results obtained p value = 0.092 (p>0.05) it can be concluded that there is no significant relationship between physical activity and menstrual cycle patterns in female students at the Faculty of Health Sciences, Sebelas April University in 2022. Physical activity is every movement of the body due to skeletal muscle activity resulting in energy expenditure. Physical activity consists of activities during work, sleep, and in leisure time. Everyone performs physical activity, or varies from one individual to another depending on the individual's lifestyle and other factors such as gender, age, occupation, and others. Physical activity is highly recommended to all individuals to maintain health. Physical activity is also the key to determining energy use and the basis for balanced energy. Various types and amounts of physical activity are needed for different health outcomes (Kristanti, 2002). Most of the physical activity carried out by students of the Faculty of Health Sciences is low so that there is a relationship between physical activity and menstrual cycle patterns.

This is in line with Hanny Fitriani's (2021) research on the relationship between the level of physical activity and the menstrual cycle in adolescents at the Surabaya City Citizen High School which shows that there is no relationship between the level of physical activity and the menstrual cycle in adolescents at the Surabaya City Citizen High School. obtained p = 0.717. So physical activity does not affect the menstrual cycle.

Thus, the researcher assumes that the intensity of physical activity is not one of the causes of irregular menstrual cycle patterns in female students at the Faculty of Health Sciences, Sebelas April University in 2022. This is because low physical activity causes more normal menstrual cycles. Women who have light physical activity have regular menstrual cycles compared to women who have strenuous physical activity. In the study of Amaza et al, it was stated that there was no relationship between physical activity and dysmenorrhea in medical students in Nigeria. The study used a questionnaire aimed at obtaining data on age at menarche, menstrual pattern, dysmenorrhea, marital status, exercise, BMI and diet. The data is only dysmenorrhea associated with physical activity and the p value = 0.38.

In Kroll's study also found no relationship between physical activity and menstrual disorders in women at the University of Massachusetts, this study was conducted on 186 women aged 18-30 years. The only menstrual disorder studied by Kroll is premenstrual syndrome.

5. CONCLUSION

Based on this study, a conclusion was obtained regarding the relationship between stress levels and physical activity with menstrual cycle patterns in female students at the Faculty of Health Sciences, Sebelas April University in 2022, namely:

1. An overview of the menstrual cycle pattern of female students at the Faculty of Health Sciences, Sebelas April University in 2022. From the results of the study, it can be seen that the percentage of respondents mostly in the category of abnormal menstrual cycle patterns, as many as 43 respondents (55.1%).

2. An overview of the stress level of students at the Faculty of Health Sciences, Sebelas April University in 2022. From the results of the study, it can be seen that the percentage of respondents mostly in the category of mild stress, as many as 39 respondents (50%)

3. A description of the physical activity of female students at the Faculty of Health Sciences, Sebelas April University in 2022. From the results of the study, it can be seen that the percentage of respondents mostly in the low physical activity category is 56 respondents (71.8%).

4. The relationship between stress levels and menstrual cycle patterns. From the statistical test results obtained p value = 0.006 (p <0.05), it can be concluded that there is a relationship between stress levels and menstrual cycle patterns in female students at the Faculty of Health Sciences, Sebelas April University in 2022.

5. The relationship between physical activity and menstrual cycle patterns. From the statistical test results obtained p value = 0.092 (p>0.05), it can be concluded that there is no significant

relationship between physical activity and menstrual cycle patterns in female students at the Faculty of Health Sciences, Sebelas April University in 2022.

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