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The Relationship of Stress Levels and Menstrual Cycle among Female Students

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Abstract:
Students as academic individuals cannot be separated from stress in everyday life. Academic activities, especially assignments and external demands on oneself, can create stress among female students. Perceived stress can cause the pituitary to release ACTH (Adrenocorticotropic Hormone), increasing cortisol levels and disrupting the menstrual cycle. This study aims to determine the relationship between stress and the menstrual cycle in female students at the Faculty of Health Sciences, Universitas Nasional. The method used is quantitative with an analytical design and uses a cross-sectional design. The sampling technique used random sampling. The sample in this study was 150 respondents. The PSS-10 questionnaire and menstrual cycle questionnaire were used to collect data. Out of the 150 respondents, there were 7 respondents (4.7%), female students of the Faculty of Health Sciences, Universitas Nasional, who experienced everyday stress and 45 respondents (30%) experienced mild stress, and 97 respondents experienced moderate stress (64.7%), 1 respondent (0.7%) experienced severe stress, and out of 150 respondents there were 114 respondents (76%), female students of the Faculty of Health Sciences, Universitas Nasional experienced normal menstruation and 36 respondents (24%) experienced abnormal menstruation. There is no significant relationship between stress levels and menstruation in female students at the Faculty of Health Sciences, Universitas National, with p=0.811. Researchers suggest that female students who experience stress and menstrual disorders can relax by doing Yoga.

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INTRODUCTION

Adolescents experience the transition from childhood to adulthood between the ages of 10 and 19 years. Adolescence is a period of further growth in knowledge, emotional management, skills, and interaction with others (Allaili et al., 2021). This period includes the transition period from children to adults and not married. At this age, a person tends to be unstable, so risky behavior is often found, which can lead to juvenile delinquency or deviant acts (Stiawan et al., 2021).

Menstrual cycle irregularities such as amenorrhea and changes in menstrual and premenstrual symptoms are reported by women with mood disorders such as anxiety and depression or by those facing acute life stressors (Kim et al,m 2018; Nillni et al., 2018; Rowland et al., 2002). Menstrual periods can be disrupted due to stress. Stress as a nervous system stimulus is communicated through nerve transmission to the central nervous system, especially in the limbic system, and then through the autonomic nerves to the hormonal (endocrine) glands, which secrete neurohormonal secretions and then forward to the pituitary. These hormones are controlled by RH (Releasing Hormone), which is distributed from the hypothalamus to the pituitary and secretes

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gonadotropins in the form of FSH 3 (Follicle Stimulating Hormone) and LH (Luteinizing Hormone, second production) through the frontal system. The feedback mechanism of estrogen influences RH in the hypothalamus. The causes of irregular menstruation are an unhealthy lifestyle, stress, health problems, physical activity, hormonal imbalance, and nutritional conditions. Stress is a common cause of menstrual cycle abnormalities. Stress can induce the pituitary to release ACTH. During the acute phase of the pandemic, the increased level of stress and anxiety in society due to COVID-19, it is essential that any emergency response should consider the component of mental health crisis management (Novelia, Usman & Pamungkas, 2021).

According to Kusmiran (2018), factors influencing menstrual cycle irregularities are hormonal, enzyme, vascular, prostaglandin, psychological, chronic disease, malnutrition, physical activity, and drug consumption. This research is in line with research conducted in 2021 in North Sumatra; using the chi-square test, it obtained a p-value=0.005, so it can be concluded that stress affects the menstrual cycle. Whereas in a study conducted in 2017 in West Sumatra, based on data analysis using the Fisher's exact test with a significant level of 0.05, a value of p=0.616 was obtained, indicating no significant relationship between stress and menstrual cycle patterns. This study aims to determine the relationship between stress and the menstrual cycle in female students at the Faculty of Health Sciences, Universitas Nasional.

METHOD

This study used quantitative research in the form of analytics. It used a cross-sectional design to determine the relationship between stress and the menstrual cycle in final-semester female students at the Faculty of Health Sciences, Nasional University. This type of research uses a quantitative research design in analytic form with a cross-sectional design. The sampling technique in this study was total sampling, and data collection was carried out using Google form. The population and samples in this study were 241 populations and 150 samples. Data analysis was conducted using the Chi-Square test to determine the relationship between stress levels and menstruation in final-semester female students at the Faculty of Health Sciences, Universitas Nasional.

RESULT

Univariate Analysis

Table 1. Stress Levels

Stress level	Frequency (f)	Percentage (%)
Normal	7	4.7
Mild	45	30.0
Moderate	97	64.7
Severe	1	0.7
Very severe	0	0
Total	150	100.0

Based on Table 1, it was found that respondents with normal stress levels 7 respondents (4.7%), mild stress levels 45 respondents (30%), moderate stress levels 97 respondents (64.7%), severe stress levels 1 respondent (0.7%) and very severe stress level 0 respondents.

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Table 2. Menstrual Cycle

Menstruation Cycle	Frequency (f)	Percentage (%)
Normal	114	76.0
Abnormal	36	24.0
Total	150	100.0

Based on Table 2, it was found that 114 respondents (76.0%) had normal menstrual cycles, while 36 respondents (24.0%) had abnormal menstrual cycles.

Bivariate Analysis

Table 3. The Relationship between Stress Levels and Menstruation Cycle

Stress level	Menstruation Cycle				Total		p-value
	Normal		Abnormal				
	f	%	f	%	f	%	
Normal	5	71.4	2	28.6	7	100	0.811
Mild	36	80.0	9	20.0	45	100	
Moderate	72	74.2	25	25.8	97	100	
Severe	1	100	0	0	1	100	
Very severe	0	0	0	0	0	0.0	
Total	114	76	36	24	150	100	

Based on the table above, it was found that 5 respondents (71.4%) had normal stress levels, and 2 respondents (28.6%) had abnormal menstrual cycles. Respondents with a mild level of stress who had normal menstrual cycles were 36 respondents (80%). Of those who had abnormal menstrual cycles, 9 respondents (20%), followed by respondents with moderate levels of stress who had normal menstrual cycles of 72 respondents (74.2%) and who had as many abnormal menstrual cycles as 25 respondents (25.8%), respondents with severe stress levels were 1 respondent (100%) and very severe were 0 respondent.

DISCUSSION

Based on the results of research on stress levels and menstrual cycles of female students of the Faculty of Health Sciences, National University, it can be concluded that out of 150 respondents, there were 7 respondents (4.7%), female students of the Faculty of Health Sciences, National University who experienced normal stress and 45 respondents (30%) who experienced mild stress and 97 respondents who experienced moderate stress (64.7%, who experienced severe stress 1 respondent (0.7%). And out of 150 respondents, 114 (76%) female students of the Faculty of Health Sciences, Universitas Nasional, experienced normal menstrual menstrual cycles, and 36 respondents (24 %) had abnormal menstruation.

Based on data analysis using Chi-Square with a significance level of 0.05, a value of p = 0.811 was obtained, indicating no significant relationship between stress and menstrual cycle patterns of female students at the Faculty of Health Sciences, Universitas Nasional.

Stress is a condition in the form of non-specific demands that require a person to react and act (Ningrum et al., 2020). Women are more likely to be stressed because they feel guilty, have trouble sleeping, and worry more easily (Ratnasari et al., 2021). The effects of stress are not only psychological but also have a negative impact on physical health. A person suffering from stress regularly can have a profound effect on the human mind and body (Kurniyawan et al., 2023a).

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Stress is a part of life, but when it causes discomfort and stress, it becomes a problem. Recognize the causes of stress and how to deal with stress. A balanced lifestyle can help you cope better with stress. Relaxation, breathing exercises, yoga, and meditation can help manage stress (Kurniyawan et al., 2023b). Overcoming this stress requires a coping mechanism that can reduce or minimize problems experienced by adolescents, such as anxiety, depression, stress, and other problems, so that they remain stable (Intiyaskanti et al., 2021).

This research is in line with research conducted in 2021 in North Sumatra; using the chi-square test, it obtained a p-value=0.005 (p-value <0.05), so it can be concluded that stress affects the menstrual cycle. Whereas in a study conducted in 2017 in West Sumatra, based on data analysis using the Fisher's exact test with a significant level of 0.05, a value of p = 0.616 was obtained, indicating no significant relationship between stress and menstrual cycle patterns.

Menstruation is periodic uterine bleeding at regular intervals around 14 days after ovulation due to the shedding of the endometrium (Sari, 2015). Menstruation poses a pathological risk, interferes with daily life, and can cause pain of various types and intensities. The muscles of the uterus contract sufficiently to release menstrual blood, and the prostaglandins produced during menstruation cause menstrual pain (dysmenorrhea). The effects include physical, psychological, social, and economic ailments. Disturbance or decreased performance of daily activities, such as nausea with vomiting or diarrhea (Hareni et al., 2023).

According to the researcher, respondents experienced mild and moderate stress levels. Still, they did not affect their menstrual cycle patterns because respondents did not think too much about things that always trigger stress, and they could control the stress. Based on research conducted on female students at the Faculty of Health Sciences, Universitas Nasional, there is no significant relationship between stress levels and the menstrual cycle. According to research on coping mechanisms, stress levels and menstrual cycle disorders were found to be more than 50% using coping mechanisms with moderate stress levels. In theory, coping mechanisms have a relationship with stress levels. A good coping mechanism will affect stress levels because problem-solving is more positive.

CONCLUSION

Based on the results of research on stress levels with the menstrual cycle of 150 respondents, there were 7 respondents (4.7%) female students experienced normal stress, 45 respondents (30%) experienced mild stress, and 97 respondents experienced moderate stress (64.7%), 1 respondent (0.7%) experienced severe stress. Out of 150 respondents, 114 (76%) female students of the Faculty of Health Sciences, Universitas Nasional, experienced normal menstrual cycles, and 36 respondents (24%) experienced abnormal menstruation. Based on data analysis using Chi-Square with a significance level of 0.05, a value of p = 0.811 was obtained, indicating no significant relationship between stress and menstrual cycle patterns of female students at the Faculty of Health Sciences, Universitas Nasional.

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CONFLICT OF INTEREST

There is no conflict of interest in conducting this research.

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