RELATIONSHIP OF STRESS LEVEL WITH PRIMARY DYSMENORRHEA PAIN LEVEL IN FACULTY OF MEDICINE STUDENTS FROM WIDYA MANDALA CATHOLIC UNIVERSITY SURABAYA

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ABSTRACT

Background: Every month, women experience menstruation. Menstruation is the shedding of the endometrium, which causes periodic and cyclic bleeding. Primary dysmenorrhea is menstrual pain without underlying pathological conditions. The increased production of prostaglandins causes dysmenorrhea, and one of the causes of dysmenorrhea is stress. During this pandemic, many individuals feel bored and stressed, so researchers want to research the relationship between stress levels and primary dysmenorrhea pain levels.

Objective: This research aimed to determine the relationship between stress levels with primary dysmenorrhea pain levels in the Faculty of Medicine students from Widya Mandala Catholic University.

Method: This research used a cross-sectional method, and the samples used in this research were taken with simple random sampling. Respondents filled out the Kessler Psychological Distress Scale and Numerical Rating Scale questionnaires, distributed through Google Forms or online via Zoom application.

Results: Respondents who experienced stress were 78.6%, and those who experienced dysmenorrhea pain were 93.4%. Most respondents experienced severe stress and severe dysmenorrhea pain, as much as 17.6%. Based on the Spearman correlation test, p-value = 0.001 and r = 0.270 indicates a significant positive relationship between stress levels and primary dysmenorrhea pain levels with a sufficient correlation between the two variables.

Conclusion: There is a significant relationship between stress levels and primary dysmenorrhea pain levels in Faculty of Medicine students from Widya Mandala Catholic University.

Keywords: Stress, dysmenorrhea, stress levels, dysmenorrhea pain levels.

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INTRODUCTION

Every month women will experience menstruation which is a natural process, especially in teenagers, non-pregnant women, and women who have not experienced menopause[1]. Dysmenorrhea (menstrual pain) is caused by excessive prostaglandins, which can cause a strong contraction in the uterus[2]. Dysmenorrhea is classified into primary and secondary dysmenorrhea. Primary dysmenorrhea is menstrual pain without underlying pathological conditions[3]. Based on the data from WHO, the incidence of dysmenorrhea at a young age is between 16,8-81%, and several European countries found the prevalence of dysmenorrhea at 45-97%[1.]

One of the causes of dysmenorrhea is psychological factors such as stress. Stress can arise due to the parent's high demands on academic achievements, frequent exams, living independently and away from their parents, busy organization activities, and the lack of time for break/recreation due to a busy and packed schedule. In the current COVID-19 era, there are restrictions on outside activities, causing many individuals to feel bored and stressed.

One of the factors causing primary dysmenorrhea is stress, and dysmenorrhea can cause complications. Stressful conditions can disrupt follicular development due to the inhibition of FSH and LH, which can decrease progesterone hormone production[4]. Decreased progesterone production will cause an increase in prostaglandins synthesis, causing dysmenorrhea[2]. This concludes why the researcher wanted to research the relationship between stress levels and primary dysmenorrhea pain levels in Faculty of Medicine students from Widya Mandala Catholic University Surabaya.

METHOD

Tool and Material

This research used the Kessler Psychological Distress Scale questionnaire to measure stress levels and the Numerical Rating Scale to measure pain intensity.

Data Collection

This research used a cross-sectional method, and the samples used in this research were taken using a simple random sampling technique.

The researcher will randomly choose the samples until the required number of samples is met. The population of this research was the Faculty of Medicine students from Widya Mandala Catholic University Surabaya.

Data Analysis

In this research, the two variables were on an ordinal scale, so the data analysis technique used was Spearman Correlation Test. Then the editing, coding, and tabulation process will be carried out.

RESULTS

This research was conducted from 6th to 15th September 2021 with a minimum number of samples required are 115 respondents. After the data collection, the data obtained will be tabulated based on the distribution of the respondents' characteristics.

Table 1: Respondents' Characteristics Distribution Based on Smoking History

Smoking History	Frequency (n)	Percentage (%)
Smoking	2	1,5%
Non-smoking	134	98,5%
Total	136	100,0%

From the total research samples, as many as 136 students, there were two students (1,5%) who smoke and 134 students (98,5%) who do not smoke.

Table 2: Respondents' Characteristics Distribution Based on Body Mass Index

BMI	Frequency (n)	Percentage (%)
Underweight	23	16,9%
Normal	63	46,3%
Overweight	23	16,9%
Obesity 1	21	15,4%
Obesity 2	6	4,4%
Total	136	100,0%

From the total of 136 samples, there were 23 students (16,9%) who were underweight, 63 students (46,3%) with normal weight, 23 students (16,9%) with overweight, 21 students (15,4%) with obesity 1, and lastly, there were six students (4,4%) with obesity 2.

Table 3: Respondents' Characteristics Distribution Based on Family History with Dysmenorrhea

Family History	Frequency (n)	Percentage (%)
Has a history	41	30,1%
No history	95	69,9%
Total	136	100,0%

From the total of 136 samples, there were 41 students (30,1%) with a family history of dysmenorrhea and 95 students (69,9%) with no family history of dysmenorrhea.

Table 4: Respondents' Characteristics Distribution Based on Early Menarche

Early Menarche	Frequency (n)	Percentage (%)
Menarche < 12 years	18	13,2%
Menarche > 12 years	118	86,8%
Total	136	100,0%

From the total of 136 samples, there were 18 students (13,2%) who experienced menarche before the age of 12 years, and there were 112 students (86,8%) who experienced menarche after 12 years.

Table 5: Distribution Based on Stress Level

Stress Level	Frequency (n)	Percentage (%)
Stress-free	29	21,3%
Mild stress	29	21,3%
Moderate stress	18	13,2%
Severe stress	60	44,1%
Total	136	100,0%

From the total of 136 samples, there were 29 students (21,3%) who did not experience stress, 29 students (21,3%) students who experienced mild stress, and 18 students (13,2%) who experienced moderate stress. There were 60 students (44,1%) who experienced severe stress.

Table 6: Distribution Based on Dysmenorrhea Pain level

Pain Level	Frequency (n)	Percentage (%)
No pain	9	6,6%
Mild pain	48	35,3%
Moderate pain	42	30,9%
Severe pain	37	27,2%
Total	136	100,0%

From the total of 136 samples, there were nine students (6,6%) who did not experience pain, 48 students (35,3%) who experienced mild pain, 42 students (30,9%) who experienced moderate pain, and 37 students (27,2%) who experienced severe pain.

Table 7: Bivariate Analysis

Stress Level	Pain Level								Total	
	No pain		Mild pain		Moderate pain		Severe Pain			
	(n)	(%)	(n)	(%)	(n)	(%)	(n)	(%)	(n)	(%)
Stress-free	3	2,2%	12	8,8%	11	8,1%	3	2,2%	29	21,3%
Mild stress	1	0,7%	15	11,0%	7	5,1%	6	4,4%	29	21,3%
Moderate stress	2	1,5%	7	5,1%	5	3,7%	4	2,9%	18	13,2%
Severe stress	3	2,2%	14	10,3%	19	14,0%	24	17,6%	60	44,1%
Total	9	6,6%	48	35,3%	42	30,9%	37	27,2%	136	100%
P value = 0.001 r = 0.270										

From the analysis, the most data obtained were students who experienced severe stress accompanied by severe dysmenorrhea pain with 24 students (17,6%), and the least were students who experienced mild stress without dysmenorrhea as much as one student (0,7%).

The results of the analysis test using The Spearman Correlation test obtained p value = 0.001 and r = 0.270, so it can be concluded that there is a significant positive relationship between stress levels and primary dysmenorrhea pain levels in Faculty of Medicine students from Widya Mandala Catholic University Surabaya with a sufficient correlation between the two variables.

DISCUSSION

Someone under stress can cause inhibition of FSH and LH, which affect the release and synthesis of progesterone[4]. FSH plays a role in stimulating ovulation. LH has a function in the egg maturation process and ovulation, which, if not fertilized, will cause shredding. LH affects the production of progesterone from the corpus luteum[5]. Gonadotropin-releasing hormone (GnRH) from the hypothalamus is the one that regulates the two hormones[2]. In controlling the cycle, the hypothalamus can be affected by anxiety and stress[5]. Disrupted production of FSH and LH will trigger menstrual disorders[2].

In this research, from The Spearman Correlation test, the p-value = 0.001 (p<0.05) indicates a significant relationship between stress levels and primary dysmenorrhea pain levels. This corresponds to research done by Yenny Rusli in 2019, which showed a significant relationship between stress level and dysmenorrhea intensity in Faculty of Medicine students from Atma Jaya Catholic University Jakarta class of 2015-2017 with a p-value <0.001[6].

The difference between this research and the previous one conducted by Yenny Rusli in 2019 was the stress level experienced by the samples.

Yenny Rusli's research found more stress-free students, while in this research, it was the other way around.

Stress can affect the incidence of dysmenorrhea, and for that, we must know how to manage or deal with stress. Knowledge and understanding of reproductive health are very important to help us maintain our reproductive health throughout life.

RESEARCH LIMITATIONS

The limitations in this research are the determination of the score used in the Kessler Psychological Distress Scale questionnaire and the Numerical Rating Scale measuring instrument, which is very subjective so that it affects the results of the research, as well as the presence of other factors that can cause dysmenorrhea which in this research were not being investigated.

CONCLUSION

Based on the research results, most Faculty of Medicine students from Widya Mandala Catholic University Surabaya experienced stress and dysmenorrhea from mild to severe levels. And there is a significant relationship between stress levels and primary dysmenorrhea pain levels, with a sufficient correlation between the two variables.

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