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RESEARCH ARTICLE

The Relationship Between Stress Level And Anxiety Level With The Menstrual Cycle Of Grade XII Students Of Methodist High School 1 Medan

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ABSTRACT

Background*: Stress is an individual's response to pressure that can disrupt physical or psychological balance. Stress and anxiety play a role in disturbing menstrual cycles, with cortisol as an indicator of stress levels. Research shows that stress and anxiety can affect menstrual irregularities, especially in adolescent girls who are vulnerable to hormonal and emotional changes during puberty.* ***Objective****:To examine the relationship between stress levels and anxiety levels with menstrual cycles among 12th-grade female students at Methodist 1 High School, Medan.* ***Method****: This study was conducted using a descriptive correlation method with a Cross-Sectional approach.* ***Result****: The results of this study indicate a significant relationship between stress levels and the menstrual cycle, with a p-value < 0.05, and a significant relationship between anxiety levels and the menstrual cycle, with a p-value of 0.05.* ***Research result****: The study concluded that there is a significant relationship between anxiety and stress levels with menstrual cycles among 12th-grade female students at Methodist 1 High School, Medan.*

Keywords: Stress, Anxiety, Menstrual Cycle

I. INTRODUCTION

Stress, including non-specific reactions to pressures or stimuli that are individual, make a stress for an individual uncertain similar to the outlook for another individual. This aspect is evident from the level of maturity of thinking, the level of education of a person and the ability to interact with others socially. Stressor can pressure a person and cause damage to physical and cognitive normality.

Stress is also understood to be the reason for damage to the menstrual cycle, stress can support the release of the hormone cortisol which is the hormone cortisol as a benchmark to review an individual's stress level. The hormone cortisol is regulated against the hypothalamus as well as *the pituitary*. In the presence of surgery or work from the hypothalamus, the pituitary will remove *follicle stimulating hormone* (FSH) and the ovarian stimulus stage can produce estrogen and progesterone. If there is damage in FSH and *Luitenizing Hormone* (LH), it can affect the production of estrogen and progesterone which results in confusion in the menstrual phase and also makes women hindered from knowing the fertile phase.[1]

Anxiety is a problem for all individuals, it can arise at any time for all individuals. There are several models of worry, there are worries about carrying out mistakes and sins, worries about the impact of reviewing and understanding risks that harm their personal and worries in the form of confusion. Worry is also a factor in disrupting the menstrual cycle. Worries that arise continuously and if not treated quickly, repeated and excessive fear can affect menstruation.[2]

The adolescent phase is a process in the social growth and development of a person. The phase, which is often said to be the puberty phase, is the phase of change from children to adulthood.[4] The development and growth of man towards adulthood undergoes a breakdown called the puberty phase. Puberty is a phase of physical and spiritual change for boys and girls. The transition occurs due to hormonal changes. Adolescent girls get to puberty faster than boys. One of the characteristics of puberty by adolescent girls is characterized by menarche is the acquisition of early menstruation.[3]

Menstruation and menstruation are periodic and cyclic bleeding in the uterus, accompanied by the release of the endometrium which takes place in the month systematically against women. There are 3 things to assess menstruation, the first is the menstrual cycle is around 21-35 days, the second period is no more than 15 days, and the third blood volume is around 20-80 ml. As well as the length of the menstrual cycle, which is the range from the date of the start of the previous menstruation to the start of the next menstruation.[4]

II. RESEARCH METHODS

The research model applied in this observation is a descriptive correlation technique using a Cross Sectional approach, in order to understand the relationship between stress levels and anxiety levels to the menstrual cycle of grade XII students of SMA Methodist 1 Medan. The number of samples obtained through the slovin formula in the following research is 55 samples from 120 populations. Inclusion criteria are those who are willing to become respondents, have experienced menstrual cycles, and are willing to fill out questionnaires. The independent variables in this observation are the relationship between stress level

and anxiety level to the menstrual cycle. Data is processed through several stages, ranging from *editing, coding, data entry, saving, tabulation,* to analysis using SPSS software. Data analysis was carried out through univariate analysis to describe the frequency distribution and bivariate analysis using *Chi-square statistical tests* to determine the relationship between independent and dependent variables.

III. RESEARCH RESULTS

a) Univariate

Table 1 Distribution of Frequency of Students Based on Stress Level

Stress Levels	Frequency	%
Low	18	32.7
Medium	20	36.4
Weight	17	30.9

Based on table 1, it is understood that there were 18 respondents (32.7%) with low stress levels, and as many as 20 respondents (36.4%) with moderate stress levels. And as many as 17 respondents (30.9%) with severe stress levels. So the majority of grade XII students at Methodist I High School Medan have a moderate level of stress**.**

Table 2 Distribution of Frequency of Female Students by Anxiety Level

Anxiety Level	Frequency	%
Low	**10**	**18.2**
Medium	**28**	**50.9**
Weight	**17**	**30.9**

Based on table 2, it is understood that there are 10 speakers (18.2%) with a level of mild concern, a total of 28 speakers (50.9%) with a level of moderate concern, and a total of 17 speakers (30.9%) with a level of severe concern. So the majority of resource persons in grade XII students at Methodist I High School Medan have a moderate level of anxiety.

Table 3 Distribution of Frequency of Female Students by Menstrual Cycle

Menstrual Cycle	Frequency	%
Normal	17	30.9
Polymenorrhea	27	49.1
Oligomenorea	11	20.0

Based on table 3, it is understood that there are 17 respondents (30.9%) for a stable menstrual cycle, as well as 27 respondents (49.1%) for the polymenorrhea menstrual cycle, and as many as 11 respondents (20%) with an oligomenorrhea menstrual cycle. So the majority of respondents to grade XII students at Methodist I High School Medan have polymenorrhea menstrual cycles.

b) Bivariate Analysis

Table 4 Relationship between anxiety levels and menstrual cycles

Tingkat Kecemasan	Siklus Menstruasi						Total		*P value*
	Normal		Polimenorea		Oligomenorea				
	F	%	F	%	F	%	F	%	
Ringan	4	7.3	5	9.1	1	1.8	10	18.2	
Sedang	10	18.1	9	16.4	9	16.4	28	50.9	**0.041**
Berat	3	5.5	13	23.6	1	1.8	17	30.9	
Total	**17**	**30.9**	**27**	**49.1**	**11**	**20.0**	**55**	**100.0**	

Based on Table 4, it can be understood that from 17 respondents (30.9%) to the normal menstrual cycle, 4 respondents (7.3%) were obtained, including with mild anxiety levels, 10 respondents (18.1%) with moderate levels of worry and 3 other respondents (5.5%) with severe worry. In 27 respondents (49.1%) with polymenorrhea, 5 respondents (9.1%) were obtained, 9 respondents (16.4%) with moderate anxiety, and 13 other respondents (23.6%) with severe anxiety. Meanwhile, 11 respondents (20%) with oligomenorrhea, 1 respondent (1.8%) with mild anxiety level, 9 respondents (16.4%) with moderate anxiety, and 1 other resource person (1.8%) with severe anxiety. The results of the chi square statistical test were obtained regarding the score p = 0.041, meaning that there is a relationship between the level of anxiety and the menstrual cycle in grade XII students of Methodist I High School Medan.

Table 5 Relationship between stress levels and menstrual cycles

Tingkat Stress	Siklus mens						Total		*P value*
	Normal		Polimenorea		Oligomenorea				
	F	%	F	%	F	%	F	%	
Ringan	8	14.5	9	16.4	1	1.8	18	32.7	
Sedang	6	10.9	12	21.8	2	3.7	20	36.4	**0.015**
Berat	3	5.5	6	10.9	8	14.5	17	30.9	
Total	**17**	**30.9**	**27**	**49.1**	**11**	**20.0**	**55**	**100.0**	

Based on Table 5, it can be reviewed based on 17 interviewees (30.9%) on the normal menstrual cycle, 8 respondents (14.5%) were obtained, including with mild stress levels, 6 interviewees (10.9%) with moderate stress levels and 3 other respondents (5.5%) with severe stress levels. In 27 respondents (49.1%) with polymenorrhea, 9 respondents (16.4%) were found to have mild levels of stress, 12 respondents (21.8%) had moderate levels of stress, and 6 other respondents (10.9%) had severe stress levels. Meanwhile, 11 respondents (20%) with oligomenorrhea, 1 respondent (1.8%) was obtained for the level of mild stress, 2 respondents (3.7%) for the level of moderate stress, and 8 other respondents (1.8%) for the level of severe stress. The results of *the chi square statistical test* were obtained regarding the score p = 0.015, meaning that there is a relationship between the level of stress in the menstrual cycle for grade XII students of Methodist I High School Medan.

IV. DISCUSSION

Analysis of anxiety levels against the menstrual cycle

The results of the observation in table 4 that there is a relationship between the level of anxiety and the menstrual cycle of grade XII students of SMA Methodist I Medan with the results *of the chi square* statistical test obtained a score of p = 0.041. This study indicated that 17 respondents were exposed to normal menstrual cycles, 10 respondents (18.1%) were exposed to moderate anxiety, and 27 respondents with polymenorrhea were obtained, 13 respondents (23.6%) were obtained with severe anxiety, and from 11 respondents with oligomenorrhea, 9 respondents (16.4%) were obtained with severe anxiety levels.

This observation is in accordance with the observations carried out by Yuni Purwati, Ari Muslikhah (2020), based on the results of *the chi square statistical test* carried out and a p score of p < 0.05 which means that there is a link between the level of concern for the occurrence of menstrual cycle obstruction in 7th semester female students at the University of Yogyakarta[21]. This observation stated that the resource persons who found menstrual cycle obstacles had a tendency to find concerns. The concerns found by the 7th semester students could be due to the sense of awkwardness found by the resource person because they were worried that they could not take advantage of the time. According to Omdivar *et al,* (2019) concerns affect the stability of reproductive hormones. A damaged balance of reproductive hormones can certainly cause the reproductive nervous system to be hampered as well, thus affecting menstrual problems which is therefore hampered by the menstrual cycle.

Analysis of stress levels on the menstrual cycle

The results of the study in table 4.5 show that the relationship between the level of stress and the menstrual cycle for grade XII students of SMA Methodist I Medan with the results *of the chi square* statistical test obtained a score of p = 0.015. This study indicated that 17 respondents were exposed to normal menstrual cycles, 8 respondents (14.5%) were exposed to moderate mild stress, and 27 respondents with polymenorrhea were obtained, 12 respondents (21.8%) were found to moderate stress levels, and from 11 respondents with oligomenorrhea were obtained as many as 8 respondents (14.5%) with severe stress levels.

This observation is in accordance with the observation carried out by Nety Maawarda Hatmanti, indicating that based on the results of *the spearman* statistical test, a sko p < 0.05 which means that there is a link between stress levels and menstrual cycles for FK students of Airlangga University, there are 26 students who are moderately stressed, 31 students with mild stress and no students who are severely stressed, This aspect is in line with Potter&Perry's study on stress divided into 3 processes,

namely mild, moderate, and severe stress.[6] The Gospel of Jesus

The research was followed by Vetri Nathalia (2019), showing that from the results of *the chi square statistical test*, a score of p < 0.05 was obtained which means that there is a significant relationship between the level of stress and the menstrual cycle, where stress often makes the menstrual cycle abnormal, this aspect takes place because stress becomes a stimulator of the nerve network continued to the central nervous system, which is the limbic system through nerve transmission which then the nerves can stimulates the pituitary gland to release gonadotropins in the form of FSH and LH where both hormones are very important in the menstrual cycle.

This observation is in accordance with the research carried out by Nurul Anjasari (2020) showing that the results of the correlation statistical test on Chi-Square were obtained based on p values = 0.016 and a = 0.05 where p < a can be stated regarding the relationship of stress levels to the menstrual cycle of 2nd grade female students of Wachid Hasyim 1 High School Surabaya.

V. CONCLUSIONS AND SUGGESTIONS

Based on the frequency distribution based on the level of anxiety, 10 respondents (18.5%) with low anxiety levels were obtained, 28 respondents (36.4%) were moderately worried, and 17 respondents (30.9%) were treated with severe anxiety in grade XII students of Methodist I Medan High School.

Based on the frequency distribution based on stress level, 18 respondents (32.7%) with low stress levels, 20 respondents (36.4%) with moderate stress levels, and 17 respondents (30.9%) with severe stress levels in grade XII students of SMA Methodist I Medan.

Based on the analysis of the relationship between anxiety levels and menstrual cycles, it was shown that out of 17 respondents to the normal menstrual cycle, 10 respondents (18.1%) were moderately anxious, and 27 respondents with polymenorrhea were obtained, 13 respondents (23.6%) were obtained with severe anxiety, and from 11 respondents with oligomenorrhea were obtained as many as 9 respondents (16.4%) with severe anxiety levels. The results of *the chi square statistical test* obtained a p value of p < 0.05 which means that there is a significant link between the level of anxiety and the menstrual cycle of grade XII students of SMA Methodist I Medan.

Based on the analysis of the relationship between stress levels and menstrual cycles, it was shown that out of 17 respondents to the normal menstrual cycle, 8 respondents (14.5%) were given to the level of mild and moderate stress, and 27 respondents with polymenorrhea were obtained as many as 12 respondents (21.8%) to moderate stress levels, and from 11

respondents to oligomenorrhea 8 respondents (14.5%) were obtained with severe stress levels. The results of *the chi square statistical test* obtained a p value of < 0.05 which means that there is a significant link between stress levels and menstrual cycles of grade XII students of SMA Methodist I Medan.

Suggestions

1. For institutions, it is hoped that it can be an evaluation material so that institutions can improve health programs, especially about stress and encourage students to be more open in facing problems and obstacles to learning activities.
2. For the next researcher, it is desirable to be able to research other variables that can be factors in the occurrence of menstrual cycle disorders.
3. For grade XII students of SMA Methodist I Medan, it is also expected to be able to maintain physical and mental health, and be able to develop a better outlook and belief.

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