O-10 THE CORRELATION BETWEEN STRESS LEVEL AND PREMENSTRUAL SYNDROME IN FINEL LEVEL NURSE STUDENTS

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Abstract

***Introduction**:* Stress is a phenomenon that occurs quite often in everyday life that we cannot avoid and will be experienced by each person. Stress is a condition that can be caused by several things such as uncontrolled physical demands, the environment, and social situations. Premenstrual syndrome (PMS) is a common problem that is often encountered by women which includes a collection of emotional and physical symptoms that occur in women in the 2-14 days before the onset of menstruation, or in the luteal phase of the menstrual cycle and then subsides soon after the onset of menstruation. College students are one of the groups that have a high potential for experiencing premenstrual syndrome due to increased levels of stress during academic education

Objective: This study aims to determine the relationship between stress levels and premenstrual syndrome symptoms in final year nursing students.

Methods: This type of research is observational with a cross-sectional study approach. The sampling technique used was purposive sampling, with the number of respondents as many as 115 final year D3 nursing students at Kusuma Husada University Surakarta in January. The instrument used to measure the level of stress is the Kessler Psychological Distress Scale (K10) and to measure the level of premenstrual syndrome using the Shortened Premenstrual Assessment Form (SPAF).

Results: The results of the study using the Sperman rho' test, it was found that the p-value was 0.000 < 0.05, which means that there is a significant relationship between stress levels and premenstrual syndrome, and a correlation of r = 0.846 which means the relationship is strongly correlated with the direction of the correlation. positive

Conclusion: The heavier the stress level, the more severe the premenstrual syndrome symptoms experienced.

Keywords: stress level, Premenstrual Syndrome, final year students

Introduction

Health problems today need to be a concern for everyone and all circles, both physical health and mental health. The world is currently experiencing a health crisis due to the COVID-19 pandemic. As is happening in Indonesia today, since the COVID-19 pandemic and now with the increasing number of cases, the government has made a decision to implement large-scale social restrictions. With the development of this COVID-19 pandemic globally, the psychological problems that accompany this pandemic are rapidly increasing the burden on people's health (Torales *et al.*, 2020). In addition, it also has an impact on the quality of social, economic and education. As a result of the implementation of the social restriction, teaching and learning activities in Indonesia at all levels of education have been transferred to virtual, where all activities are carried out at their respective homes. A survey conducted by Young Minds reported that as many as 83% of young respondents agree that the COVID-19 pandemic is exacerbating pre-existing mental health conditions, mainly due to school closures, loss of routine and limited social connections. (Thomas, 2020).

Stress is a phenomenon that occurs quite often in everyday life that we cannot avoid and will be experienced by each person. Basically stress is a normal thing experienced by every human being and is an inseparable part of life (Wahyudi *et al.*, 2015). Stress is a condition that can be caused by several things such as uncontrolled physical demands, the environment, and social situations. In Indonesia, mental disorders are still a significant problem. Based on Riskesdas data in 2018, the prevalence of emotional mental disorders from the total population in Indonesia in the age range of 15 years and over was 9.8%, this data increased when compared to data in 2013 which was 6%. (Riskesdas, 2020).

PMS includes a collection of emotional symptoms such as irritability, anxiety, nervousness, irritability and fatigue. In addition, there are also physical symptoms in the form of pain in the breast and stomach area, headaches, backaches, etc. These symptoms occur in women in the 2-14 days before the onset of menstruation or in the luteal phase of the menstrual cycle and then subside soon after the onset of menstruation. In a meta-analysis study of women reported a worldwide prevalence of premenstrual syndrome of

48%. The prevalence of premenstrual syndrome is reported to be 40% in Europe, 85% in Africa, 60% in South America, and 46% in Asia. Meanwhile in Indonesia, around 30% - 80% of women report having experienced serious symptoms of premenstrual syndrome with a prevalence estimated to occur in 2.5% of women of reproductive age. (Yulianingsih *et al.*, 2020)

According to a study stress can cause an increase in symptoms of premenstrual syndrome in women. In a study conducted by Ruchi Sing regarding the relationship between stress levels and the menstrual cycle, which in this study compared medical and non-medical students, the results showed that there was a strong relationship between stress and symptoms of premenstrual syndrome. Where medical students have higher stress levels than non-medical students (Singh *et all* , 2015). The stress measurement instrument uses the Kessler Psychological Distress Scale (K10) with an ICC value of 0.77 with a Cronbach alpha of 0.84 which in the item of stress is asked based on the level of anxiety, fatigue and depression level experienced during the last 4 weeks.

College students are one of the groups that have a high potential for experiencing premenstrual syndrome due to increased levels of stress during academic education. Not much different from other students, students majoring in nursing also experience pressure from academic problems to academic stress in their education. (Rosyidah *et al.*, 2020). Other research has also been conducted on final year nursing students at Stikes Widya Husada Semarang with a sample of 76 students, showing that there is a relationship between academic factors and stress in final year students. (B and Hamzah, 2020).

During the COVID-19 pandemic, there have been many changes that have occurred in education, this of course has an impact on the psychology of students. One of the causes of stress during the Covid-19 pandemic that many students complain about is lecture assignments. The learning system for nursing students has a class schedule that is so tight, so that tasks often pile up and become a psychological burden for students (Mubin and Basthomi, 2020). Especially for final year nursing students, in addition to having a workload on courses that are still being taken in the final semester, final year students who should also do clinical practice in hospitals, they cannot currently do. This can increase the level of stress they experience, because for them clinical practice should be a moment where they get a lot of experience and training in the field, but due to the covid-19 pandemic they do not get it to the fullest.

In addition, students are also required to complete the final project, because during this pandemic all educational activities are transferred online, so students in conducting

final project guidance with their supervisor can only be done online, the difficulty of internet access is also often a problem in carrying out online education. . In a study conducted by (Gamayanti and Syafei, 2018), when they meet before guidance or just sit in the campus lobby, they share problems with each other regarding the process of completing the final project. This can reduce the burden of stress because they feel there are friends in the same fate or can help each other, so students can release the burden of thoughts they feel, this can help in reducing the stress experienced. However, currently students cannot interact socially in the academic environment directly. Therefore, the large number of tasks and academic demands on final year nursing students during the COVID-19 pandemic can be a cause of stress.

Seeing from the background above, the researcher wants to conduct a study with the title The Relationship between Stress Levels and Premenstrual Syndrome Symptoms in Final Year Nursing Students. The purpose of this study was to determine the relationship between stress levels and symptoms of premenstrual syndrome (PMS) in final year nursing students.

Methods

The research method used in this study is an observational analytic study with a cross-sectional study approach in which the variables including risk factors and all measurements of the dependent and independent variables are examined at one time. (Sugiyono, 2015). In this study the authors wanted to see the relationship between stress levels and symptoms of premenstrual syndrome (PMS) in final year nursing students. This research was conducted from January to March 2021 on final year nursing students at Kusuma Husada University. The population used in this study were all final year or 6th semester D3 nursing students at Kusuma Husada University in 2021 who were in the process of compiling their final project, totaling 163 people. The sample in this study was a final level or 6th semester D3 nursing student at Kusuma Husada University in 2020, with a minimum sample size of 115 people. In the age range of 20-25 years, and meet the criteria that have been determined according to the sampling technique. The technique used in this sampling is using purposive sampling, in which the selected sample has met the inclusion and exclusion criteria set by the researcher. The inclusion criteria of the sample were that the subject was willing to be a respondent in this study, final grade / semester 6 nursing student, female student aged 20-25 years, currently preparing KTI, had a normal menstrual cycle, and felt anxious, depressed and tired during the final semester of

lectures. Exclusion criteria in this study were women who worked and experienced menstrual disorders (no menstruation > 3 months / 3 cycles.

The independent variable is the variable that causes or causes changes in the dependent variable (Sugiyono, 2015). The independent variable in this study is the level of stress. The dependent variable is a variable that is influenced, or a variable that is the result of the existence of an independent variable that affects (Sugiyono, 2015). The dependent variable in this study was the symptoms of premenstrual syndrome (PMS).

Stress level is the severity of the stress level experienced by a person. Stress can occur physically or psychologically. The measuring instrument used is the Kessler Psychological Distress Scale (K10) questionnaire which consists of 10 question items by assessing what has been felt or thought during the past week. The type of data scale in this study is an ordinal scale where each question has a response scale of 1-5. Each item is rated from one "never" to five "all the time". The scores of the 10 items are then summed, resulting in a minimum score of 10 and a maximum score of 50. Low scores indicate low stress levels and high scores indicate high stress levels. (Kessler *et al.*, 2003). Interpretation Score : 10-19 : Normal, 20-24 : Possible mild disturbance, 25-29 : Possibly moderate disturbance, 30-50 : Possibly severe disturbance.

Premenstrual syndrome (PMS) is a collection of several symptoms that have the characteristics of periodic behavioral, emotional and physical changes during the luteal period. The measuring instrument used is the Shortened Premenstrual Assessment Form (SPAF) questionnaire with 10 question items and each question can be given points from 1-6, so that the maximum score that can be obtained is 60, with the measurement data scale, namely the ordinal scale. (Guthrie, 2012). Interpretation of the score: 1-20: mild premenstrual syndrome, 21-40: moderate premenstrual syndrome, and 41-60: severe premenstrual syndrome.

Univariate analysis aims to explain or describe the characteristics of each research variable. The result of this analysis is the distribution of frequency and percentage of each variable. Data obtained from univariate analysis of the characteristics of research respondents in the form of a frequency distribution of stress levels and the incidence of premenstrual syndrome which will be displayed in the form of a frequency distribution table. Bivariate analysis is to see the relationship between the independent variable and the dependent variable, using statistical tests. This study uses the Sperman rho 'statistical test because this statistical test is a non-parametric statistical test which does not require normal assumptions in its requirements. This test is used if you want to know the

suitability between 2 variables where the data scale is ordinal. While the ordinal data scale is a measurement scale used in a study to distinguish data, which also contains elements of ranking, level, or degree through a certain assessment, namely in this study using a questionnaire.

Result

This research was conducted in January – February 2021 with the aim of knowing the relationship between stress levels and premenstrual syndrome (PMS) symptoms. This research was conducted on final year D3 nursing students of the Faculty of Health Sciences at Kusuma Husada University Surakarta Jl. Jaya Wijaya No.11 Kadipiro, Banjarsari, Surakarta, Central Java. With a population of 163, while the number of samples that have met the inclusion and exclusion criteria is 115 respondents. Before the research was carried out, researchers had obtained ethical feasibility from the Faculty of Medicine UMS number 329/B.1/KEPK-FKUMS/I/2021 dated January 29, 2021.

This research was conducted in several stages. After making observations and having tested the proposal, the next step is to get an ethical clearance letter or ethical feasibility at the Faculty of Medicine, Muhammadiyah University of Surakarta, then the next researcher submits a letter of permission to the Head of Nursing Study Program, Faculty of Health Sciences, Kusuma Husada University Surakarta and explains the purpose and objectives of the research to be conducted. carried out on final level D3 nursing students at Kusuma Husada University Surakarta. Then finally, the researcher will distribute research questionnaires, namely the stress level questionnaire and the premenstrual syndrome (PMS) level questionnaire in the form of a google form to the selected sample according to the inclusion and exclusion criteria that have been set.

Univariate analysis aims to explain or describe the characteristics of each research variable. The results of this analysis are the distribution of the frequency and percentage of each variable, of which there are two variables in this study. The following is the distribution of the frequency of respondents according to the characteristics of age, stress level and symptoms of premenstrual syndrome. In this study, respondents took data based on the characteristics of the age between 20-25 years.

Table 1. Characteristic of Responden based on Age

Age (year)	Frequency (n)	Precent (%)
20	92	80.0
21	21	18.3
22	2	1.7
Total	115	100.0

Resourch : primary data (2021)

From table 1 it can be seen that the age with the largest number of respondents is at the age of 20 years with a total of 92 respondents (80%). The distribution of stress levels experienced by respondents is divided into 4 categories, namely normal, mild, moderate and severe. The distribution of the frequency and percentage of the stress level of the respondents is as follows:

Table 2. The level of strees

Level of stress	Frequency (n)	Precent (%)
Normal	10	8.7
Mild	21	18.3
Moderate	35	30.4
Severe	49	42.6
Total	115	100.0

Resourch : primary data (2021)

Table 2 shows that from 115 respondents, the most results were found in respondents with severe stress levels, namely 49 respondents (42.6%). The distribution of respondents according to the incidence of premenstrual syndrome (PMS) was categorized into 3 categories, namely mild, moderate and severe. The distribution of respondents according to the incidence of PMS is as follows:

Table 3. Frequency Distribution of Respondents by Level of Premenstrual Syndrome

Premenstrual Syndrome (PMS)	Frequency (n)	Precent (%)
Mild	23	20.0
Moderate	49	42.6
Severe	43	37.4
Total	115	100.0

Resourch : primary data (2021)

Based on table 3 above, it shows that from 115 respondents, the most results were found in respondents with moderate PMS levels, as many as 49 respondents (42.6%). Bivariate analysis is to see the relationship between the independent variable and the dependent variable, using statistical tests. In this study, a normality test was previously carried out, and the results showed that the data were not normally distributed, therefore in

this study using the Sperman rho' statistical test, which is a statistical test that does not require normal assumptions, this test is used to see the relationship between two variables are significant or not, looking at the level of strength of the relationship, as well as to see the direction of the relationship between the two variables, namely in this study the level of stress with the level of symptoms of premenstrual syndrome (PMS).

Table 4. Correlation of the Relationship between Stress Levels and Premestrual Syndrome (PMS)

Level of Stress	Level of *Premenstrual Syndrome* (PMS)			Total	p-value	r
	mild	moderate	severe			
Normal	9 (7.8%)	1 (0.9%)		10(8.7%)	0.000	0.846**
Mild	12(10.4%)	9 (7.8%)		21 (18,7%)		
moderate	2(1.7%)	33 (28.7%)		35(30.4%)		
severe		6 (5,2%)	43(37.4%)	49(42.6%)		
Total	23(20%)	49(42,6%)	43(37,4%)	115(100%		

Resourch : primary data (2021)

Based on table 4 above, out of 10 respondents who experienced normal stress, there were 9 (7.8%) respondents who experienced mild PMS and 1 (0.9%) respondents experienced moderate PMS, from 21 respondents who experienced mild stress there were 12 (10.4%) respondents who experienced PMS. mild and 9 (7.8%) respondents experienced moderate PMS, from 35 respondents who experienced moderate stress there were 2 (1.7%) respondents who experienced mild PMS and 33 (28.7%) respondents experienced moderate PMS, from 49 respondents who experienced moderate PMS. severe stress there are 6 (5.2%) respondents who experience moderate PMS and 43 (37.4%) who experience severe PMS.

Based on statistical tests using the spearman's rho test, the results showed that the significance level value was $p = 0.000$ or $p < 0.05$, which means Ho is rejected and Ha is accepted, this shows that there is a significant relationship between stress levels and premenstrual syndrome in final grade D3 nursing students. at Kusuma Husada University Surakarta ($p = 0.000$). While the correlation coefficient value of $r = 0.846$ indicates that the correlation between stress levels and premenstrual syndrome is very strongly correlated with the direction of the positive relationship.

Discussion

The results of the study explained that a small number of respondents did not experience stress or were in the normal category, namely as many as 10 respondents (8.7%) and some others experienced different levels of stress. Almost half of the

respondents experienced severe stress, as many as 49 respondents (42.6%).

Stress is a normal body response when experiencing pressure to the demands of the load, which then causes physiological, psychological and behavioral responses from humans who try to cope with and regulate internal and external stressors. (Yasinta *et al.*, 2019). There are various levels of stress, namely normal, mild, moderate, and severe stress. Stressors are factors in human life that cause a stress response. Stressors can occur from various sources, both physically, psychologically, and socially (Priyoto, 2014).

The results showed that the average respondent experienced severe stress levels. This is due to the factors that influence stress on female students. Stress that occurs is characterized by someone who feels tired, anxious, sad, restless and depressed.

The results showed that almost half of the respondents showed moderate results with premenstrual syndrome, as many as 49 respondents (42.6%). Then 23 respondents at the level of mild premenstrual syndrome and 43 respondents at the level of severe premenstrual syndrome.

Premenstrual Syndrome is a condition that consists of several symptoms such as physical, emotional and behavioral experienced by women before the arrival of the menstrual cycle, in which the symptoms of premenstrual syndrome cause impaired function and daily activities, which then these symptoms will disappear over time. menstruation arrives (Putri, 2017). According to (Ramadani, 2018) gejala *premenstrual syndrome* mulai dirasakan 6-10 hari menjelang menstruasi. Physical symptoms experienced include; weakness, back pain, abdominal pain, bloating, pain in the breast area, and digestive tract disorders. Meanwhile, emotional and behavioral symptoms in the form of unstable mood swings (mood swings), irritability such as irritability, depression, anxiety, anxiety, impaired concentration and difficulty resting.

The results showed that the average respondent had moderate premenstrual syndrome. This is due to the factors that influence premenstrual syndrome, which in this study is the level of stress. The level of stress that occurs can affect the hormonal system which is one of the causes of premenstrual syndrome.

In a state of stress in the body there will be activation of the Hypothalamic Pituitary Axis (HPA) axis which will cause the hypothalamus to secrete Corticotropic Releasing Hormone (CRH). This CRH has a negative effect on regulating the secretion of Gonadotropin Releasing Hormone (GnRH), then the CRH imbalance will have an effect on suppressing reproductive function in humans when under stress. This CRH secretion will stimulate the release of Adrenocorticotropic Hormone (ACTH) by the anterior

pituitary, then ACTH will stimulate the adrenal glands to secrete cortisol. This cortisol then suppresses the pulsatile luteinizing hormone (LH) by inhibiting the anterior pituitary response to GnRH. During the menstrual cycle, the role of the LH hormone is very important because this hormone is needed to produce the hormones estrogen and progesterone.

In addition, the hormones estrogen and progesterone are also influenced by serotonin, when a person experiences ongoing stress there will be a decrease in serotonin, if serotonin levels are low it can trigger a shift in the pattern of the hormones estrogen and progesterone (the hormone estrogen increases and the hormone progesterone decreases). In fact, these two hormones have an important role during the process of the menstrual cycle, which normally occurs in women every month. However, there is the influence of cortisol and serotonin. When stress occurs, it can cause a hormonal imbalance which will then lead to premenstrual syndrome (Ritung and Olivia, 2018).

In this study, it was found that stress levels were associated with an increase in premenstrual syndrome symptoms in final year D3 nursing students at Kusuma Husada University Surakarta, with $p = 0.000 < 0.05$ with a positive correlation direction. The direction of this positive correlation indicates that the relationship between the two variables is said to be unidirectional, which means that the heavier the stress level, the more severe the symptoms of premenstrual syndrome.

This study is in line with research conducted by (Putri, 2017) that there is a relationship between stress levels and the incidence of premenstrual syndrome with the result $p = 0.010 < 0.05$, which means that there is a relationship between stress levels and the incidence of premenstrual syndrome in final year students of the Stikes Bhakti nursing study program. Husada Mulia Madiun. This research is also supported by research conducted by (Yasinta *et al.*, 2019) who in his research stated that there was a strong relationship between stress levels and premenstrual syndrome levels with results ($p = 0.000$ and $r = 0.632$).

Conclusion

Based on the results of the study, it can be concluded that there is a significant relationship between stress levels and the level of premenstrual syndrome symptoms in final year nursing students at Kusuma Husada University with a very strong correlation strength and a positive correlation direction ($p = 0.000$ and $r = 0.846$)

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