Description of Stress Levels and Menstrual Disorders in D3 Nursing Students in Sidoarjo

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Abstract. Health is very important for every human being, because without good health, every human being will find it difficult to carry out daily activities. Many problems will arise due to neglecting reproductive health, one of which can cause menstrual disorders. Menstrual disorders can be in the form of polymenorrhea, oligomenorrhea, amonerrhea, dysminorhea, and hypermenorhea. This research design used "Descriptive" Cross Sectional approach. This study aims to describe the level of stress and menstrual disorders in D3 Nursing Sidoarjo students. The results of the study on 123 respondents showed the stress level of D3 Nursing Sidoarjo students almost half did not experience disorders (normal) as many as 54 students (44%) the rest experienced stress which was divided into mild stress, moderate stress, severe stress, and very severe stress. Menstrual disorders in D3 Nursing Sidoarjo students who experienced amenorahae events as many as 4 students (6%), polimenorrhea events as many as 16 students (23%), oligomenorrhea events as many as 10 students (14%), dysminorrhea events as many as 12 students (17%), hypermenorrhea as many as 2 students (3%). The above research shows that the cause of menstrual disorders based on stress levels is caused by stress which is divided into mild, moderate, severe and very severe stress that affects hormonal imbalances and causes menstrual disorders.

Keywords: Stress levels, Menstrual disorders, Students

1 INTRODUCTION

Health is very important for every human being, because without good health, every human being will find it difficult to carry out their daily activities. A healthy life is characterized by physical, mental / soul and social health that allows humans to live productively. Especially maintaining reproductive health is very important, because at this time the sexual organs are active. Many problems will arise due to ignoring reproductive health, one of which is that it can cause menstrual disorders (Senja, et al, 2020)

According to (Manggul et al, 2016) menstruation is bleeding due to the shedding of the endometrial layer that occurs periodically. The distance between one menstruation and the next is called the menstrual cycle, which is ideally said to be regular if each month has a range of between 21-35 days, with an average cycle of 28 days. Generally, less than 15% of women of reproductive age with regular menstrual cycles and exactly 28 days. Menstrual disorders can be in the form of polimenorrhea, oligomenorrhea, amonerrhea, dysminorhea, and hypermenorhea. One of the causes of menstrual disorders in women is stress, which is a universal phenomenon that everyone can experience that affects physical, social, emotional, intellectual, and spiritual. Stress itself is a condition where the state of the body is disturbed due to psychological pressure. Experts state that 70-75% of all diseases are related to stress. The impact of untreated menstrual disorders can lead to diseases such as infertility / fertility disorders and anemia (Anggraeni

et al, 2022). A disrupted ovulation process will make it difficult for women to find a fertile period, so there is little chance of getting pregnant (Baadiah et al, 2021).

Data obtained by WHO recorded the incidence rate in 2018 stated that 80% of women in the world experience irregular menstruation. According to Basic Health Research Data (Ministry of Health of the Republic of Indonesia, 2018) where as many as 11.7% of adolescents in Indonesia experience irregular menstruation, in urban areas in Indonesia experience menstrual irregularities where irregular presentations reach 15.8%, and in East Java experience irregular menstruation as much as 13.3% .(Ambarita et al, 2019). The results of a preliminary study (preliminary survey) conducted on January 11, 2023 at D3 Nursing Sidoarjo study program students found that 8 out of 10 female students experienced irregular menstruation.

From the description above, the research problem is that the incidence of menstrual disorders is still high, so the authors are interested in examining "An overview of stress levels and menstrual disorders in D3 Nursing Sidoarjo students".

2 RESEARCH METHOD

According to (Sugiyono, 2019) research methods are a process of activities in the form of data collection, analysis and providing interpretations related to the objectives and uses of research. This research design aims to provide an overview of stress levels and menstrual disorders in D3 Nursing Sidoarjo students. Thus, this research design uses a "Descriptive" research design that aims to see the picture that occurs in a particular population and how it relates to the description of stress levels and menstrual disorders in D3 Nursing Sidoarjo students. The approach used is a Cross Sectional approach. The population in this study were all students of D3 Nursing Sidoarjo which amounted to 177 students. Sample of this study part of the population was sampled which amounted to 123 at D3 Nursing student Sidoarjo by using the Slovin formula. The technique used in this study was non-random sampling, namely purposive sampling. The data collection instrument used in this study was the DASS 42 questionnaire (Lam et al, 2015) and the menstrual disorder questionnaire (Harzif et al, 2018). Data collection through testing several items of questions or statements to research subjects and the answers are given via google form. The data analysis technique used by calculating the average answer based on the scoring of each answer from the respondent. The total number of answers obtained from respondents is calculated on average (mean) then in percentage and presented in tabular form.

3 RESULT

Based on research conducted on 123 D3 Nursing students in Sidoarjo, the following results were obtained :

1. Characteristics of research respondents in D3 Nursing Study Program Sidoarjo

Table 1. Characteristics of research respondents in D3 Nursing Study Program Sidoarjo

No	Indicator	N	(%)
1	**Age**		
	18-19 year	35	28

	20-22 year	88	72
	23-24 year	0	0
2	**Age of Menarche**		
	9-11 year	14	11
	12-14 year	100	81
	> 14 year	9	7
	Total	**123**	**100**

Source: Primary data March 2023

Table 1 shows that almost half of the 123 respondents were in the age range of 20-22 years as many as 88 female students 72% and the age of menarche in the range of 12-14 years as many as 100 female students (81%).

2. Overview of stress levels in D3 Nursing students Sidoarjo

Table 2. Frequency distribution based on stress level in D3 Nursing Study Program Sidoarjo

No	Stress Level	Skor	N	(%)
1	Normal	0-14	54	44
2	Mild Stress	15-18	35	28
3	Moderate Stress	19-25	22	18
4	Severe Stress	26-33	10	8
5	Very Severe Stress	>34	2	2
	Total		**123**	**100**

Source: Primary data March 2023

Table 2 shows that almost half of the 123 respondents did not experience stress or normal as many as 54 female students (44%).

3. Incidence of amenorrhea in D3 Nursing students Sidoarjo based on stress level

Table 3. Frequency distribution of amenorrhea in D3 Nursing Sidoarjo students based on stress level

No	Stress Level	Incidence of Amenorrhea					
		Yes		No		Total	
		∑	%	∑	%	∑	%
1	Mild Stress	2	3	33	48	35	51
2	Moderate Stress	2	3	20	29	22	32
3	Severe Stress	0	0	10	14	10	14
4	Very Severe Stress	0	0	2	3	2	3
	Total	**4**	**6**	**65**	**94**	**69**	**100**

Source: Primary data March 2023

Table 3 shows that a small proportion of female students experience menstrual disorders (amenorrhea) with mild stress and moderate stress as many as 4 female students (6%).

4. Incidence of polymenorrhea in D3 Nursing students Sidoarjo based on stress level

Table 4. Frequency distribution of polymenorrhea in D3 Nursing Sidoarjo students based on stress level

No	Stress Level	Incidence of Polimenorrhea					
		Yes		No		Total	
		∑	%	∑	%	∑	%
1	Mild Stress	5	7	30	43	35	51
2	Moderate Stress	8	12	14	20	22	32
3	Severe Stress	3	4	7	10	10	14
4	Very Severe Stress	0	0	2	3	2	3
Total		**16**	**23**	**53**	**77**	**69**	**100**

Source: Primary data March 2023

Table 4 shows that almost half of the female students experienced menstrual disorders (polymenorrhea) with mild, moderate and severe stress as many as 16 female students (23%).

5. Incidence of oligomenorrhea in D3 Nursing Sidoarjo students based on stress levels

Table 5. Frequency distribution of oligomenorrhea in D3 Nursing Sidoarjo students based on stress level

No	Stress Level	Incidence of Oligomenorrhea					
		Yes		No		Total	
		∑	%	∑	%	∑	%
1	Mild Stress	3	4	32	46	35	51
2	Moderate Stress	4	4	18	26	22	32
3	Severe Stress	3	4	7	10	10	14
4	Very Severe Stress	0	0	2	3	2	3
Total		**10**	**14**	**59**	**86**	**69**	**100**

Source: Primary data March 2023

Table 5 shows that a small proportion of female students experience menstrual disorders (oligomenorrhea) with mild, moderate and severe stress as many as 10 female students (14%).

6. Incidence of dysminorrhea in D3 Nursing students Sidoarjo based on stress level

Table 6. Frequency distribution of dysmenorrhea in D3 Nursing Sidoarjo students based on stress level

No	Stress Level	Incidence of Dysminorrhea					
		Yes		No		Total	
		∑	%	∑	%	∑	%
1	Mild Stress	9	13	26	38	35	51
2	Moderate Stress	1	1	21	30	22	32
3	Severe Stress	1	1	9	13	10	14
4	Very Severe Stress	1	1	1	1	2	3
Total		**12**	**17**	**57**	**83**	**69**	**100**

Source: Primary data March 2023

Table 6 shows that a small proportion of female students experience menstrual disorders (dysminorrhea) with mild, moderate, savere and very severe stress as many as 12 female students (17%).

7. Incidence of hypermenorrhea in D3 Nursing students Sidoarjo based on stress level

Table 7. Frequency distribution of hypermenorrhea in D3 Nursing Sidoarjo students based on stress level

No	Stress Level	Incidence of Hypermenorrhea					
		Yes		No		Total	
		∑	%	∑	%	∑	%
1	Mild Stress	1	1	34	49	35	51
2	Moderate Stress	0	0	22	32	22	32
3	Severe Stress	1	1	9	13	10	14
4	VerySevere Stress	0	0	2	3	2	3
Total		**2**	**3**	**67**	**97**	**69**	**100**

Source: Primary data March 2023

Table 7 shows that a small proportion of female students experience menstrual disorders (hypermenorrhea) with mild stress and severe stress as many as 2 female students (3%).

4 DISCUSSION

1. Age of Menarche

Based on the results of the research conducted, it can be seen that the average age of female students is 20 years old and the age of menarche of D3 Sidoarjo Nursing students is mostly 13 years old (34%) which is a sign that a woman shows hormone production.

This is in accordance with the statement according to (Yang et al, 2018), hormones that affect the age of menarche are the hormones esterogen and progesterone. The hormone esterogen functions to regulate the menstrual cycle, while progesterone affects the uterus, which can reduce contractions during menstruation (Novita,R, 2018). Factors that can affect the age of menarche are internal factors in the form of the mother's menarche status (genetic) related to the acceleration and deceleration of menarche events, namely between the mother's menarche status (genetic) and the incidence of her daughter's menarche (Zalni,RI, 2023). And external factors in the form of nutritional status, food consumption, environment, socioeconomic status, physical activity, audiovisual stimuli, and lifestyle (Octavia, YT, 2023).

According to (Alam, et al, 2021), the age of early menarche is influenced by nutritional status, adolescents who experience menarche earlier have a higher body mass index (BMI) than adolescents who have a smaller BMI. At the same age, in addition to nutritional factors, genetics is one of the factors that affect the slow or rapid occurrence of menarche age (Yermachenko et al, 2014). This can affect menstrual disorders due to poor nutritional status or lower BMI, a woman who has poor nutritional status has a risk of menstrual disorders that affect the growth of organ function and will cause disruption of reproductive function.

The age of menarche varies but is said to be normal if it occurs at the age of 12-14 years. This is in accordance with research conducted by researchers that the average age of menarche of D3 Nursing Sidoarjo students is 13-14 years old.

2. Stress Levels

Based on the results of research conducted on D3 Nursing Sidoarjo students, almost half of the 123 respondents did not experience disorders (normal) the rest experienced stress which was divided into mild stress, moderate stress, severe stress and very severe stress.

Stress itself is a condition that can be experienced by all humans. In psychology, stress is a feeling of pressure and mental tension (Hidayati, 2021). According to (Chasanah et al, 2022) several things that can affect stress levels are environmental, cognitive, personality, and socio-cultural.

According to the researcher, the average respondent is 20 years old which is late adolescence (18-24 years old) (Dianda, 2019), age is related to a person's tolerance to stress, in late adolescence it is often vulnerable to stress and very strong emotions, but if from the early adolescent stage to late adolescence there is an improvement in emotional behavior, then they will be better able to control stress so that it can prevent more severe stress.

In the research conducted, almost half did not experience interference (normal), the rest experienced stress which was divided into mild stress, moderate stress, severe stress and very severe stress. This may occur due to socialization between friends, family support, and good stress management for each individual. According to the researcher, what causes mild, moderate, severe and very severe stress is personality as evidenced by most respondents answering question number 5 "I feel I have spent a lot of energy feeling anxious" and question 6 "I find myself impatient". Everyone has a different personality which has their own characteristics such as optimistic and pessimistic personalities. Optimistic individuals have a good mind and a good point of view in seeing a problem and tend to use strategies to solve the problem at hand. Conversely, individuals who have pessimistic thoughts tend to react with negative feelings to the situation or problem at hand and tend to blame them-

selves. This can cause stress in individuals and it depends on the individual to place his mind to always think optimistically or pessimistically (Hecht, 2013).

For this reason, some things that can be done in order not to fall into greater stress are always thinking positively, always maintaining a balanced state in oneself, and individuals must have the ability to filter emotions and choose positive emotion management strategies.

3. The incidence of amenorrhea in D3 Nursing Sidoarjo students based on stress levels

Based on the results of research in table 3 conducted on D3 Nursing Sidoarjo students that female students who experienced amenorahae events based on stress levels showed a small proportion of female students with mild stress and moderate stress as many as 4 students (6%).

According to (Nathalia, V, 2019) Stress is a physiological, psychological and behavioral response from women who try to adapt and regulate both internal and external pressures or often called stressors. That stressors can affect all parts of a person's life, which causes mental stress, behavioral changes, problems in interactions with others and physical complaints, one of which is menstrual disorders.

Amenorrhea is a state of not having menstruation in 3 consecutive months. Amenorrhea is divided into primary amenorrhea and secondary amenorrhea. Primary amenorrhea is an event that occurs in women aged > 18 years who have never experienced menstruation. While secondary amenorrhea is a woman who has previously experienced menstruation, but did not get menstruation for 3 consecutive months or more (Ningrum, et al, 2023).

According to researchers, 4 respondents who experienced amenorrhea menstrual disorders were included in secondary amenorrhea. Because respondents did not experience menstruation for 3 months or more, this was also supported by respondents experiencing mild and moderate stress so that it could affect amenorrhea menstrual disorders.

Some things that can be done is to change lifestyle. This condition is usually handled by maintaining ideal body weight, controlling stress by always thinking positively, and exercising regularly.

4. The Incidence of polymenorrhea in D3 Nursing students Sidoarjo based on stress level

Table 4 the incidence of polimenorhae shows that almost half of female students experience menstrual disorders (polimenorrhea) with mild, moderate and severe stress as many as 16 students (23%).

Polimenorrhea can be caused by psychological factors such as stress or depression, physical factors such as excessive weight (obesity), fatigue, taking certain drugs that can affect hormonal imbalances. Hormonal imbalances can cause disturbances in the ovulation process (egg release) or shorten the time required for a normal menstrual cycle to take place so that more frequent menstruation is obtained (Novitasari, EW, 2023).

From the results of research conducted by researchers that respondents who experienced polymenorrhea menstrual disorders on average were not obese, other fac-

tors that could affect menstrual disorders were psychological factors such as stress that was being experienced by respondents with an average answer of moderate stress (Zebua et al, 2022). Stress stimulates the hypothalamus-pituitary-adrenal cortex axis to produce the hormone cortisol. The hormone cortisol causes hormonal imbalances including reproductive hormones, thus affecting the menstrual cycle faster.

From the explanation above, the researcher argues that the higher a woman's stress level, it will cause a surge in LH and FSH hormones in her body, which results in a series of menstrual cycle processes to be faster than normal so that the menstrual cycle can shorten. Some things that can be done are controlling ideal body weight, avoiding stress and depression, living a healthy lifestyle by doing regular exercise and implementing a healthy diet, consulting a doctor if you experience a menstrual cycle (polymenorrhea) if it lasts continuously to prevent complications such as anemia and fertility disorders.

5. The incidence of oligomenorrhea in D3 Nursing students in Sidoarjo based on stress levels

   Table 5 shows that a small proportion of female students experienced menstrual disorders (oligomenorrhea) with mild, moderate and severe stress as many as 10 female students (14%).

   The cause of oligomenorrhea is hormonal imbalance in the hypothalamus-pituitary-ovarian axis. The disorder causes the length of the normal menstrual cycle to be elongated, so menstruation rarely occurs. Oligomenorrhea can occur from prolongation of the follicular stage, prolongation of the luteal stage, both stages become long. There are many factors that can cause hormone regulation to be disrupted, including stress (Saei et al, 2020)

   From the results of the study, respondents who experienced oligomenorrhea were with mild, moderate and severe stress, which can affect the menstrual cycle, causing menstrual disorders. This can also be caused by low estrogen hormone which is normally produced during the fertile period. The function of the estrogen hormone itself is to influence the development of reproductive organs, egg maturation, egg release and menstruation. If the hormone is produced less and supported by respondents experiencing stress, this can affect the menstrual cycle to be longer (Allsworth JE, 2007).

   Some things that can be done by consuming balanced nutritional foods, consuming lots of fruit vegetables, meat, fish, and vitamin foods, starting regular exercise, always thinking about positive things to reduce stress.

6. Incidence of dysmenorrhea in D3 Nursing students Sidoarjo based on stress level

   Table 6 shows that a small proportion of female students experience menstrual disorders (dysminorrhea) with mild, moderate, severe and very severe stress as many as 12 female students (17%).

   Dysmenorrhea is abdominal pain stemming from uterine cramps that occur during menstruation. The pain occurs with the onset of menstruation and lasts from several hours to several days until it reaches a peak. Dysmenorrhea is divided into primary and secondary dysmenorrhea. Primary dysmenorrhea is menstrual pain that is not based on pathological conditions, while secondary dysmenorrhea is menstrual pain that is based on pathological conditions such as the discovery of endometriosis or ovarian cysts (Larasati et al, 2016).

This is in accordance with the theory (Syaiful et al, 2018) dysmenorrhea is pain during menstruation caused by muscle tone spasms caused by increased amounts of prostaglandins. Prostaglandins are made in the uterine wall and control uterine contractions. Pain usually occurs just before menstruation begins, as prostaglandin levels increase in the uterine wall.

According to the researcher, dysminorrhea is a natural thing during menstruation, the dysminorrhea felt by the respondents is primary dysminorrhea, because the pain is felt like squeezing before and during menstruation in the lower abdomen and can radiate to the waist, the pain felt is usually before menstruation and the first day of menstruation. The symptoms felt are usually a very uncomfortable feeling that causes irritability, irritability, nausea, vomiting, back pain, headaches, acne, tension, and stress (Kural et al, 2015).

Some things that can be done to reduce dysmenorrhea are according to (Muthohharoh et al, 2018) there are non-pharmacological treatments for dysmenorrhea, namely warm water compresses, controlling stress by doing exercise, herbal treatment of menstrual pain is overcome by drinking herbal medicine, massage or massage, adequate rest, knee chest position, guided imagery techniques, and deep breath relaxation techniques.

7. Incidence of hypermenorrhea in D3 Nursing students Sidoarjo based on stress level

Table 7 the incidence of hypermenorrhea shows that a small proportion of female students experience menstrual disorders (hypermenorrhea) with mild stress and severe stress as many as 2 female students (3%).

Hypermenorrhea itself is defined as a condition when the duration of the period or duration of menstruation > 7 days and blood loss > 80 mL (using ≥ 5 pads) (James AH, 2016). Although it does not cause high mortality, this condition can cause disruption in the quality of life of an adolescent both in terms of physical, mental, social, and material. The amount of blood loss that occurs can lead to the high possibility of anemia in adolescents. Many factors can cause hypermenorrhea, possibly due to uterine myoma, endometrial polyps or endometrial hyperplasia (Hapangama et al, 2016).

Some things that can cause hypermenorrhea are age, weight, too much exercise and stress. Judging from this research, respondents are at mild and moderate stress levels where mild stress can last a few minutes or a few hours, and severe stress can last several weeks (Rafique et al, 2018).

For this reason, efforts that can be made are to find out the cause first to be able to overcome the problem of hypermenorrhea, some things that can be done are eating balanced nutritious foods, managing stress wisely, getting enough sleep, maintaining ideal body weight (Yadav M, 2022).

5 CONCLUSION

Based on the results of the research and discussion presented in the previous chapter, the conclusions are as follows:

1. Stress levels in D3 Nursing Sidoarjo students almost half of the 123 respondents did not experience stress (normal) as many as 54 students (44%).
2. The incidence of amenorrhea in D3 Nursing Sidoarjo students based on stress levels showed that a small proportion of female students experienced menstrual disorders (amenorrhea) with mild stress and moderate stress as many as 4 female students (6%).
3. The incidence of polimenorrhea in D3 Nursing Sidoarjo students based on stress levels showed that almost half of the female students experienced menstrual disorders (polimenorrhea) with mild, moderate and severe stress as many as 16 female students (23%).
4. The incidence of oligomenorrhea in D3 Nursing Sidoarjo students based on stress levels showed that a small proportion of female students experienced menstrual disorders (oligomenorrhea) with mild, moderate and severe stress as many as 10 students (14%).
5. The incidence of dysminorrhea in D3 Nursing Sidoarjo students based on stress levels showed that a small proportion of female students experienced menstrual disorders (dysminorrhea) with mild, moderate, severe and very severe stress as many as 12 students (17%).
6. The incidence of hypermenorrhea or heavy menstruation in D3 Nursing Sidoarjo students based on stress levels showed that a small proportion of female students experienced menstrual disorders (hypermenorrhea) with mild stress, and severe stress as many as 2 female students (3%).

It can be concluded that the above research shows that the cause of menstrual disorders based on stress levels is caused by stress which is divided into mild, moderate, severe, and very severe stress which affects hormonal imbalances in women and causes menstrual disorders

6 SUGGESTION

1. For teenagers

   For young women, especially D3 Nursing Sidoarjo students, to be more active and understand information about stress and menstrual disorders. And adolescents or students of D3 Nursing Sidoarjo are also expected to have openness in experiencing the problems faced as a trigger for stress so that it does not have an impact on health and education that is being undertaken.
2. For Educational Institutions

   Researchers hope that this Scientific Writing can be used as a basis and can be developed again by D3 Nursing Sidoarjo Study Program students for further research and can add to the ebook in the library as a source of information and reference in supporting the making of scientific papers for future students.
3. For further researchers

   It is hoped that the results of this study can become reference material for further research.

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