Analysis of The Dominant Factors Affecting *Premenstrual Syndrome* (PMS) in Female Students of The Pesantren Darussalam Purwokerto

Awaliyatun Istiqomah[1,a*], Siti Haniyah[1,b], Tin Utami [3,c]

[1]Program Studi Keperawatan Program Sarjana, Fakultas Kesehatan, Universitas Harapan Bangsa,
Jl. Raden Patah No 100 Ledug, Purwokerto 53182, Indonesia
[a]awaliyaisti2121@gmail.com**;** [b]haniwiyana56@gmail.com; [c]tinutami@uhb.ac.id

ABSTRACT

The transition from childhood to adulthood known as puberty is a transformative phase marked by the growth of reproductive organs, which impacts physical and mental evolution, and changes in social roles. One of the major physiological changes in the reproductive organs during this period is the onset of menstruation. At the time of menstruation until menstruation begins, women generally experience several symptoms. This is called premenstrual syndrome, which occurs cyclically 7-10 days before menstruation and disappears 4 days after menstruation. The main cause behind PMS is hormonal instability, especially the disharmony between estrogen and progesterone, and variations in serotonin levels. The purpose of this study was to determine the dominant factors that influence Premenstrual syndrome (PMS) in female students at the Darussalam Islamic Boarding School in Purwokerto. This type of research is quantitative research using a descriptive research method with a cross-sectional research design, because this research was conducted by means of an approach, observation or data collection at one time. The research sample involved a group of 76 female adolescents aged 15 to 18 years. Various questionnaires were used for data collection, such as SPAF, PSS, GPA, and PSQI. Logistic regression test was used for data analysis. The results showed a significant p value of 0.001 < 0.05, indicating a relationship between. The results showed that students with poor sleep quality had a 9 times higher risk of developing PMS than students with good sleep quality, even after considering factors such as stress levels and physical activity (p value = 0.001; OR = 9.110; 95% CI = 2.601-31.913).

Keywords: Premenstrual Syndrome, stress level, sleep quality, physical activity

1. INTRODUCTION

The transition from childhood to adulthood known as puberty is a transformative phase characterised by the growth of the reproductive organs, which impacts physical and mental evolution, as well as changes in social roles. One of the major physiological changes in the reproductive organs during this time is the onset of menstruation. Menstruation, the process of repeated bleeding from the uterus, usually begins around 14 days post-ovulation. After the endometrium sheds due to lack of fertilisation, it regenerates and sheds again if no pregnancy occurs (Ronanza, P, P et al., 2022). Entering the menstrual period, women tend to feel premenstrual tension that commonly occurs in women this incident is called premenstrual syndrome (PMS).

PMS usually appears a week to a few days before menstruation and subsides once menstruation begins, although it can persist until the end of the cycle. PMS symptoms, such

* Awaliyatun Istiqomah.
Tel.: -
Email: awaliyaisti2121@gmail.com

as anxiety, depression, mood swings, fatigue, weight gain, bloating, breast sensitivity, cramps, and back pain, may appear about 7-10 days before menstruation and peak during menstruation (Husna et al., 2022). For certain women, symptoms may persist for 24 to 48 hours at the start of menstruation and then disappear in the following days (Puji et al., 2021).

The overall incidence of PMS in women of childbearing age worldwide stands at 47.8%. Among them, about 20% experience symptoms that significantly disrupt their daily routine, while the rest face milder to moderate manifestations (Gudipally & Sharma, 2023).

According to a more recent study among female college students published in 2019, a prevalence of 49.9% with a total of 642 participants suffered from severe premenstrual symptoms According to a 2016 World Health Organisation report, the prevalence of STDs is greater in Asian countries than Western countries. A cohort study in Zurich revealed that 8% of women aged 21-35 years experienced severe premenstrual symptoms, while 14% experienced moderate symptoms. A recent 2019 study of female college students revealed that out of 642 participants, 49.9% suffered from severe premenstrual symptoms (Dózsa-Juhász et al., 2023).

The main cause of PMS is hormonal imbalance, specifically fluctuations between oestrogen and progesterone levels, along with variations in serotonin levels (Ilmi & Utari, 2018). Imbalances occur in hormonal factors when oestrogen levels increase while progesterone levels decrease. These hormonal shifts can affect the function of neurotransmitters, such as serotonin, which is associated with ovulation and the menstrual cycle. Serotonin plays a role in regulating mood, potentially leading to sleep disturbances. Inadequate serotonin levels can exacerbate premenstrual syndrome (Lutfiyati et al., 2021).

Stress Humans experience complex responses, involving physiology, psychology, and behaviour, in an attempt to adjust and manage internal and external stressors. The body reacts to all types of stress (Fadillah et al., 2022). Stress can trigger or even worsen the incidence of premenstrual syndrome (Putri, 2020).

The satisfaction a person feels with their sleep, which is determined by the amount of rest the body needs, is known as sleep quality. When a person does not show signs of sleep deprivation, their sleep quality is considered satisfactory. Good quality sleep can alleviate PMS symptoms, while poor quality sleep can worsen them (Hanin et al., 2021).

The presence of premenstrual syndrome among adolescents can hinder their ability to carry out daily tasks effectively. PMS symptoms in adolescents can affect their academic performance. Manifestations of premenstrual syndrome can interfere with school activities, leading to reduced focus during class, difficulty socialising with peers, decreased academic productivity, higher absenteeism rates, and more (Hardaniyati et al., 2022).

The results obtained from the pre-survey at the Darussalam Islamic Boarding School, it is known that the total number of students aged 15-18 years is 76 santriwati at the Darussalam Islamic Boarding School. And data obtained from a pre-survey of 12 female students of the Darussalam Islamic Boarding School on 7 December 2023 showed that 11 (91.6%) of them experienced symptoms of premenstrual syndrome. Complaints or symptoms experienced by female students from the boarding school vary. From interviews conducted by researchers about the symptoms that appear before menstruation to female students from the boarding school, it is known that at the Darussalam Islamic Boarding School, the symptoms that often appear are irritability, stomach cramps, increased appetite and fatigue.

In accordance with the existing explanation, the researcher wants to examine "Dominant Factors Affecting Premenstrual Syndrome (PMS) in Santriwati Pondok Pesantren Darussalam Purwokerto."

2. RESEARCH METHODS

Researchers apply quantitative research by using descriptive research design through a cross-sectional approach. Cross Sectional

design is a study to study the dynamics of the correlation between risk factors and effects, by means of approach, observation or data collection at one time (Abduh et al., 2022). There are 2 variables, namely factors that affect *premenstrual syndrome (independent variable)* and the incidence of *premenstrual syndrome (dependent variable)*. The research was conducted at Darussalam Islamic Boarding School Purwokerto. The research population was female students aged 15 years - 18 years of Darussalam Purwokerto Islamic Boarding School as many as 76 female students. The sample technique applied through total sampling which amounted to 76 santriwati. There are inclusion criteria, among others: (1) Female students aged 15 years - 18 years at Darussalam Purwokerto Islamic Boarding School, (2) Female students who experience menstruation in March 2024, (3) Female students who want to become respondents by filling out informed consent. Meanwhile, the exclusion criteria are santriwati who are not active in the Islamic Boarding School during the researcher's research.

This study uses 4 instruments including the SPAF, PSS, GPAQ and PSQI questionnaires, these four instruments will be used as a way to collect data. The SPAF, PSS, GPAQ and PSQI questionnaires are standardised instruments because they have been carried out by previous researchers, so there is no need to test validity and reliability again. Data were analysed through univariate, bivariate and multivariate analysis. Bivariate analysis was used to determine the data in the form of a cross table by looking at the relationship between the *independent variable* (influencing factors) and *the dependent variable (Premenstrual Syndrome)* by using the *Spearman rank* correlation test. Multivariate analysis was used to determine the effect of stress levels, physical activity and sleep quality with the incidence of PMS using *logistic regression* test.

3. RESULTS AND DISCUSSION

This research was conducted at the Darussalam Purwokerto Islamic Boarding School for female students aged 15 years - 18 years. Data collection on 19-22 April 2024, with the title "Dominant Factors Affecting Premenstrual Syndrome (PMS) in Santriwati Pondok Pesantren Darussalam Purwokerto". Data collection used the Perceived Stress Scale (PSS) questionnaire, Shortened Premenstrual Assessment Form (SPAF), Pittsburgh Sleep Quality Index (PSQI) and Global Physical Activity Questionnaire (GPAQ). This study used a total sampling technique, the number of respondents was reduced from the number at the time of the pre-survey, namely from 95 to 76 respondents because the number of santriwati aged 15-18 remaining was only 76 santriwati. The research data were obtained as follows:

3.1 Result

3.1.1 Characteristics of Respondents

Table 1. Characteristics of Santriwati Pondok Pesantren Darussalam Purwokerto

No	Characteristics of	Category	F	%
1.	Age	15 years old	15	19.27
		16 years	27	35.5
		17 years	22	28.9
		18 years	12	15.8
2.	Body Mass Index (BMI)	Skinny	20	26.3
		Normal	53	69.7
		Fat	3	3.9
3.	Age of *menarche*	Early menarche	1	1.3%
		Normal menarche	71	93.4%
		Late menarche	4	5.3%
	Total		76	100%

Table 1 explains that out of 76 respondents, most respondents were 16 years old, namely 27 respondents (35.5%). BMI of respondents is mostly in the normal category, as many as 53 respondents (69.7%). The majority of respondents' menarche age is in the normal menarche category, namely 71 respondents (93.4%) out of 76 respondents.

3.1.2 Incidence of *Premenstrual Syndrome* (PMS)

Table 2 shows that most respondents experienced premenstrual syndrome with no symptoms - mild symptoms as many as 49 respondents (64.5%), while with moderate -

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severe symptoms as many as 27 respondents (35.5%).

Table 2. Frequency Distribution of Premenstrual Syndrome (PMS) in Santriwati Pondok Pesantren Darussalam Purwokerto

Category	Frequency (f)	Percentage (%)
No symptoms - mild symptoms	49	64.5
Moderate - severe symptoms	27	35.5
Total	76	100

3.1.3 Stress Level

Table 3. Frequency Distribution of Stress Levels in Santriwati Pondok Pesantren Darussalam Purwokerto

Stress level	Frequency(f)	Percentage (%)
Mild	11	14.5
Medium	60	78.9
Heavy	5	6.6
Total	76	100

Table3 shows that most respondents experienced moderate stress, namely 60 respondents (78.9%), while those who experienced mild stress were 11 respondents (14.5%) and those who experienced severe stress were 5 respondents (6.6%).

3.1.4 Sleep Quality

Table 4. Frequency Distribution of Sleep Quality in Santriwati Pondok Pesantren Darussalam Purwokerto

Sleep Quality	Frequency (f)	Percentage (%)
Good	36	47.4
Bad	40	52.6
Total	76	100

Table 4 frequency distribution of respondents based onsleep qualityshows that mostrespondents are mostly in the poor sleep quality category, namely 40 respondents (52.6%), while in the good quality category, 36 respondents (47.4%).

3.1.5 Physical Activity

Table 5. Frequency Distribution of Physical Activity in Santriwati Pondok Pesantren Darussalam Purwokerto

Physical Activity	Frequency(f)	Percentage (%)
Low	11	14.5
Medium	65	85.5
High	0	0
Total	76	100

Table 5 frequency distribution of respondents according to physical activity, shows that most respondents are in the moderate activity category, namely 65 respondents (85.5%), while in the low activity category, 11 respondents (14.5%).

3.1.6 Effect of Stress Level on *Premenstrual Syndrome* (PMS)

Table 6. Effect of stress level on *Premenstrual Syndrome* (PMS) of female santri of Darussalam Islamic Boarding School Purwokerto

Stress Level	PMS				Total		CC	p-value
	No symptoms - mild symptoms		Moderate - severe symptoms					
	F	%	F	%	F	%		
Lightweight	9	11.8	2	2.6	11	14.5		
Medium	39	51.3	21	27.6	60	78.9	0.247	0.031
Weight	1	1.3	4	5.3	5	6.6		

Table 6 shows the frequency distribution of research on stress levels with *Premenstrual Syndrome* (PMS). The significant value of the results of the *Spearman rank* correlation test shows that the p value = 0.031 where the p-value < a value (0.05) with a correlation coefficient valueof 0.247 which means there is a significant relationship between thelevel of stress and *Premenstrual Syndrome*(PMS) with low correlation strength.

3.1.7 Effect of Sleep Quality on *Premenstrual Syndrome* (PMS)

Table 7. Effect of sleep quality on *Premenstrual Syndrome* (PMS) of female santri of Darussalam Islamic Boarding School Purwokerto

Sleep Quality	PMS				Total		CC	p-value
	No symptoms - mild symptoms		Moderate - severe symptoms					
	F	%	F	%	F	%		
Good	32	42.1	4	5.1	36	47.4		
Bad	17	22.4	23	30.3	40	52.6	0.484	0.000

Table 7 shows the frequency distribution of sleep quality research with *Premenstrual Syndrome* (PMS). Thesignificantvalue of the *Spearman rank* correlation test results shows that the pvalue = 0.000 with a p-value < a value (0.05) with a correlation coefficient valueof 0.484, which means that there is a significant relationship between thelevel of stress and PMS with moderate correlation strength.

3.1.8 Effect of Physical Activity on Premenstrual Syndrome (PMS)

Table 8. Effect of physical activity on *Premenstrual Syndrome* (PMS) of female santri of Darussalam Islamic Boarding School Purwokerto

Physical Activity	PMS				Total		CC	p-value
	No symptoms - mild symptoms		Moderate - severe symptoms					
	F	%	F	%	F	%		
Low	10	13.2	1	1.3	11	14.5		
Medium	39	51.3	26	34.2	65	85.5		
High	0	0	0	0	0	0	0.227	0.048

Table 8 shows the frequency distribution of physical activity research with *Premenstrual Syndrome* (PMS). The significance value of the results of the *Spearman rank* correlation test shows that the p value = 0.048 where the p-value < a value (0.05) with a correlation coefficient valueof 0.227 which means there is a significant relationship between stress levels and *Premenstrual Syndrome* (PMS) with low correlation strength.

3.1.9 Dominant Factors Affecting *Premenstrual Syndrome* (PMS)

Table 9 shows the dominant factors affecting *Premenstrual Syndrome* (PMS). The significance value of the *logistic regression* test results where the p-value < a value (0.05) shows that stress level (p-value = 0.294 OR = 2.319 CI = 0.482-11.167), sleep quality (p-value = 0.001 OR = 9.110 CI = 2.601-31.913) and physical activity (p-value = 0.121 OR = 5.902 CI = 0.628-55.508). The most dominant variable affecting *Premenstrual Syndrome* (PMS) is sleep quality (OR = 9.110).

Table 9. Dominant factors affecting *Premenstrual Syndrome* (PMS) of female students of Pondok Pesantren Darussalam Purwokerto

Variable	p-value	OR	95% CI
Stress Level	0.294	2.319	0.482 - 11.167
Sleep Quality	0.001	9.110	2.601 - 31.913
Physical Activity	0.121	5.902	0.628 - 55.508

3.2 Discussion

3.2.1 Characteristics of Respondents

The results are in Table 1, showing that the most respondents were 16 years old, namely 27

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respondents (35.5%), the majority of BMI respondents in the normal category, namely 53 respondents (69.7%), the majority in the normal menarche category with ages 10-14 years, namely 71 respondents (93.4%) of 76 respondents.

The results are in accordance with the findings of Dwi et al., (2023) of respondents were 16 years old, namely 71 students (79%). About 70 to 90 per cent of young women experience STDs, which is a significant occurrence (Pratiwi et al., 2023). The incidence of PMS begins at the age of approximately 14 years or 2 years after menarche and continues until menopause (Siti & Harumi, 2022).

Body mass index (BMI) is an important factor associated with the severity of PMS. Hormonal imbalances in the ovaries can affect the function of neurotransmitters that make serotonin decrease which can make *PMS* appear (Haniyah & Dewi, 2024). This is reinforced by research Haniyah & Dewi (2024) where someone with a low or high BMI can be at risk for problems in the menstrual cycle, for example during menstruation pain and menstruation becomes irregular.

The young age of menarche is associated with less mature emotional control. So that women who are exposed to fast menarche or early menarche tend to be less able to control emotions and can create emotional tension which makes stress rise so that it can cause premenstrual syndrome (Emilinda, 2022). This is reinforced by research Kamilah et al., (2021) where there is a tendency that adolescent girls who experience early menarche experience more severe premenstrual syndrome than adolescent girls with no early menarche.

3.2.2 Incidence of *Premenstrual Syndrome*

The results are in Table 2, showing that most female students of Pondok Pesantren Darussalam experienced premenstrual syndrome (PMS) with no symptoms to mild symptoms as many as 49 respondents (64.5%). The results are in accordance with the findings of Setiawan et al., (2023), which the majority experienced *premenstrual syndrome* in the category of none to mild symptoms as many as 29 respondents (65.9%).

The results showed that duringpremenstrual syndrome, the most common symptoms felt by female students of Pondok Pesantren Darussalam were experiencing changes in appetite, thoughts became chaoticor difficult to concentrate, hips and joints felt painful, irritable and irritable.

According to some researchers, the main factor affecting *premenstrual syndrome* is psychological factors due to an imbalance between the levels of estrogen and progesterone hormones in the body before entering the menstrual phase. Estrogen and progesterone hormones will affect serotonin levels in the brain, serotonin levels directly affect mood, resulting in psychological, physical and behavioural changes before menstruation. (Lumingkewas et al., 2021)

Premenstrual syndrome is characterised by physical and psychological symptoms and behavioural changes that disrupt women's interpersonal relationships and quality of life. Most of the symptoms that most women feel during Premenstrual Syndrome (PMS) are irritability, back pain or muscle pain as well as swelling (or edema) (Ilmi & Utari, 2018).

3.2.3 Stress Level

The results are in Table 3, showing that most of the female students of Pondok Pesantren Darussalam experienced moderate stress levels as many as 60 respondents (78.9%). The results are in accordance with the findings of Fidora & Yuliani (2020), which showed that a total of 50 respondents (94.3%) were exposed to moderate stress.

The results showed that when under stress, most of what wasexperienced by female students of the Darussalam Islamic Boarding School, namely frequent anger because of problems that could not be controlled, often felt unable to overcome the ha that had to be done so that the difficulties accumulated causing feelings of anger at oneself.

This is because when women experience prolonged stress, hormones such as cortisol and prostaglandins can increase, and other neurotransmitters in the brain such as serotonin and dopamine can decrease. *Premenstrual syndrome* is caused by low serotonin levels, low

serotonin can cause mood swings which are one of the symptoms of premenstrual syndrome (N. K. Nisa et al., 2023).

Each respondent has a different level of stress. This is because the level of sensitivity and one's ability to tolerate stress exposure also influence. Each person is not equally sensitive in responding to stress. In certain conditions, the stimulus that occurs can be stressful, but in other conditions it can be (Suardi et al., 2022).

3.2.4 Sleep Quality

The results are in Table 4, showing that most of the female students of Pondok Pesantren Darussalamhave poor sleep quality of 40 respondents (52.6%). The results are in accordance with the findings of Lestari et al. (2024), which explained the results ofmostrespondentshaving poor sleep quality of 43 respondents (81.1%).

The results showed that the duration of sleep of female santri of the Darussalam Islamic Boarding School was 5-6 hours per day by starting sleep at 24.00 and waking up at 04.30. Sleep duration is one of the indicators that someone can be said to be good or bad. Not only sleep time, sleep habits and disturbances can also be included as indicators in assessing sleep quality (Lestari et al., 2024).

When adolescents' sleep quality is insufficient, it can create challenges for their physical and emotional health. Physical and psychological symptoms can show signs of insufficient sleep. Poor sleep quality can also lead to emotional fluctuations. If sleep duration is less than 6 hours, it can result in decreased sleep quality, and there are reports that adolescents who experience sleep disturbances can experience emotional difficulties, and are at risk of experiencing obstacles in academic achievement (Martfandika, 2018).

3.2.5 Physical Activity

The results are in Table 5, showing that most of the female students of Pondok Pesantren Darussalam experienced moderate physical activity as many as 65 respondents (85.5%). The results are in accordance with the findings of Luthfiya et al., (2024) showing the results that the majority of respondents had moderate activity as many as 86 respondents (81.9%).

The results showed that female students tend to like walking or cycling to go somewhere. The daily activities of santriwati that requirealot of energy thatincreasebreathing and pulse rate are lifting light weights, walking, cycling and exercising, resulting in santriwati having moderate physical activity as many as 65 respondents (85.5%).

Physical activity , namely by exercising, can minimise premenstrual syndrome experienced because exercising can increase endorphin levels, thereby reducing cortisol hormone levels and can minimise stress and release oxygen to the body (Kamilah et al., 2021). According to Mohebbi Dehnavi et al, physical activity and regular exercise can minimise *premenstrual syndrome* experienced (Kamilah et al., 2021).

3.2.6 Effect of Stress Level on *Premenstrual Syndrome* (PMS)

Table 6 explains the majority of respondents who are moderately stressed , namely 60 respondents (78.9%) with PMS no symptoms to mild symptoms of 39 respondents (51.3%) and moderate to severe symptoms of 21 respondents (27.6%).

In accordance with the *Spearman rank* correlation test with a significance level (α) of 0.05or aconfidence level of 95%, the p-value is obtained $<$ a value (0.05) with a correlation coefficient value of 0.247 with a positive relationship direction which means that there is a link between the level of stress and PMS in female students of Pondok Pesantren Darussalam with a low correlation

This finding is in accordance with the findings carried out by Nuvitasari et al., (2020), which shows the results of the value with a p value = 0.0001 where $\rho < \alpha = 0.05$, which means that there is a very significant correlation between stress levels and PMS.

The higher the woman's stress, the worse the premenstrual syndrome will be. This is because when a person is specialised in women who are under continuous stress which can make the hormone cortisol and prostaglandin rise, it can also make serotonin and other neurotransmitters decrease in the brain, including dopamine. Decreased serotonin can make mood changes which is one of the

occurrences of premenstrual *syndrome* (N. K. Nisa et al., 2023).

According to this explanation, it can be concluded that stress levels can affect *Premenstrual Syndrome* (PMS) in female students with a p-value of 0.031, where if the level of stress experienced by female students increases, it can worsen the incidence of *Premenstrual Syndrome (*PMS).

3.2.7 Effect of Sleep Quality on Premenstrual Syndrome (PMS

Good sleep quality was 40 respondents (52.6%) with PMS no symptoms to mild symptoms 17 respondents (22.4%) and moderate to severe symptoms 23 respondents (30.3%).

In accordance with the Spearman Rank test, the significance level (α) 0.05 or 95% confidence level, the p-value is obtained < a value (0.05) with a correlation coefficient value of 0.484 which means that there is a significant relationship between sleep quality and Premenstrual Syndrome (PMS) in female students of Pondok Pesantren Darussalam with moderate correlation strength

This finding is in accordance with the findings carried out by Lutfiyatii et al., (2021), which shows the results with a value of p = 0.001 where ρ < α = 0.05, which means that there is a very significant correlation between sleep quality and Premenstrual Syndrome (PMS).

Sleep has a physiological effect on the nervous system and other body structures. Sleep can promote normal activity and stability between parts of the nervous system. Sleep is important for protein synthesis. Hormonal factors as a form of protein cytesis can cause PMS. Hormonal factors occur because there is instability between high estrogen levels and low progesterone levels. Hormonal changes can affect the work of neurotransmitters such as serotonin which is related to ovulation and menstruation. Serotonin affects mood which can be related to insomnia. Serotonin deficiency will exacerbate PMS (Lutfiyati et al., 2021).

According to this explanation, it can be concluded that sleep quality can affect *Premenstrual Syndrome* (PMS) in female

students with a *p-value of* 0.000, where if the quality of sleep experienced by female students is getting worse, it can aggravate *Premenstrual Syndrome* (PMS).

3.2.8 Effect of Physical activity on Premenstrual Syndrome (PMS)

Table 8 explains that the majority of respondents experienced moderate physical activity there were 65 respondents (85.5%) with PMS no symptoms to mild symptoms of 39 respondents (51.3%) and moderate to severe symptoms of 26 respondents (34.2%).

In accordance with the *Spearman Rank* test, it shows that the p value = 0.048 where the p-value < a value (0.05) with a correlation coefficient value of 0.227 which means that there is a significant relationship between stress levels and *Premenstrual Syndrome* (PMS) with low correlation strength.

Fak Lack of exercise can make *premenstrual syndrome.* The lack of physical activity can affect the severity of PMS. Regular physical activity is recommended to minimise fatigue and depression about PMS. Some biological meanings can explain the relationship between physical activity and premenstrual syndrome. Physical activity can increase endorphin, reduce steroid hormones and estrogen, increase oxygen transport into muscles, minimise cartisol levels and increase them (Suardi et al., 2022).

According to this explanation, it can be concluded that physical activity can affect PMS in female students with a *p-value of* 0.048 where if the lighter the physical activity carried out by female students, it can aggravate the incidence of *Premenstrual Syndrome* (PMS).

3.2.9 Dominant Factors Affecting Premenstrual Syndrome (PMS)

The results are in Table 9, showing the results of the logistic regression test that there are three factors that have a significant influence (α=0.05) on the incidence of PMS in female santri of the Darussalam Islamic Boarding School including stress levels, sleep quality and physical activity

Stress level, where this factor has an OR value of 2.319 and a p-value of 0.294. Although

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the p-value is not statistically significant (p > 0.05), the OR value shows that santri with high stress levels have a 2.319 times higher risk of getting an STD than santri with low stress levels.

Sleep quality, which in this factor has the highest OR (Odds Ratio) value (9.110) and the smallest p-value (0.001), shows that sleep quality is a very dominant variable in influencing PMS. This means that santri with poor sleep quality have a 9.110 times higher risk of experiencing PMS than santri who have good sleep quality.

Physical Activity, where this factor has an OR value of 5.902 and a p-value of 0.121. Just like the stress level, the p-value of physical activity is not statistically significant. However, the OR value shows that santri with low physical activity have a 5.902 times higher risk of experiencing PMS than santri who have high physical activity.

According to this explanation, it can be concluded that the dominant factor influencing *Premenstrual Syndrome (*PMS) in female santri of the Darussalam Islamic Boarding School Purwokerto is sleep quality with a p-value of 0.001 OR 9.110. Poor sleep quality can worsen the occurrence of *Premenstrual Syndrome* (PMS), both physically, hormonally, and psychologically (Lutfiyati et al., 2021). Based on the description above, santriwati need to prioritise adequate and quality sleep as an important step in preventing or relieving symptoms of *Premenstrual Syndrome* (PMS).

CONCLUSIONS

Research on female students of Pondok Pesantren Darussalam Purwokerto showed that the majority were 16 years old with good physical condition. However, moderate stress levels and poor sleep quality were common. The results also indicated a significant correlation between stress levels, sleep quality, and physical activity with the incidence of PMS. Interestingly, the dominant factor that most affects PMS in female students is sleep quality. This shows the importance of maintaining good sleep quality to reduce PMS symptoms, especially among adolescent girls who are studying in pesantren.

ADVICE

From the results obtained, the description and conclusions of the explanation above there are still problems that must be conveyed in the form of suggestions for future researchers, namely being able to expand variables such as genetic factors, nutritional deficiencies and diet and expand the scope of research and pay more attention to the limitations of the dynamics of the research site, such as seating arrangements for respondents and supervision of respondents during the research. For Harapan Bangsa University, it is hoped that this research can be used as an example reference for future researchers and reading material, especially the Nursing Study Programme of the Undergraduate Program on Factors affecting premenstrual syndrome. For respondents, it is expected that santriwati who are respondents of this study are advised to be able to maintain sleep patterns such as setting a consistent sleep pattern schedule and creating a calming sleep routine, they are also expected to maintain a healthy lifestyle so as to reduce the incidence of PMS. For Pondok Pesantren Darussalam Purwokerto, it is hoped that there will be regulations on ideal sleeping hours to create good sleep quality for female students. So that it is an effective way to improve the quality of life of santriwati, especially in overcoming the symptoms of Prementrual Syndrome (PMS).

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