

JOURNAL OF HEALTH COMMUNITY SERVICE



The Relationship of Physical Activity with Premenstrual Syndrome in Students of the Faculty of Health Nahdlatul Ulama Surabaya University

Fisqiyatut Thaharah¹, Wiwik Afridah¹

¹ Universitas Nahdlatul Ulama Surabaya, Jemur Wonosari, Surabaya, Jawa Timur 60237 Indonesia

ARTICLE INFORMATION

Received: February 27, 2023

Revised: January 2025

Available online: January 2025

KEYWORDS

Physical Activity, Premenstrual Syndrome, Students

CORRESPONDENCE

E-mail: Fisqifem0066@gmail.com

A B S T R A C T

Premenstrual Syndrome is a common health problem that most women of reproductive age complain about. There are more female students of the Faculty of Health than boys and all female students are of productive age. This study aims to analyze the relationship between physical activity and the incidence of PMS in students of the Faculty of Health, Nahdlatul Ulama University, Surabaya.

The method in this study is correlational analytic which examines the relationship between variables with a cross sectional study approach. The sample in this study were students of the Faculty of Health, Nahdlatul Ulama University, Surabaya, which consisted of 4 study programs with a total of 39 samples. The sampling technique was stratified random sampling with the criteria of active students from the Faculty of Health, Nahdlatul Ulama University, Surabaya, aged 18-27 years and had menstruated. Analysis of the research data using the Spearman Rank Test.

The results of the physical activity research of 39 respondents, had a light category as many as 22 (56.4%), a moderate category as many as 15 (38.5%), and a heavy category as many as 2 (5.1%). The results of the research that have been carried out show as many as 16 (41.0%) respondents do not experience PMS, and as many as 23 (59.0%) respondents experience PMS. The results of the bivariate analysis are known to be Sig. (2-tailed) of 0.000 is smaller than 0.1, meaning that there is a significant relationship between physical activity and the incidence of PMS. The correlation coefficient is 0.938, meaning that the level of strength of the relationship between physical activity and the incidence of PMS is very strong.

The conclusion of this study is that there is a relationship between physical activity and the incidence of PMS with a strong relationship level. It is expected that female students can carry out regular physical activity by exercising for 30 minutes for 4-6 times a week, or walking one hour per day, in order to improve health and reduce the impact of PMS.

INTRODUCTION

Premenstrual syndrome (PMS) is a common health problem most commonly reported by women of reproductive age. The high prevalence of PMS in women impacts their productivity in carrying out daily activities. Complaints of physical, emotional, and behavioral symptoms in reproductive women manifest physically. These symptoms typically appear one week to several days before menstruation and resolve after menstruation begins, although in some cases, they persist until menstruation stops (Christin Yael Sitorus, 2020). Approximately 75% of women complain of PMS symptoms, and 30% of these require treatment. PMS is very common in young people, indicating a significant health problem (Rizka 2016).

According to Surmiasih (2016), the most common symptoms of PMS in women include feelings of irritability, lack of synergy or weakness, and irritability. The most common physical symptoms of

premenstrual syndrome experienced by women include cramps, abdominal pain, joint pain, back muscle pain, breast tenderness, and bloating (Surmiasih, 2016). The WHO sets the concrete age limit between 10 and 20 years (WHO, 2015). The WHO then divides this age group into two groups: early adolescence (10-14 years) and late adolescence (15-20 years) (WHO, 2015).

For some women, premenstrual syndrome symptoms are severe and can interfere with their activities (R. Fiskalia, 2018). Lack of physical activity can lead to endorphin deficiency in the body, which can result in premenstrual syndrome (Tambing, 2012). However, physical activity in the form of exercise can stimulate the release of endorphins and create a feeling of calm when premenstrual syndrome occurs (Tambing, 2012). The prevalence of women of reproductive age experiencing premenstrual syndrome (PMS) is 47.8% worldwide. According to Joki Tri Meita (2020), Premenstrual syndrome has the highest prevalence (67%), dysmenorrhea (33%), primary amenorrhea (5.3%), secondary amenorrhea (18.4%), oligomenorrhea (50%), polymenorrhea (10.5%), and Premenstrual Dysphoric Disorder (3-8%). One of the highest prevalences that can affect menstrual patterns is Premenstrual Syndrome (Santi, 2018).

According to a WHO (World Health Organization) report, premenstrual syndrome has a higher prevalence in Asian countries compared to Western countries. A 2012 study by the American College of Obstetricians and Gynecologists in Sri Lanka reported that approximately 65.7% of adolescent girls experienced premenstrual syndrome symptoms. A 2012 study by Mahin De Lara in Iran found that approximately 98.2% of women aged 18 to 27 experienced at least one mild or moderate premenstrual syndrome symptom (Aprilyandari, 2018). According to Della Setiana Putri (2017), the highest incidence of premenstrual syndrome is found in Asia, at 98%. In Indonesia, this prevalence rate can reach 85% of the entire reproductive-age female population, with 60-75% experiencing moderate and severe PMS. Damayanti (2013) stated that women's problems in Indonesia revolve around PMS (38.45%). Based on data obtained by the Ministry of Health in 2014 regarding the prevalence of premenstrual syndrome in Indonesia, the results showed that as many as 40% of Indonesian women experienced premenstrual syndrome and as many as 2-10% experienced severe symptoms (Aprilyandari, 2018).

In Indonesia, the prevalence of premenstrual syndrome among female students in Surabaya is 39.2% with severe symptoms and 60% with mild symptoms (Ramadani, 2012). Epidemiological survey data indicates that the burden of illness due to premenstrual syndrome is quite significant. Premenstrual syndrome symptoms that arise before menstruation can disrupt daily activities until menstruation begins, resulting in a variety of complaints, including anxiety, menstrual irregularities, sudden anger, fear, and decreased appetite (Putri et al., 2017).

In general, women experiencing PMS experience a lower quality of life because PMS often interferes with daily activities, such as reduced productivity, absenteeism from school or work, disrupted

relationships, and more frequent visits to health care facilities than women who do not experience PMS (Rapkin & Mikacich, 2013). Research by Nashruna (2012) found that women who exercise experience fewer premenstrual syndrome symptoms than women who do not exercise regularly. Respondents who do not exercise regularly are 2,756 times more likely to experience premenstrual syndrome symptoms compared to respondents who exercise regularly (Kristy 2017).

Given these issues, the researcher was interested in conducting a study to identify the relationship between physical activity and the incidence of premenstrual syndrome among female students in the Faculty of Health at Nahdlatul Ulama University in Surabaya. This study is expected to help female students overcome premenstrual syndrome by balancing their daily physical activity.

METHOD

This study was a quantitative analytical study with a cross-sectional approach. The population was 1,270 female students in the Faculty of Health at Nahdlatul Ulama University in Surabaya. The sample size was 39 students, determined using the Slovin formula. Stratified random sampling was used for sampling.

The data used were primary data. Primary data were obtained through the completion of the physical activity questionnaire and the Shortened Premenstrual Assessment Form. Data analysis used the Spearman Rank Test.

RESULT AND DISCUSSION

Fat Intake at Gading Community Health Center

The following table shows the frequency distribution of fat intake among hypertension patients at Gading Community Health Center.

Table 5: Frequency Distribution of Physical Activity of Female Health Faculty Students

No	Physical Activity	Frequency	Percentage
1.	Light	22	56,4
2.	Moderate	15	38,5
3.	Hard	2	5,1
Total		39	100,0

Based on Table 5, the results of the study, based on the percentage distribution by physical activity, show that of the 39 respondents (56.4%) engaged in light physical activity.

Physical activity in this study was measured by asking about the frequency of daily activities in the last 24 hours, as stated in the APARQ physical activity questionnaire. Physical activity in this study was categorized into three categories: light, moderate, and vigorous. The results of the study indicate that of the 39 respondents, 22 (56.4%) engaged in light activity, 15 (38.5%), and 2 (5.1%) engaged in heavy activity.

Based on these results, it can be concluded that the majority of those suffering from Premenstrual Syndrome symptoms at the Faculty of Health fall into the light physical activity category. The results of this study align with the theory of Christian Yael Sitorus et al. (2020) who studied the relationship between physical activity and premenstrual syndrome. They found that 49 people (86.0%) experienced PMS who engaged in light physical activity. This suggests that light physical activity can contribute to PMS compared to moderate-to-heavy physical activity.

Premenstrual Syndrome Incidence Among Female Health Faculty Students

The following table shows the frequency distribution of hypertension nutritional status at the Gading Community Health Center.

Table 6: Frequency Distribution of Premenstrual Syndrome Incidence Among Female Health Faculty Students

No	<i>Premenstrual Syndrome</i>	Frequency	Percentage
1.	None - mild	16	41,0
2.	Symptom-heavy	23	59,0
Total		39	100,0

Based on Table 6, the results of the study indicate that the majority (59.0%) of respondents experienced moderate to severe PMS.

This study was conducted on 39 menstruating female students from the Faculty of Health. Premenstrual syndrome (PMS) was measured by asking respondents 10 questions from a premenstrual syndrome questionnaire. Premenstrual syndrome (PMS) was categorized into two categories: no symptoms to mild symptoms, and moderate to severe symptoms. A total score of >30 indicates PMS; a total score of ≤ 30 indicates no PMS. The results showed that 16 (41.0%) respondents experienced no symptoms to mild symptoms, and 23 (59.0%) respondents experienced moderate to severe PMS symptoms. This is in line with the research theory conducted by C. Pertiwi (2016) that the results of the study showed that 44.8% had no symptoms of premenstrual syndrome to mild symptoms, and 55.2% experienced moderate to severe symptoms of premenstrual syndrome. From the results of the conclusions obtained, the majority of students from the Faculty of Health, Nahdlatul Ulama University Surabaya, experienced premenstrual syndrome with moderate to severe symptoms, both physical and psychological symptoms.

Hypertension at Gading Community Health Center

The following table shows the frequency distribution of hypertension at Gading Community Health Center.

Table 7: Frequency Distribution of Hypertension Incidents at Gading Community Health Center, Surabaya City

No	Hypertension Category	Frequency	Percentage
1.	Hypertension Level 1	43	60,6
2.	hypertension Level 2	28	39,4
Total		71	100,0

Based on Table 7, the results of the study indicate that the majority of respondents (60.6%) fell into the stage 1 hypertension category.

Various factors can contribute to hypertension, such as excessive fat consumption and being overweight. Most respondents with hypertension had a BMI > 25.0, or were considered overweight, and frequently consumed high-fat foods. Furthermore, other factors were also found to trigger hypertension, such as smoking, caffeine consumption, family history, and alcohol consumption. Many respondents had excessive cigarette and coffee consumption habits. The majority of those who regularly consumed coffee believed that drinking coffee would relieve headaches or drowsiness. This is considered an unhealthy lifestyle that can trigger high blood pressure.

The Relationship Between Fat Intake and Hypertension Incidence at Gading Community Health Center

The following is a cross-tabulation of the relationship between fat intake and hypertension incidence at Gading Community Health Center, Surabaya City.

Table 8: Relationship Between Fat Intake and Hypertension Incidence at Gading Community Health Center, Surabaya City

No	Fat Intake Category	Level of Hypertension				Total	<i>P value</i>	<i>Phi</i>	
		1		2					
		n	%	n	%	N			%
1.	Often	12	16,9	19	26,8	31	43,7	0,002	0,415
2.	Sometimes	13	18,3	6	8,5	19	26,8		
3.	Seldom	18	25,4	5	4,2	21	29,6		
Total		43	60,6	28	39,4	71	100,0		

Based on Table 8, the results of the study indicate that 43.7% of respondents with hypertension frequently consumed fat, 26.8% occasionally consumed fat, and 29.6% rarely consumed fat.

The chi-square test yielded a P-value of $0.002 < 0.05$, indicating a relationship between fat intake and hypertension at the Gading Community Health Center in Surabaya City. The strength of the relationship between fat intake and hypertension is evident from the Phi value of 0.415, indicating a moderate

relationship between fat intake and hypertension at the Gading Community Health Center in Surabaya City.

This study aligns with research conducted by Hasiando, which found a relationship between fat consumption habits and hypertension in the elderly at the Cimanggis Community Health Center in Depok City, with a P-value of $0.001 < 0.05$ (Norist Hasiando, 2019). People who consume excessive fat are at high risk of developing hypertension if they do not immediately reduce their intake of fatty foods. Even consuming excessive fat intake is said to be a characteristic factor in the development of high blood pressure or hypertension.

Excessive fat intake can lead to increased levels of cholesterol, LDL, and triglycerides, which accumulate on blood vessel walls and form plaque. This plaque mixes with protein and is covered by muscle cells and calcium, ultimately developing atherosclerosis. Coronary arteries in atherosclerosis sufferers are not only inelastic but also narrow, increasing resistance to blood flow. Inelastic blood vessels lead to increased systolic and diastolic blood pressure, resulting in narrowing of the blood vessels, known as high blood pressure (Puspita, Nina, 2016). Therefore, it can be concluded that there is a relationship between fat intake and the incidence of hypertension at the Gading Tambaksari Community Health Center in Surabaya City. The higher the fat intake, the higher the blood pressure.

The Relationship Between Nutritional Status and Hypertension Incidence at Gading Community Health Center

The following is a cross-tabulation of the relationship between nutritional status and hypertension incidence at Gading Community Health Center in Surabaya City.

Table 9: Relationship Between Nutritional Status and Hypertension Incidence at Gading Community Health Center in Surabaya City

No	Nutrition	Level of Hypertension				Total		<i>P value</i>	<i>Phi</i>
	Status Category	1	2						
		n	%	n	%	N	%		
1.	Normal	19	26,8	5	7,0	24	33,8	0,022	0,272
2.	Excess	24	33,8	23	32,4	47	66,2		
Total		43	60,6	28	39,4	71	100,0		

Based on Table 9, the results of the study indicate that 33.8% of respondents with hypertension had normal nutritional status, while 66.2% of respondents with hypertension had overweight.

The chi-square test yielded a P-value of $0.002 < 0.05$, indicating a relationship between fat intake and hypertension at the Gading Community Health Center in Surabaya City. The strength of the relationship

between fat intake and hypertension is evident from the Phi value of 0.415, indicating a moderate association between fat intake and hypertension at the Gading Community Health Center in Surabaya City.

This study aligns with research conducted by Langingi, which showed a significant relationship between nutritional status and hypertension among elderly people in Tombolango Village, Lolak District, with a P-value of $0.003 < 0.05$ (Langingi, 2021). Overweight individuals are at high risk of developing hypertension if weight loss efforts are not undertaken promptly. Furthermore, overweight nutritional status is considered a hallmark factor for high blood pressure or hypertension.

The Indonesian Ministry of Health explains that overnutrition in hypertension sufferers is usually related to a lifestyle and excessive consumption patterns from a young age, even from childhood. Furthermore, a decreased metabolism, not balanced by a reduction in food intake, results in excess calories being converted into fat, leading to obesity. This suggests that overweight and obesity must also be addressed as they can trigger degenerative diseases. Therefore, it can be concluded that there is a relationship between nutritional status and the incidence of hypertension at the Gading Community Health Center.

CONCLUSION

Based on the results of the research that has been done, it can be concluded that there are Research results based on the percentage distribution according to physical activity showing that of the 39 respondents, some of the samples (56.4%) of respondents have light physical activity. Research results based on the percentage distribution according to the incidence of premenstrual syndrome show that of the 39 respondents, most of the respondents (59.0%) have moderate-severe PMS. The significance value or Sig. (2-tailed) is 0.000, because the Sig. (2-tailed) value of 0.000 is smaller than 0.01, meaning that there is a significant relationship between the physical activity variable and the incidence of premenstrual syndrome. And the results of the study obtained a correlation coefficient of 0.938, which means that the level of strength of the relationship between physical activity and the incidence of premenstrual syndrome is 0.938 or very strong.

ACKNOWLEDGEMENTS

Thanks are expressed to the research respondents who were willing to participate in this research and to the Faculty of Health, Nahdlatul Ulama University Surabaya, who helped carry out this research.

REFERENCE

- Dinas Kesehatan Kota Surabaya. (2019). Surabaya: Pemerintah Kota Surabaya Dinas Kesehatan. *Profil Kesehatan Tahun 2019*.
- Christian Yael Sitorus dkk , *et al* (2020). Jurnal Hubungan Aktivitas Fisik dengan Kejadian *Premenstrual Syndrome* Pada Mahasiswi DIII Kebidanan.
- Chairunisa, P. 2016 Hubungan Aktivitas Olahraga Terhadap Kejadian Sindrom Premenstruasi Pada Remaja di SMAN 4 Jakarta. Skripsi, UIN Syarif Hidayatullah Jakarta
- Haryono, Rudi. 2016. Siap Menghadapi Menstruasi & Menopause. Yogyakarta: Gosyen Publishing
- Notoatmodjo, S. 2010. *Metodologi Penelitian Kesehatan*. Jakarta: Rineka Cipta.
- Notoatmodjo, S. 2012. *Metodologi Penelitian Kesehatan*. Jakarta: Rineka Cipta.
- Nursalam. (2009). Konsep dan Penerapan Metodologi Penelitian Ilmu Keperawatan, Edisi 2 Pedoman Skripsi, Tesis, dan Instrumen Penelitian Keperawatan. Jakarta : Salemba Medika.
- Proverawati, A., & Misaroh, S. 2009. Menarche Menstruasi Pertama Penuh Makna. Yogyakarta: Nuha Medika
- Rusmini, dkk. 2017. Pelayanan KB dan Kesehatan Reproduksi. Jakarta : Trans Info Media
- Zuhana, Nina. 2016. Hubungan Usia Menarche dengan Kejadian Sindrom Premenstruasi di SMP Negeri 1 Sragi Kabupaten Pekalongan tahun 2016. Stikes Muhammadiyah Pekajangan Pekalongan
- Rahmawati, S. “Faktor Yang Berhubungan Dengan Terjadinya Pms (*Premenstrual Syndrome*) Pada Remaja Putri Di Mtsn 1 Nagan Raya Kecamatan Seunagan Kabupaten Nagan Raya”, Skripsi, 2019
- Suparman . 2011. *Premenstrual Syndrome*. Jakarta : EGC
- Suparman, E. 2012. *Premenstrual Syndrome*. Jakarta : EGC
- Sugiyono, 2012. *Metode Penelitian Pendidikan*. Bandung: Alfa Beta.
- Sugiyono, 2007. Statistika Untuk Penelitian. Alfabeta: Bandung.
- _____. 2011. Metode Penelitian Pendidikan Pendekatan Kuantitatif, Kualitatif Dan R&D. Alfabeta: Bandung.
- _____. 2016. Metode Penelitian Pendidikan Pendekatan Kuantitatif, Kualitatif Dan R&D. Alfabeta: Bandung.
- Moghadam, A. D.,dkk. 2014. Epidemiology of Premenstrual Syndrome (PMS)-A Systematic Review and Meta-Analysis study. Journal of Clinical and Diagnostic Research: JCDR, 8, 106-109
- Siantina, Ressa. 2010. Hubungan Antara Asupan Zat Gizi dan Aktivitas Olahraga dengan Kejadian PMS pada Remaja Putri di SMAN 1 Padang tahun 2010. Fakultas Keperawatan, Universitas Andalas

- Dieny. 2014. Permasalahan Gizi pada Remaja Putri. Yogyakarta: Graha Ilmu
- Masho, S., dkk. 2005. Obesity as a Risk Factor for Premenstrual Syndrome. *J Psychocom Obstet Gynaecol*, 26,6
- M. Syaiful Afiq, “Hubungan Aktivitas Fisik Terhadap Kejadian Sindrom Premenstruasi Pada Siswi SMA Negeri 1 Air Putih”, Skripsi, Repositori USU, 2021
- R. Fiskalia, “Hubungan Aktivitas Fisik Dengan Premenstrual Syndrome Pada Remaja Putri di SMAN 8 Kendari”, Skripsi, Repositori Poltekkes Kendari, 2018
- Liekie Wungow, Marnex Berhimpong, Agusteivie Telew “Tingkat Aktivitas Fisik Mahasiswa Program Studi Ilmu Kesehatan Masyarakat Universitas Negeri Manado Saat Masa Pandemi Covid-19”, Skripsi, *Juornal Article*, 2021
- Retno Wahyuningsih, Intan Gumilang Pratiwi “Hubungan Aktivitas Fisik dengan Kejadian Kegemukan Pada Remaja di Jurusan Gizi Politeknik Kesehatan Mataram”, Skripsi, *Aceh Nutrition Juornal*, 2019
- Fenny Alvionita, “Hubungan Pola Makan Dengan *Premenstrual Syndrome* Pada Mahasiswi S1 Pendidikan Bidan Fakultas Kedokteran Universitas Airlangga”, Skripsi, Perpustakaan UNAIR, 2016