OPEN ACCESS JAKARTA JOURNAL
OF HEALTH SCIENCES

OAJJHS

Vol. 01, No. 11, November 2022
P-ISSN 2798-2033, E-ISSN 2798-1959
DOI 10.53801/oajjhs.v1i11.147

Original Article

Prevalence and Management of Primary Dysmenorrhea among Female High School Students in Yangon Adventist Seminary

Nan Deborah Thein[1], Nilawati Soputri[2]
Universitas Advent Indonesia, Faculty of Nursing, Indonesia
Jl. Kolonel Masturi No.288, Cihanjuang Rahayu, Kec. Parongpong, Kabupaten Bandung Barat
Email correspondent: 1951059@edu.unai[1]

Editor: YY

Diterima: 27/10/2022

Direview: 22/11/2022

Publish: 26/11/2022

Abstract

Background: Primary dysmenorrhea is painful menstrual bleeding that occurs in the absence of any underlying pelvic disease. It is the most common gynecological problem among women, especially in teens.

Objective: This study aims to determine the prevalence and management of primary dysmenorrhea among female high schools in Yangon Adventist Seminary.

Method: A descriptive study was carried out among female high school students at Yangon Adventist Seminary. 69 students participated voluntarily in this study, which was selected using a purposive sampling method. The questionnaire was distributed through a google form, and data collection was from august 21 2022 to 23 August 2022.

Results: The mean age of the participants was 16.19 years with a standard deviation + of 1.19 years. The prevalence of primary dysmenorrhea was 82.6%. The methods used by respondents to relieve menstrual pain were taking medication prescribed by the doctor 93%, self-medication 96.5%, applying heating pads or compress 98.2%, tea or herbs 96.5%, bed rest 98.2%, traditional medicine 5.3%, consuming hot fluids 7% and wine 3.5%.

Conclusion: The prevalence of primary dysmenorrhea was high. Bed rest and applying heating pads or compresses were the most common methods used by the respondents to relieve menstrual pain.

Keywords: high school, management, prevalence, primary dysmenorrhea

Background

Dysmenorrhea is a medical word for pain that occurs just before and/or during the menstrual period. This word is derived from the Greek words "dys" and "rrhea," which mean "difficult, painful, or unnatural flow".[1] Dysmenorrhea is uncommon in the first or two years of menstruation since early menstrual cycles are frequently anovulatory (without ovulation) due to immaturity of the hypothalamic-pituitary-ovarian axis. Menstrual pain begins with the onset of ovulation.[2] Dysmenorrhea can be classified into primary (spasmodic) and secondary (congestive).

Primary dysmenorrhea (PD) is characterized by painful menstrual bleeding that occurs in the absence of any underlying pelvic disease.[1] Excessive endometrial prostaglandin

OAJJHS
Vol. 01, No. 11, November 2022
P-ISSN 2798-2033, E-ISSN 2798-1959
DOI 10.53801/oajjhs.v1i11.147

production causes uterine hypercontractility, which reduces blood supply to the uterus and increases nerve sensitivities, resulting in pain in primary dysmenorrhea. Women with primary dysmenorrhea have a level of prostaglandin that is 10 times higher than asymptomatic women.[3] The pain normally starts a few hours before menstrual bleeding and lasts no more than 72 hours.[4] The pain is the most intense during the first 24–36 hours of menstruation.[5] A sharp, muscle spasms pain that commonly occurs in the suprapubic (lower abdomen) area, and it may spread to the lower back or down to the legs. It frequently follows other symptoms, including diarrhea, abdominal distention, nausea, vomiting, breast tenderness and other biological symptoms.[2]

Secondary dysmenorrhea is menstrual pain caused by pelvic or uterine diseases. The causes of secondary dysmenorrhea include endometriosis, fibroids, adenomyosis, pelvic inflammatory disease, ovarian cysts, cervical stenosis and vaginal anomalies.[1] Among all pelvic diseases, endometriosis is the leading cause of secondary dysmenorrhea.[3] Endometriosis is the growth of tissue outside of the uterus that resembles endometrium and reacts to hormonal stimuli similar to the uterine lining.[4] In the case of secondary dysmenorrhea, the pain may get worse at the end of the menstruation.[6]

The percentage of women of reproductive age who experience dysmenorrhea ranges between 45 and 95 percent.[7] It is the most prevalent gynecological condition among women, especially common in teens.[8] Young and nulliparous women are the most likely to experience primary dysmenorrhea.[4] It is one of the most common reasons for missing school or work, and it has a detrimental impact on quality of life, everyday activities, work productivity, and academic activities.[9] Dysmenorrhea also impacts the mental health of an individual. The study by Sahin et al. (2018), showed that adolescents with dysmenorrhea have higher depression and anxiety levels and lower quality of life than other adolescents.[10] Primary dysmenorrhea, on the other hand, gets better after childbirth.[11]

Nonsteroidal anti-inflammatory drugs (NSAIDs), such as ibuprofen, aspirin and naproxen are the first-line treatments for primary dysmenorrhea. They are very effective in relieving pain, and can prevent other symptoms such as nausea and diarrhea.[12] If symptoms are not improved with NSAIDs, a low dose of the combination of estrogen and progestin oral contraceptives (COCs) can be taken.[2] Myometrial contractility and prostaglandin synthesis are decreased as a result of hormonal contraception's suppression of ovulation and the development of an atrophic endometrium.[3] Endometriosis should be further investigated in cases of dysmenorrhea that do not improve with the use of NSAIDs and COCs.[2] However, women with dysmenorrhea seek alternative or traditional medicine and non-pharmacological treatments due to pharmacologic side effects.[9] Non-pharmacologic treatments that are successful at reducing the symptoms of primary dysmenorrhea include yoga, exercise, acupuncture, acupressure, heating pad and transcutaneous electrical nerve stimulation.[13]

There had been few studies on dysmenorrhea among women in Myanmar. As a result, with the aim to improve awareness and quality of life among young women with primary dysmenorrhea, the aim of this research is to determine the prevalence and management of primary dysmenorrhea among female high school students in “Yangon Adventist Seminary”.

Method

This research is a cross-sectional study that is aimed to determine the prevalence and management of primary dysmenorrhea among female high schools in Yangon Adventist

OAJJHS
Vol. 01, No. 11, November 2022
P-ISSN 2798-2033, E-ISSN 2798-1959
DOI 10.53801/oajjhs.v1i11.147

Seminary. The most common symptoms of dysmenorrhea before and during the menstruation period are also collected in this study. The sample in this study was high school female students from ninth grade through twelfth grade with an age range from 13 to 19 years old. The sample was selected using purposive sampling, and 69 students were willing to participate voluntarily in this study.

Data were collected by using the self-administered questionnaire which was created for this study. The questionnaire "Prevalence and Management of Dysmenorrhea" was anonymously completed by each respondent who voluntarily consented to participate in this study. The questionnaire consists of two parts. The first part of the questionnaire is to select respondents who have dysmenorrhea and those who have never. Respondents who experienced dysmenorrhea and were willing to participate voluntarily in the study were welcome to fill out the second part of the questionnaire. The second part of the questionnaire accessed the frequency, severity, general symptoms before and during the menstrual period, and the management of primary dysmenorrhea. The effectiveness of each treatment for dysmenorrhea is classified into four levels; very effective (4), effective (3), less effective (2), and not effective (1). Data collection was carried out on August 21 to 23, 2022.

Statistical Package for Social Sciences 23 (SPSS 23) was used to analyze the data. Demographic data and history of the menstrual period, the prevalence of dysmenorrhea, its frequency and intensity are presented in the table. The symptoms of dysmenorrhea before and after the menstrual period are shown by using bar graphs. The management and its level of effectiveness are presented in the table. The data is presented in frequency, percentage, standard deviation, and mean.

The study was approved by the University of Adventist Indonesia, Nursing Faculty Ethic Committees on August 8, 2022. The permission to conduct the study at Yangon Adventist Seminary was obtained from the school. Prior to filling out the questionnaire the aim of the study was explained to the respondents and allowed them to ask if there was any question related to this study. The informed consent was obtained in the google form. Personal identification was omitted from the questionnaire to ensure confidentiality, and the data obtained was secured to prevent disclosure.

Result

Table 1. Demographical Data and History of Menstrual Period of Female High School in Yangon Adventist Seminary

Variables		Frequency	Percentage
Age of the students (in years)	14 to 16	45	65.2%
	17 to 19	24	34.8%
	Mean, standard deviation	16.19, +/-1.19	
Grade of the students	9th	31	45%
	10th	17	24.6%
	11th	12	17.4%
	12th	9	13%
Ethnicity of the students	Kachin	5	7.2%
	Kayan (Karenni)	1	1.4%
	Kayin (Karen)	21	30.4%
	Chin	8	11.6%
	Mon	1	1.4%
	Bamar	25	36%

OAJJHS
Vol. 01, No. 11, November 2022
P-ISSN 2798-2033, E-ISSN 2798-1959
DOI 10.53801/oajjhs.v1i11.147

	Others	8	12%
Religion of the students	Buddhist	20	29%
	Christian	45	65.2%
	Muslim	2	3%
	Hindu	1	1.4%
	Others	1	1.4%
Marital Status	Single	69	100%
	Married	0	0%
Age at menarche (in years)	8 to 10	4	5.8%
	11 to 13	65	94.2%
	Mean, Standard deviation	12.07, +/- 1.03	
Menstrual cycle	Regular	41	59.4%
	Irregular	28	40.6%
Duration of menstrual flow (in days)	<3 days	9	13%
	3-5 days	34	49.3%
	5-7 days	19	27.5%
	>7 days	7	10.2%
Family history of dysmenorrhea	Yes	30	43.5%
	No	39	56.5%

Out of 92 students in grades 9 through 12 at Yangon Adventist Seminary, 69 (75%), between the ages of 13 and 18, willingly decided to participate and filled out the questionnaire. Table 1 shows the demographical data and the history of the menstrual period of the respondents. The average age of the participants was 16.19 years with a standard deviation + +/-1.19 years. Most respondents 31 (45%) are from grade 9. The majority of the respondents are Bamar (36%) and Karen (30.4%). Menarche (the first menstruation or bleeding) occurred at an average age of 12.07 years, with a +/-1.03-year standard deviation. Out of 69 participants, 59.4% have normal menstrual cycles, while the rest respondents have irregular cycles. The majority of the respondents' 34 (49.3%) periods lasted 3-5 days. Nearly 44% of the respondents have a family history of dysmenorrhea.

Table 2. Prevalence of Primary Dysmenorrhea, its Frequency, and Severity Among Female High School Students in Yangon Adventist Seminary

Variables	Frequency	Percentage
Prevalence of dysmenorrhea		
Yes	57	82.6%
No	12	17.4%
Frequency of dysmenorrhea		
Always	21	36.8%
Usually	11	19.3%
Sometimes	25	43.9%
Severity of dysmenorrhea		
Mild	10	17.5%
Moderate	24	42.1%
Severe	18	31.6%
Very Severe	5	8.8%

Table 2 is presenting the prevalence of primary dysmenorrhea, its frequency and its severity. The results of this study showed that 57 (82.6%) of the students reported that they were suffering from primary dysmenorrhea. We assessed and categorize how frequently the students had primary dysmenorrhea, and the respondents reported that 21 (36.8%) of them had

OAJJHS
Vol. 01, No. 11, November 2022
P-ISSN 2798-2033, E-ISSN 2798-1959
DOI 10.53801/oajjhs.v1i11.147

dysmenorrhea every period, 11 (19.3%) of them had it most of the time, and 25 (43.9%) had it sometimes. We classified the intensity of dysmenorrhea into four-level, and respondents reported that 10 (17.5%) experienced mild pain, 24 (42.1%) moderate pain, 18 (31.6%) severe pain, and 5 (8.8%) very severe pain.

Figure 1. Symptoms of Dysmenorrhea before Menstrual Period

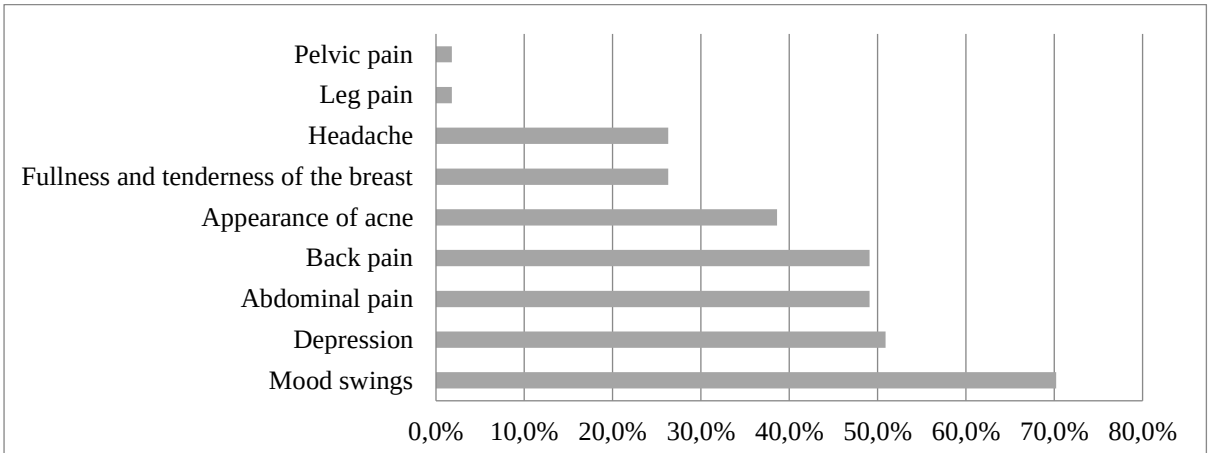

Fig.1 Symptoms of Dysmenorrhea before Menstrual Period

The three most common symptoms of primary dysmenorrhea experienced by the respondents before the menstrual period were mood swings 40 (70.2%), depression 29 (50.9%), abdominal pain and back pain 28 (49.1%). Other symptoms reported by the respondents before the menstrual period were the appearance of acne 22 (38.6%), fullness and tenderness of the breast 15 (26.3%), headache 15 (26.3%), leg pain 1 (1.8%), and pelvic pain 1 (1.8%). The three most common symptoms of primary dysmenorrhea among these high school students during the menstrual period were similar to those of the symptoms before the menstrual period, and they were mood swings 39 (68.4%), depression 28 (49.1%), and back pain 27 (47.4%). Other symptoms reported by respondents included changes in appetite 17 (29.8%), fullness and tenderness of breast 16 (21.8%), bloating in the lower abdomen 14 (24.6%), headache 13 (22.8%), fatigue 9 (15.8%), constipation 7 (12.3%), diarrhea 7 (12.3%), nausea 4 (7%), abdominal pain 2 (3.5%), insomnia 1 (1.8%), and leg pain 1 (1.8%).

Figure 2. Symptoms of Dysmenorrhea during the Menstrual Period

OAJJHS
Vol. 01, No. 11, November 2022
P-ISSN 2798-2033, E-ISSN 2798-1959
DOI 10.53801/oajjhs.v1i11.147

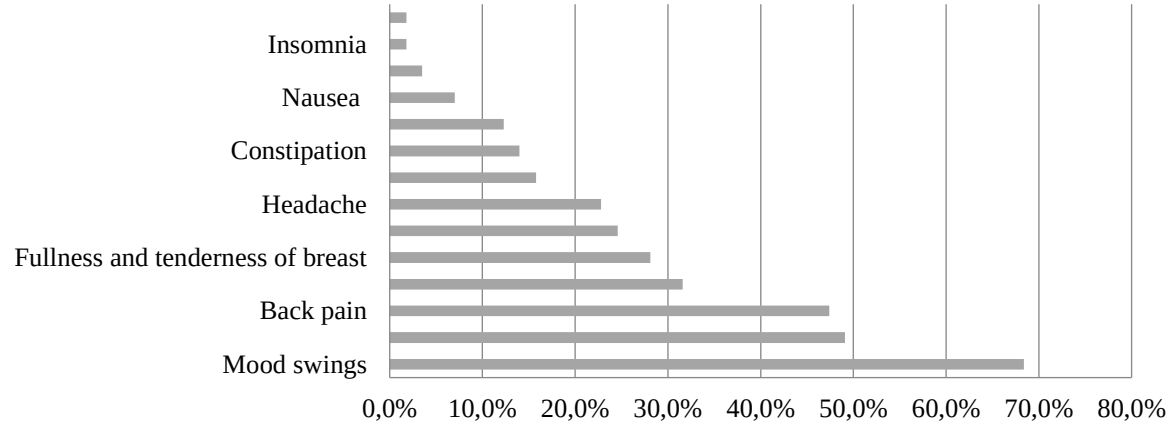

Fig.2 Symptoms of Dysmenorrhea during Menstrual Period

The most common way of managing dysmenorrhea among the respondents was bed rest 56 (98.2%), which had an effective level of the mean of 3.3 and applying heating pads or hot compress 56 (98.2%) which had an effective level of the mean of 2.8. 55 (96.5%) of the respondents chose self-medication with a level of effectiveness mean of 2.8 and tea or herbs with a level of effectiveness a mean of 2.1. Other ways of relieving dysmenorrhea reported by the respondents were taking medication prescribed by a doctor 53 (93%) with a level of effectiveness mean of 2.5, traditional medicine 3 (5.3%) with a level of effectiveness mean of 2.3, consuming hot fluids 4 (7%) with the level of effectiveness means 3.8 and consuming wine 2 (3.5%) with the level of effectiveness means 4.

Table 3. Management of Primary Dysmenorrhea Among Female High School Students in Yangon Adventist Seminary

Variables	Level of Effective	Frequency	Percentage	Level of Effectiveness (Mean)
Medication prescribed by a doctor	Very Effective	4	7%	2.5
	Effective	29	50.9%	
	Less Effective	11	19.3%	
	Not Effective	9	15.8%	
	Total	53	93%	
Self-medication	Very Effective	6	10.5%	2.8
	Effective	34	59.7%	
	Less Effective	10	17.6%	
	Not Effective	5	8.7%	
	Total	55	96.5%	
Heating pad or hot compress	Very Effective	13	22.8%	2.8
	Effective	26	45.6%	
	Less Effective	11	19.3%	
	Not Effective	6	10.5%	
	Total	56	98.2%	
Tea or herbs	Very Effective	4	7%	2.1
	Effective	17	29.8%	
	Less Effective	15	26.3%	
	Not Effective	19	33.4%	
	Total	55	96.5%	

OAJJHS
Vol. 01, No. 11, November 2022
P-ISSN 2798-2033, E-ISSN 2798-1959
DOI 10.53801/oajjhs.v1i11.147

Bed rest	Very Effective	29	50.8%	3.3
	Effective	18	31.6%	
	Less Effective	7	12.3%	
	Not Effective	2	3.5%	
	Total	56	98.2%	
Traditional medicine (Shan pyo may and Shwe Bone Shwe Nan)	Very Effective	1	1.8%	2.3
	Effective	2	3.5%	
	Less Effective	0	0%	
	Not Effective	0	0%	
	Total	3	5.3%	
Consuming hot fluids	Very Effective	3	5.3%	3.8
	Effective	1	1.7%	
	Less Effective	0	0	
	Not Effective	0	0	
	Total	4	7%	
Wine	Very Effective	2	3.5%	4
	Effective	0	0%	
	Less Effective	0	0%	
	Not Effective	0	0%	
	Total	2	3.5%	

Discussion

The result of the study showed that the prevalence of primary dysmenorrhea was high (82.6%) among female high school students in Yangon Adventist. The prevalence of dysmenorrhea was higher than the study carried out among Jordan medical students 75.4%,[14] Chinese university students 41.7%,[8] Gondar university students 77.6%,[9] Ghana adolescents 68.1%,[15] Palembang high school students 67.5%.[16] On the other hand, the prevalence of dysmenorrhea was lower than in the study conducted among Turkey university students 90.1%,[17] Swedish adolescents 89%,[7] Kuwait high-school students 85.6%,[18] Indian college girls 84.2%,[19] northern Ghana university students 83.6%.[20] The prevalence differed from one place to another place, and this may be due to differences in the study setting, age of the respondents, type of dysmenorrhea, tool used for data collection, simple size, and the respondents' perception of pain.

The majority of respondents experienced dysmenorrhea sometimes (43.9%) with a moderate level of pain (42.1%). Physical symptoms such as back pain (49.1%) and abdominal pain (49.1%) were common symptoms before the menstrual period. However, abdominal pain abruptly decreased (3.5%) during the menstrual bleeding. According to this study mood swings were the most prevalent physiological symptoms before (before 70.2%) and during (68.4%) menstrual period among respondents. This finding is in accordance with the study of dysmenorrhea among high-school students and its associated factors in Kuwait.[18] Therefore, women with dysmenorrhea need understanding, affection, patience, care and social support from families, friends, and spouses during painful periods.[21] Depression (before 50.9%- after 49.1%) was the second most common psychological symptom. Depression is characterized by either a dysphoric mood or a loss of interest and enthusiasm in daily activities.[22] In the studies of Sahin et al. (2018),[10] Zhao et al. (2021),[22] Alateeq et al. (2022),[23] and Namvar et al. (2018),[24] it showed that dysmenorrhea and depression have a positive relationship. However, it is still questionable whether dysmenorrhea is more common among depressed women or whether depressed women have a higher likelihood of developing the condition.[10]

OAJJHS
Vol. 01, No. 11, November 2022
P-ISSN 2798-2033, E-ISSN 2798-1959
DOI 10.53801/oajjhs.v1i11.147

According to this study, respondents were using a combination of pharmacology and non-pharmacology methods to manage menstrual pain. Bed rest and applying heating pads or hot compression (98.2%) were the most common and effective methods utilized by the respondents to handle menstrual pain. Similarly to this, bed rest and hot compress/ heating pads were the most common complementary and alternative therapies chosen by undergraduate pharmacy students in Malaysia. Applying heat promotes blood circulation, and results in the uterine muscles relaxing, which results in pain reduction.[25] Self-medication was chosen by 96.5% of respondents and 93% chose medication prescribed by a physician. We can infer that 93% of the respondents used other medications in addition to those that were prescribed by a doctor. According to previous studies, less than 40% of women with dysmenorrhea seek health services and consult with healthcare providers related to their condition.[26,27,28] In this study, we didn't assess the types of medications the respondents used for self-medication. A small percentage of responders (3.5%) indicated that drinking wine helps to significantly reduce menstruation pain. To determine whether wine can effectively reduce menstrual pain, research and evidence are still needed.

As a limitation, this is a cross-sectional study and uses a small sample size. Due to this Covid-19 pandemic, data was collected through an online survey. Future studies need to assess and find out the impact of dysmenorrhea on mental health and provide interventions to improve the mental well-being of students with primary dysmenorrhea.

Conclusion

The prevalence of dysmenorrhea is high among female high school students in Yangon Adventist Seminary. Mood swings and depression are the most prevalent symptoms of primary dysmenorrhea before and during the menstrual period. This showed that primary dysmenorrhea has a negative impact on mental health. This finding reminds public healthcare providers that treating and caring the women with primary dysmenorrhea needs a holistic approach. Bed rest and applying heating pads are the most common ways of managing dysmenorrhea among these high school students.

Conflicts of Interest

The researchers have no conflict of interest in conducting and publishing this research.

Acknowledgment

The participants, female high school students from the Yangon Adventist, were much appreciated by the researchers. In addition, the researcher would like to express gratitude to Yangon Adventist Seminary's principal, and teachers for approving the study's permission and assisting with the survey.

Funding

This study's funding comes from the researchers.

References

1. Ricci SS. Essential of Maternity, Newborn and Women's Health Nursing. 4th ed. Philadelphia (US): Wolters Kluwer; 2017.
2. Silbert-Flagg J, Pilitteri A. Maternal & Child Health Nursing. 8th ed. Philadephia (US): Wolters Kluwer; 2018.
3. McCance KL, Huether SE. Pathophysiology: The Biologic Basis for Disease in Adults and Children. 7th ed. St. Louis (US): Elsevier; 2014.

OAJJHS
Vol. 01, No. 11, November 2022
P-ISSN 2798-2033, E-ISSN 2798-1959
DOI 10.53801/oajjhs.v1i11.147

4. Hartston GL. Introduction to Maternity and Pediatric Nursing. 8th ed. St. Louis (US): Elsevier; 2019.
5. Barcikowska Z, Rajkowska-Labon E, Grzybowska ME, Hansdorfer-Korzon R, Zorena K. Inflammatory markers in dysmenorrhea and therapeutic options. International journal of environmental research and public health. 2020 Feb;17(4):1191.
6. Vilšinskaitė DS, Vaidokaitė G, Mačys Ž, Bumbulienė Ž. The Risk Factors Of Dysmenorrhea In Young Women Czynniki Ryzyka Bolesnego Miesiączkowania U Młodych Kobiet. Wiad Lek. 2019;72(6):1170-7.
7. Söderman L, Edlund M, Marions L. Prevalence and impact of dysmenorrhea in Swedish adolescents. Acta obstetricia et gynecologica Scandinavica. 2019 Feb;98(2):215-21.
8. Hu Z, Tang L, Chen L, Kaminga AC, Xu H. Prevalence and risk factors associated with primary dysmenorrhea among Chinese female university students: a cross-sectional study. Journal of pediatric and adolescent gynecology. 2020 Feb 1;33(1):15-22.
9. Gebeyehu MB, Mekuria AB, Tefera YG, Andarge DA, Debay YB, Bejiga GS, Gebresillassie BM. Prevalence, impact, and management practice of dysmenorrhea among University of Gondar Students, Northwestern Ethiopia: a cross-sectional study. International journal of reproductive medicine. 2017 May 14;2017.
10. Sahin N, Kasap B, Kirli U, Yeniceri N, Topal Y. Assessment of anxiety-depression levels and perceptions of quality of life in adolescents with dysmenorrhea. Reproductive health. 2018 Dec;15(1):1-7.
11. Samba Conney C, Akwo Kretchy I, Asiedu-Danso M, Allotey-Babington GL. Complementary and alternative medicine use for primary dysmenorrhea among senior high school students in the western region of Ghana. Obstetrics and Gynecology International. 2019 Nov 25;2019.
12. Bernardi M, Lazzeri L, Perelli F, Reis FM, Petraglia F. Dysmenorrhea and related disorders. F1000Research. 2017;6.
13. Ferries-Rowe E, Corey E, Archer JS. Primary dysmenorrhea: diagnosis and therapy. Obstetrics & Gynecology. 2020 Nov 1;136(5):1047-58.
14. Alshdaifat E, Absy N, Sindiani A, AlOsta N, Hijazi H, Amarin Z, Alnazly E. Premenstrual Syndrome and Its Association with Perceived Stress: The Experience of Medical Students in Jordan. International Journal of Women's Health. 2022;14:777.
15. Acheampong K, Baffour-Awuah D, Ganu D, Appiah S, Pan X, Kaminga A, Liu A. Prevalence and predictors of dysmenorrhea, its effect, and coping mechanisms among adolescents in Shai Osudoku District, Ghana. Obstetrics and gynecology international. 2019 May 20;2019.
16. Purba WT, Azhar MB, Roflin E. Association Of Dysmenorrhea And Quality Of Life In Female Stundents At Xaverius I Senior High School Palembang Academic Year 2018-2019. Majalah Kedokteran Sriwijaya. 2019 Jun 22;51(1):23-9.
17. Bilir E, Yıldız Ş, Yakın K, Ata B. The impact of dysmenorrhea and premenstrual syndrome on academic performance of college students, and their willingness to seek help. Turkish journal of obstetrics and gynecology. 2020 Sep;17(3):196.
18. Al-Matouq S, Al-Mutairi H, Al-Mutairi O, Abdulaziz F, Al-Basri D, Al-Enzi M, Al-Taiar A. Dysmenorrhea among high-school students and its associated factors in Kuwait. BMC pediatrics. 2019 Dec;19(1):1-2.
19. Kural M, Noor NN, Pandit D, Joshi T, Patil A. Menstrual characteristics and prevalence of dysmenorrhea in college going girls. Journal of family medicine and primary care. 2015 Jul;4(3):426.
20. Ameade EP, Amalba A, Mohammed BS. Prevalence of dysmenorrhea among University students in Northern Ghana; its impact and management strategies. BMC Women's Health. 2018 Dec;18(1):1-9.
21. Fernández-Martínez E, Abreu-Sánchez A, Pérez-Corrales J, Ruiz-Castillo J, Velarde-García JF, Palacios-Ceña D. Living with pain and looking for a safe environment: A qualitative study among nursing students with dysmenorrhea. International journal of environmental research and public health. 2020 Sep;17(18):6670.
22. Zhao S, Wu W, Kang R, Wang X. Significant Increase in Depression in Women With Primary Dysmenorrhea: A Systematic Review and Cumulative Analysis. Frontiers in psychiatry. 2021:1313.
23. Alateeq D, Binsuwaidan L, Alazwari L, Algarni M, Al Hussain M, Alzahrani R, Aljohani R. Dysmenorrhea and depressive symptoms among female university students: a descriptive study from Saudi Arabia. The Egyptian Journal of Neurology, Psychiatry and Neurosurgery. 2022 Dec;58(1):1-8.
24. Namvar H, Rahmati M, Akbari A, Hosseinifar M, Moghaddam AA. Comparison of Anxiety and Depression in Female Students with Primary Dysmenorrhea and without Dysmenorrhea in Zahedan

OAJJHS
Vol. 01, No. 11, November 2022
P-ISSN 2798-2033, E-ISSN 2798-1959
DOI 10.53801/oajjhs.v1i11.147

University of Medical Sciences in 2017. Journal of research in medical and dental science. 2018;6(2):140-7.

25. Abubakar U, Zulkarnain AI, Samri F, Hisham SR, Alias A, Ishak M, Sugiman H, Ghozali T. Use of complementary and alternative therapies for the treatment of dysmenorrhea among undergraduate pharmacy students in Malaysia: a cross sectional study. BMC complementary medicine and therapies. 2020 Dec;20(1):1-8.
26. Alsaleem MA. Dysmenorrhea, associated symptoms, and management among students at King Khalid University, Saudi Arabia: An exploratory study. Journal of family medicine and primary care. 2018 Jul;7(4):769.
27. Chen L, Tang L, Guo S, Kaminga AC, Xu H. Primary dysmenorrhea and self-care strategies among Chinese college girls: a cross-sectional study. BMJ open. 2019 Sep 1;9(9):e026813.
28. Karout S, Soubra L, Rahme D, Karout L, Khojah HM, Itani R. Prevalence, risk factors, and management practices of primary dysmenorrhea among young females. BMC women's health. 2021 Dec;21(1):1-4.