Research Article

Prevalence and Management Trends of Primary Dysmenorrhea among Adolescent Girls

Saira Naseem[1], Aaisha Aman[2], Fatima Sarwar[3], Aisha Nazeer[4], Nadia zulfiqar[5], Mubeen Ahmad Danial[6], Rakhshinda Inam Khan[7]

[1]Consultant Gynaecologist, Department of Obstetrics and Gynecology, Health Net Teaching Hospital Phase 5 Hayatabad, Peshawar, Pakistan
[2]Assistant Professor, Dr Ziauddin University Karachi, Consultant Gynaecologist and Obstetrician Dr Ziauddin Hospital, Sukkur, Pakistan
[3]House Officer, Department of Gynaecology, King Edward Medical University Lahore / Mayo Hospital, Lahore, Pakistan
[4]Assistant Professor, Department of Obstetrics and Gynecology, Bahawal Victoria Hospital/ Quaid -e-Azam Medical College, Bahawalpur, Pakistan
[5]Assistant Professor, Department of Obstetrics and Gynecology, Sahara Medical College, Narowal, Pakistan
[6]Medical Officer, Department of Obstetrics and Gynecology, Hina Hospital, Lahore, Pakistan
[7]Assistant Professor, Department of Obstetrics and Gynecology, Gomal Medical College, Dera Ismail Khan, Pakistan

Corresponding author: Rakhshinda Inam Khan,
Assistant Professor, Department of Obstetrics and Gynecology, Gomal Medical College, Dera Ismail Khan, Pakistan, **Email:** dr.rakhshi89@gmail.com

ABSTRACT

Background: Primary dysmenorrhea constitutes a prevalent form of dysmenorrhea experienced predominantly by young girls in their adolescent years. Furthermore, it is frequently overlooked, even though it has significant consequences on educational achievement and routine activities. One of the most significant prerequisites to enhancing reproductive health in adolescents is recognizing the pattern and specific menstrual father and the most prevalent control strategies.

Objective: To determine the prevalence, severity patterns, functional impact, and management trends of primary dysmenorrhea among adolescent girls.

Methods: This cross-sectional research was carried out at over the period from February 2024 to February 2025, with a sample of 82 female adolescents aged 10 to 19 years old. Structured questionnaires were utilized in the research to gather information on the subjects' demographic characteristics, history of menstruation, severity of pain (using the Visual Analog Scale), impairments on daily activities (if any), and medical management activities. Statistical associations were determined using chi-square tests with $p < 0.05$ being statistically significant.

Results: Among participants of the study, 76.8% reported having dysmenorrhea, with the predominant form being moderate dysmenorrhea (35.4%). Irregular cycles had significant correlation with symptom severity (p=0.03). Dysmenorrhea resulted and led to significant functional impairments such as absenteeism (34.1%, $p = 0.02$), activity limitations ($p = 0.01$), and disturbances in sleep ($p = 0.03$). Respondents reported to have utilized widely Rest and home available treatments. Furthermore, NSAIDs were reported to have been the most utilized medical treatment.

Conclusion: Most students experience primary dysmenorrhea and major menstrual cramping and symptoms, which worsen school and daily life activities. The burden of primary dysmenorrheic can be alleviated with better awareness, education, and access to evidence-based management and menstrual health management tools.

Keywords: Primary dysmenorrhea, adolescent girls, menstrual pain, prevalence, functional impact, management trends.

INTRODUCTION

One of the most common menstrual complications that affect adolescent girls along with being a significant contributor to absenteeism from school during the early years of reproduction is called

primary dysmenorrhea. Primary dysmenorrhea is caused by the overrelease of prostaglandins during menses which leads to vigorous contractions of the uterus and different levels of pain. While a lot of people consider this a common issue teenagers face, this condition can disturb everyday activities, impact how well individuals focus, affect how well people sleep, and damage their mental and emotional state [1-3].

Dysmenorrhea negatively impacting school-aged individuals is worsened due to a lack of knowledge, social stigma, and unwillingness to address one's menstrual concerns all of which lead to a lack of reporting. Despite the fact that NSAIDs and other similar medications exist for treating medical pain, the majority of teenagers cope and manage their medical issues on their own and do not seek medical health consultations. As a result, understanding the knowledge gaps and under-utilization of the healthcare system and understanding the factors such as the degree of medical pain, the associated menstrual health issues, and the impact of the health issues on daily activities become pertinent [4-6].

Numerous studies conducted in multiple regions have reported prevalence rates from 60% to above 90% consistently, signifying the international public health concern. Nonetheless, the importance of local data persists, given the impact of culture, lifestyle and healthcare availability on the symptoms and the management of healthcare [7-9]. Evaluation of the impact primary dysmenorrhea has on this population can help understand prevalence and management trends. This understanding can help guide the promotion of strategies aimed at the delay of the recognition of the condition and the provision of adequate management.

METHODOLOGY

This cross-sectional study took place from February 2024 to February 2025, at health net teaching hospital Hayatabad Peshawar. Of the total sample, 82 adolescent females were included in the study, selected using a non-probability convenience sampling method.

Participation in this study required the participants to meet three criteria. The participants had to have been aged between the ages of 10 and 19 had to have already reached menarche and have been having their monthly menstrual cycle for a period of 6 months prior to participating in the study. To maintain focus on the specific symptoms triggered solely by primary dysmenorrhea, we needed to exclude from the study any participants who reported pelvic disorders, chronic illnesses, and/or secondary dysmenorrhea.

Demographic information, history of menstruation, impact of pain and anticipated pain, along with common pain management techniques were gathered via a structured questionnaire during the data collection process. Validated instruments, including a Flow assessment, recorded pain intensity as part of the study. For this study, the assessments of the reporting of intermittent cycling duration and regularity have been recorded. Prior to data collection, verbal and written informed consent were obtained from participants and from their parent(s)/guardian(s).

The information obtained is safeguarded in a private database, and a customized statistical application was used to analyze the information. Using a variety of descriptive statistical methods, the data was summarized, including frequencies, percentages, means, and standard deviations. A Chi-square test was conducted to assess the relationship of some of the various characteristics related to dysmenorrhea with some of the demographic or menstrual characteristics. P-value of less than 0.05 was considered to be statistically significant.

RESULTS

According to the age distribution, the majority of the respondents in the study

were in the range of 14-16 years old. This, in turn, corresponds to the interval of maximal hormonal fluctuation and maximal reporting of dysmenorrhea. It should be noted, however, that age-group differences were not statistically significant (p = 0.21). Location of residence (urban or rural) did not show a statistically significant association with patterns of dysmenorrhea (p = 0.38), indicating that menstrual-related pain is comparable in adolescents regardless of where they live. Education level also had no markable relationship with dysmenorrhea status (p = 0.44), suggesting that educational background does not impact symptom prevalence in this cohort.

Table 1. Demographic Characteristics (n = 82)

Variable	Category	n (%) / Mean ± SD	p-value
Age (years)	—	15.4 ± 1.8	—
Age groups	10–13 years	22 (26.8%)	0.21
	14–16 years	38 (46.3%)	
	17–19 years	22 (26.8%)	
Residence	Urban	45 (54.9%)	0.38
	Rural	37 (45.1%)	
Education level	Middle	28 (34.1%)	0.44
	Matric	34 (41.5%)	
	Intermediate	20 (24.4%)	

Women who have irregular menstruation cycles have a stronger association with the presence of Dysmenorrhea (p = 0.03), which is supported by the literature that indicates menstrual irregularity correlates with greater severity of uteroberine contractions. Despite the variation in cycle length, it failed to show statistical significance (p = 0.19), indicating that cycle length alone may not be the sole determinant of pain severity. The amount of flow also exhibited no significant association (p = 0.12), suggesting that dysmenorrhea may be present in all patterns of flow, regardless of the amount.

Table 2. Menstrual History and Cycle Characteristics (n = 82)

Variable	Category	n (%) / Mean ± SD	p-value
Age at menarche	—	12.8 ± 1.1	—
Cycle regularity	Regular	56 (68.3%)	0.03*
	Irregular	26 (31.7%)	
Cycle length	< 28 days	21 (25.6%)	0.19
	28–32 days	46 (56.1%)	
	> 32 days	15 (18.3%)	
Flow amount	Light	18 (22.0%)	0.12
	Moderate	47 (57.3%)	
	Heavy	17 (20.7%)	

*Significant association (p < 0.05)

Although the prevalence rate of 76.8 is statistically moderately high, is shows the real and substantive concern of how moderate pain is related to significant disaggregation and distribution of well being impacts to pain severity. Nevertheless, pain duration did not yield statistical significance (p = 0.17),

indicating that differences in pain duration are more personal and less systematic.

Table 3. Prevalence and Severity of Dysmenorrhea (n = 82)

Variable	Category	n (%)	p-value
Dysmenorrhea	Present	63 (76.8%)	—
	Absent	19 (23.2%)	
Severity (VAS)	Mild	18 (22.0%)	0.04*
	Moderate	29 (35.4%)	
	Severe	16 (19.5%)	
Pain duration	< 24 hours	22 (26.8%)	0.17
	24–48 hours	31 (37.8%)	
	> 48 hours	10 (12.2%)	

*Significant association (p < 0.05)

School absenteeism illustrated the disruption of pain during the menstruation cycle from participation in academics and attendance daily (p = 0.02). It also illustrated severe significant trends of activity limitation (p = 0.01) to show the intensity of pain directly correlated to mobility and the daily functional capacity of an individual. The relationship between sleep disturbances and dysmenorrhea was significantly affected as well (p = 0.03), indicating that the impact of dysmenorrhea extends to not just sleep functioning but also nighttime sleep restoration as well.

Table 4. Functional Impact (n = 82)

Variable	Category	n (%)	p-value
School absenteeism	Yes	28 (34.1%)	0.02*
	No	54 (65.9%)	
Activity limitation	None	12 (14.6%)	0.01*
	Mild	26 (31.7%)	
	Moderate	28 (34.1%)	
	Severe	16 (19.5%)	
Sleep disturbance	Yes	39 (47.6%)	0.03*
	No	43 (52.4%)	

*Significant association (p < 0.05)

The results of the study indicated that most females utilized home remedies ; however, the selection of medication, especially NSAIDs, indicated a statistically significant relationship (p=0.04), which implies that girls with more severe symptoms were more likely to obtain stronger medications. Although rest and heat application use patterns did not reach statistical significance (p = 0.11), rest and heat application methods were frequently utilized. Health-seeking behavior showed no statistically significant association (p = 0.28), suggesting that an evident symptom burden did not encourage professional guidance among adolescents, who instead, heavily relied, even more so, on family support.

Table 5. Management Trends (n = 82)

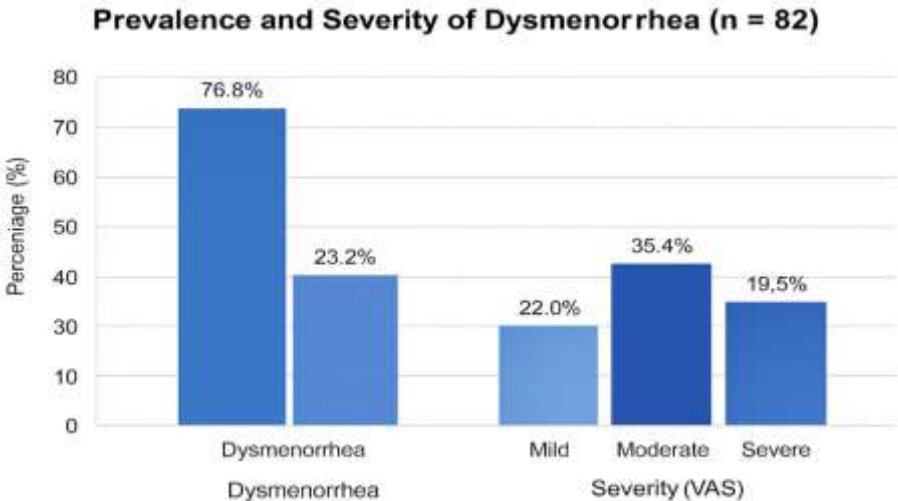| Variable	Category	n (%)	p-value
Home remedies	Hot water bottle	26 (31.7%)	0.11
	Rest	38 (46.3%)	
	Herbal tea	18 (22.0%)	
	No remedy	16 (19.5%)	
Medications used	NSAIDs	34 (41.5%)	0.04*
	Paracetamol	22 (26.8%)	
	Antispasmodics	9 (11.0%)	
	No medication	17 (20.7%)	
Health-seeking	Self-managed	28 (34.1%)	0.28
behaviour	Family advice	40 (48.8%)	
	Doctor consult	14 (17.1%)	

*Significant association ($p < 0.05$)

Figure 1. Prevalence and Severity of Dysmenorrhea among Adolescent Girls (n = 82)

The participants who respond to surveys and experience dysmenorrhea and their level of pain as per the VAS score is illustrated in the above bar chart. Out of the total sample, 76.8% reported experiencing dysmenorrhea. The most common level of pain reported by participants was that of moderate pain (35.4%), with the subsequent categories of pain level comprising of mild (22.0%), and then an even smaller proportion representing severe pain (19.5%). This data shows the impact of menstrual-related pain within this age group.

DISCUSSION

This study shows that almost 77% of adolescent girls struggle from primary dysmenorrhea, illustrating the significant of impact this problem has on adolescent girls. This number is closely similar to international stats stating that 60-90% of girls this age report similar stats. This shows that menstrual pain, while very common, is still an under-reported health issue. It is common for mid-adolescent participants to dysmenorrhea to coincide with the physiological maturing of the hypothalamic Pituitary Ovarian axis which stabilizes around this age [10-12]. Some studies in the field of adolescent health show that cycle irregularities are often associated with the severity of menstrual pain of the individuals in the sample. This might be the case due to the hormonal levels and ovulation cycle

irregularities that might impact the release of uterine contracting hormones and contraction of the uterus. There is a strong correlation between pain intensity and degree of disability. Young women suffering from moderate and severe symptoms are more prone to school absences, and experiencing activity and sleep disturbances. This portion corresponds to other records indicating that dysmenorrhea is not just a nuisance; instead, should be regarded as a serious illness that can impair scholarly activity, focus, and routine functioning [13-15].

Responses regarding home practices management very greatly, with a lot of respondents mentioning the use of home remedies, such as resting or applying heat. These practices do offer some symptomatic relief, but the strong relationship between the use of NSAIDs filled prescription medication and severity of symptoms indicates that the adolescents seek medication when home practices do not relieve symptoms. Nonetheless, only a small number of participants displayed health-seeking behavior, especially consulting a healthcare professional. This consistent pattern of behavior is seen in many studies. Cultural taboos, embarrassment, and lack of education on menstrual health are shown to be excessive barriers that prevent adolescents from obtaining the appropriate medical care [16-18].

The sleep disturbance patterns from this study further highlight the impact of dysmenorrhea on the health of adolescents [19, 20]. Changes in sleep worsen the perception of pain, make people moody, sap their energy, and make them forget what they learned in class. Since pain and functioning are closely connected, more research, earlier detection, and more organized instruction of menstrual health in schools and the community are required.

CONCLUSION

Primary dysmenorrhea most commonly presents itself in adolescent girls. It is apparent how it affects their productivity in school, everyday tasks, and their lives in general. Despite many of the girls using home treatments, the lack of professional healthcare utilization demonstrates the ongoing deficiencies in menstrual health education and menstrual health care access. Strengthening education, early evaluation, and evidence-based management can significantly improve comfort, academic performance, and well-being in this vulnerable age group.

REFERENCES

1. Akunna, G.G., et al., Correlation between primary dysmenorrhea characteristics, age at menarche, anthropometric variables, gynecological history, management attitudes, and quality of life among undergraduates in Nigeria. 2020. 37(1): p. 140-150.
2. Ako, T.W., et al., Primary Dysmenorrhea; Prevalence, Treatment Practices and Impact among High School Students in 2 Secondary Schools in Bafoussam. 2022. 12(8): p. 731-759.
3. Bahrami, A., et al., The Prevalence of Menstrual Problems amongst Adolescent Girls in Northeastern Iran. 2022.
4. De Sanctis, V., et al., Prevalence, attitude and practice of self-medication among adolescents and the paradigm of dysmenorrhea self-care management in different countries. 2020. 91(1): p. 182.
5. Fernandez, H., et al., Prevalence, intensity, impact on quality of life and insights of dysmenorrhea among French women: A cross-sectional web survey. 2020. 49(10): p. 101889.
6. Hu, Z., et al., Prevalence and risk factors associated with primary dysmenorrhea among Chinese female university students: a cross-sectional study. 2020. 33(1): p. 15-22.
7. Karout, S., et al., Prevalence, risk factors, and management practices of primary dysmenorrhea among young females. 2021. 21(1): p. 392.

8. Kho, K.A. and J.K.J.J. Shields, Diagnosis and management of primary dysmenorrhea. 2020. 323(3): p. 268-269.

9. Kustati, M., Yusuf, Y., Hallen, H., Al-Azmi, H., & Sermal, S. (2020). EFL teachers' attitudes towards language learners: a case of multicultural classrooms. *International Journal of Instruction*, 13(1), 353-370. https://doi.org/10.29333/iji.2020.13124a

10. Mammo, M., M. Alemayehu, and G.J.I.J.o.W.s.H. Ambaw, Prevalence of primary dysmenorrhea, its intensity and associated factors among female students at high schools of Wolaita Zone, Southern Ethiopia: cross-sectional study design. 2022: p. 1569-1577.

11. Momma, R., et al., Comparisons of the prevalence, severity, and risk factors of dysmenorrhea between Japanese female athletes and non-athletes in universities. 2021. 19(1): p. 52.

12. Park, J., et al., Analysis of healthcare utilization for primary dysmenorrhea in Korea: A retrospective, cross-sectional study. 2022: p. 1015-1027.

13. Popova-Dobreva, D.J.P.B., PHYSICAL ACTIVITY AND PREVALENCE OF DYSMENORRHEA AMONG UNIVERSITY STUDENTS IN BULGARIA. 2022: p. 567.

14. Purnamasari, K.D., et al., The effect of deep breathing exercises on menstrual pain perception in adolescents with primary dysmenorrhea. 2020.

15. Rathod, N.K. and J.T.J.I.J.H.S.R. Gohil, Prevalence of Primary Dysmenorrhea and Menstruation Related Issues Among Young Female Students with Hearing Impairment: An Institutional Based Cross Sectional Study. 12: p. 25-34.

16. Sandhiya, M., et al., The effect of pelvic floor muscles exercise on quality of life in females with primary dysmenorrhea. 2021. 25(6): p. 3111-3117.

17. Suindri, N.N., et al., Primary Dysmenorrhea Intensity Between Stretching Abdominal Therapy and Acupressure to Adolescent Girls. 2021. 4(3): p. 58-64.

18. Sultan, S., et al., Analgesic effect of ginger and peppermint on adolescent girls with primary dysmenorrhea. 2020. 41(4): p. 833-839.

19. Surendran, E.S., et al., Clinical Evaluation of the Effect of Saptasaram Kashaya and Saraswatarishta in Kashtartava (Primary Dysmenorrhea). 2021. 5(3): p. 117-124.

20. Ullah, A., et al., Prevalence of dysmenorrhea and determinants of pain intensity among university-age women. 2021. 22(12): p. 2851-2862.

21. Zhu, D., et al., A bibliometric analysis of acupuncture therapy in the treatment of primary dysmenorrhea from 2001 to 2021. 2022: p. 3043-3057.