

Non-Pharmacological Measures Adopted by Adolescent Girls to Manage Premenstrual and Menstrual Syndrome: A Descriptive Study

Mrudula E.S¹, Usha Marath², Fathima Nourin C.N³,
Gifta Ann Mary George⁴, Hridyamol Sajan⁵, Irene Reji⁶, K.S Parvathy⁷

^{1,2}Department of obstetrics and gynecology nursing, Lisie College of Nursing, Lisie Medical and Educational institutions, Kaloore, Ernakulam, Kerala.

^{3,4,5,6,7}Nursing students, Lisie College of Nursing, Kaloore, Ernakulam, Kerala.

ABSTRACT

Introduction: Premenstrual and menstrual syndrome is a common condition affecting many individuals of reproductive age, yet its understanding and management are often shaped by influences beyond formal health education. The ability to recognize symptoms and adopt safe, effective coping strategies is essential for maintaining physical comfort and emotional well-being. However, personal beliefs, cultural practices, and access to accurate information can significantly impact how PMS is perceived and managed. This study aimed to explore the knowledge and practices of individuals regarding PMS, with a particular focus on the non-pharmacological methods used and the factors influencing their adoption.

Materials and Methods. A quantitative cross-sectional descriptive design was adopted, among 200 adolescent girls by using non-probability convenience sampling technique. Data were collected using a socio-demographic performa and a semi-structured questionnaire (Non-pharmacological measures adopted for premenstrual and menstrual syndrome).

Results: The findings revealed that most participants, aged 13–14 years, experienced PMS and menstrual symptoms such as abdominal pain, mood swings, and food cravings. Commonly used non-pharmacological measures included home remedies, adequate rest, relaxation techniques, music therapy, hygiene practices, and dietary modifications such as avoiding junk food and increasing fluid intake. Physical activity was less commonly practiced due to barriers like pain, fatigue, and lack of interest. Emotional support from family members, especially mothers, played a significant role in symptom management.

Discussion: The findings suggest that while many individuals rely on non-pharmacological approaches to manage premenstrual and menstrual syndrome, gaps in awareness and scientific understanding significantly influence the effectiveness and safety of these practices. Factors such as education, cultural beliefs, and access to reliable health information play an important role in shaping how PMS and menstrual syndrome is managed. Additionally, support systems like schools and community health programs are essential in promoting informed choices and healthy coping strategies. Therefore, integrating comprehensive, school-based health education can empower individuals with accurate knowledge, leading to safer and more effective management of PMS and menstrual syndrome while improving overall well-being.

1. Introduction

Adolescence is a transitional period between childhood and adulthood characterized by rapid physical, emotional, hormonal, and psychological changes. According to the World Health Organization, adolescents belong to the age group of 10–19 years. Menstruation is an important physiological milestone in adolescent girls and is commonly associated with several physical and emotional symptoms.

Premenstrual and menstrual syndrome refers to a group of recurrent physical, emotional, behavioural, and psychological symptoms that occur during the luteal phase of the menstrual cycle and continue during menstruation. Common symptoms include abdominal pain, fatigue, irritability, anxiety, mood swings, backache, bloating, food cravings, breast tenderness, sleep disturbances, and reduced concentration.

Globally, premenstrual and menstrual syndrome affects a large proportion of adolescent girls. Studies report prevalence rates ranging from 10% to 53% worldwide, while Indian studies indicate prevalence ranging from 14.3% to 74.4%. In Kerala, adolescent girls frequently report symptoms such as abdominal pain, fatigue, mood swings, and irritability, which interfere with academic performance and daily activities.

Hormonal fluctuations involving estrogen and progesterone are considered major contributing factors for the development of premenstrual and menstrual syndrome. Emotional stress, dietary habits, sedentary lifestyle, inadequate sleep, and lack of awareness also contribute to symptom severity among adolescents.

Premenstrual and menstrual syndrome significantly affects the quality of life of adolescent girls by impairing physical comfort, emotional stability, concentration, social interaction, and school attendance. However, adolescent girls commonly prefer non-pharmacological methods because they are affordable, safe, culturally acceptable, and associated with fewer side effects. Commonly adopted measures include rest, exercise, yoga, relaxation techniques, dietary modifications, hot water bag application, adequate sleep, emotional support, and home remedies.

Despite the high prevalence of premenstrual and menstrual syndrome among adolescents, awareness regarding effective symptom management remains limited. Therefore, the present study was undertaken to explore the non-pharmacological measures adopted by adolescent girls to manage premenstrual and menstrual syndrome in selected schools of Ernakulam district.

2. Materials and Methods

The study was conducted as part of the research project, as partial fulfilment of the requirement of completion of the academic degree course in the bachelor of science in nursing programme. A quantitative research approach was adopted to systematically explore the non-pharmacological measures adopted by adolescent girls to manage premenstrual and menstrual syndrome. A descriptive research design was used for the study. The study was conducted among 200 adolescent girls aged 13–18 years studying in selected schools of Ernakulam district, Kerala. Samples were selected using convenience sampling technique.

The inclusion criteria for the study comprised adolescent girls aged 13–18 years who had attained menarche, were willing to participate, and whose parents provided consent for participation. The exclusion criteria included adolescent girls with severe medical illness, diagnosed psychiatric disorders, cognitive impairment, and those who were absent during data collection.

2.1 Tool for Data Collection

The following tool was used for data collection. A semi-structured questionnaire regarding non-pharmacological measures adopted for premenstrual and menstrual syndrome which had two sections.

1. Demographic characteristics: This included socio-demographic information of the participants such as age, education, age of menarche, grade, religion, type of family, BMI, family history of premenstrual and menstrual syndrome, common symptoms experienced, duration of symptoms, and daily activities affected.
2. Questionnaire regarding non-pharmacological measures adopted for premenstrual and menstrual syndrome: The questionnaire consisted of 40 multiple-response questions under menstrual hygiene, physical, emotional, mood swing, and behavioural domains. It explored various non-pharmacological measures adopted by adolescent girls such as home remedies, dietary modifications, exercise, relaxation techniques, emotional coping methods, and environmental preferences.

The test–retest reliability of the tool was established and the tool was found to be stable and reliable.

2.2 Data Collection Process

After obtaining ethical clearance from the institutional ethical committee, Lisie College of Nursing, formal permission was obtained from the Principal of Lisie College of Nursing and concerned school authorities to conduct the study. The data collection was conducted on 27/02/26 among adolescent girls studying at Our Lady of Fathima High School, Kumbalangi, and Fatima Matha Girls High School, Fort Kochi.

Prior to data collection, informed consent was obtained from the parents or guardians and verbal consent was obtained from participants. The participants were assembled in classrooms with adequate spacing and were instructed regarding the tool. The semi-structured questionnaire regarding non-pharmacological measures adopted for premenstrual and menstrual syndrome was administered under the supervision of the investigators. Approximately 30 minutes were taken to complete the questionnaire and the completed tools were collected back.

3.Results

3.1 Sample Characteristics

Among the 200 participants, the majority belonged to the age group of 15–16 years. Most participants had attained menarche between 11–13 years of age. A majority belonged to nuclear families and reported experiencing symptoms such as abdominal pain, mood swings, fatigue, irritability, and backache before or during menstruation.

Most adolescent girls reported that symptoms appeared 5–7 days before menstruation and affected their daily activities, emotional stability, concentration, and social interaction. A considerable proportion also reported family history of premenstrual and menstrual syndrome.

3.2 Non-pharmacological measures adopted for premenstrual and menstrual syndrome

The findings revealed that adolescent girls commonly adopted several non-pharmacological measures to manage symptoms associated with premenstrual and menstrual syndrome.

Most participants preferred home remedies and relaxation techniques for symptom management. A large proportion reported taking adequate rest and sleep to reduce discomfort. Hot water bag application was widely used to relieve abdominal pain and backache. Quiet and comfortable environments were preferred during menstruation.

Dietary modifications such as increased fluid intake, homemade foods, reduced junk food consumption, and intake of warm beverages were commonly practiced. Emotional coping strategies included listening to music, spending time alone, talking with family members, and resting.

Behavioural changes such as reduced physical activity, preference for solitude, and cravings for sweets were also observed among adolescent girls during premenstrual and menstrual periods.

Overall, the findings indicate that adolescent girls predominantly rely on simple, safe, affordable, and culturally acceptable non-pharmacological approaches to manage symptoms associated with premenstrual and menstrual syndrome.

Table 1.1 Frequency and percentage distribution of subjects based on demographic data including age, religion, and grade. N=200

Demographic variables	Frequency (f)	Percentage (%)
Age in years		
13	96	48
14	92	46
15	12	06
16	00	00
17	00	00
18	00	00
Religion		
Hindu	41	20.5
Muslim	61	30.5
Christian	98	49
Others	00	00
Grade		
8	116	58
9	51	25.5
10	33	16.55
11	00	00
12	00	00

Table 1.1 indicates that the sample predominantly consisted of early adolescents, mainly aged 13–14 and studying in 8th standard, with a high representation of Christian participants.

Table 1.2 Frequency and percentage distribution of subjects based on selected demographic variables including family history, type of family, presence of physical / emotional symptoms. N=200

Demographic variables	Frequency (f)	Percentage (%)
Family History		
Yes	87	43.5
No	113	56.5
Type of family		
Nuclear	166	83
Joint	34	17

Extended	00	00
Others	00	00
Presence of Physical/Emotional Symptoms		
Yes	121	60.5
No	79	39.5

Table 1.2 indicates that the majority of respondents come from nuclear family settings and that over half possess a family history of the condition, with a considerable proportion currently experiencing symptoms.

Table 1.3 Frequency and percentage distribution of subjects based on selected demographic variables including common symptoms, appearance of symptoms and symptoms lasting to. Out of N = 200 respondents, multiple responses were permitted; hence, the cumulative percentage exceeds 100%. N-200

Demographic variables	Frequency (f)	Percentage (%)
Common symptoms experienced		
Mood Swings	77	38.5
Abdominal Pain	79	39.5
Painful Breast	08	04
Headache	32	16
Fatigue or Tiredness	25	12.5
Irritability	35	17.5
Bloating	57	28.5
Weight Gain	07	3.5
Acne Flaring	11	5.5
Sleep Problems	32	16
Cravings	68	34
Others	115	57.5
Appearance of Symptoms		
5-7days	172	86
7-10 days	23	11.5
10-14 days	05	2.5
Symptoms lasting to		
1-2 days	89	44.5
3-5 days	94	47
More than 5 days	17	8.5

Table 1.3 indicates that a heterogeneous symptom profile with a predominance of symptoms occurring in the late premenstrual phase and persisting for a moderate duration.

Table 1.4 Frequency and percentage distribution of subjects based on selected demographic variables including daily activities affected.

N-200

Demographic variables	Frequency (f)	Percentage (%)
Daily activities affected		
Yes	62	31
No	138	69

Table 1.4 indicates that, although a proportion of respondents experience interference in daily functioning, the majority are able to carry out their routine activities without significant disruption

SECTION B: Non-pharmacological measures adopted for premenstrual and menstrual syndrome questionnaire.

Table 2.1 Frequency and percentage distribution of multiple responses based on the items eliciting menstrual hygiene.

Items	Frequency (f)	Percentage (%)
MENSTRUAL HYGIENE		
Comfort measures used		
Wearing loose clothing	127	63.5
Using hot water bottles	82	41
Movement and exercise	08	04
Breathing exercise	04	02
Others	20	10
Anxiety affecting hygiene privacy		
Seen changing	52	26
Odor detection	53	26.5
Blood stains	115	57.5
Sharing facilities	36	18
Others	42	21
Premenstrual hygiene barriers		
Limited facilities	33	16.5
Symptom pain	64	32
Lack of supplies	07	3.5
Cultural taboos	15	7.5
Others	97	48.5
Genital cleaning		
Abdominal pain limits bending	73	36.5
Bloating causes irritation	43	21.5
Fatigue reduces frequency	62	31
Breast tenderness	13	6.5
Others	96	48

Hygiene routine change		
More frequent bathing	68	39
Cotton undergarments	38	19
diligent handwashing	47	23.5
stay hydrated	83	43.5
Others	46	23

N-200

Table 2.1 shows that participants mainly rely on simple comfort measures, while psychological concerns such as fear of stains are common. Physical symptoms and other barriers affect hygiene practices .

Table 2.2 Frequency and percentage distribution of multiple responses based on the item eliciting physical symptoms. N 200

Items	Frequency (f)	Percentage (%)
PHYSICAL SYMPTOMS		
Methods to manage premenstrual syndrome		
Dietary changes	22	11
Physical exercise/yoga	15	7.5
Relaxation techniques	64	32
Home remedies	88	44
Others	45	22.5
Type of Physical activity		
Walking	41	20.5
Yoga/stretching exercise	28	14
Gym	22	11
No exercise	98	49
Others	25	12.5
Type of yoga pose		
Balasana	06	03
Ananda balasana	06	03
Savasana	08	04
Setubandhasana	00	00
Others	170	85

Table 2.2 indicates that although a considerable proportion of respondents rely on home remedies and relaxation techniques for PMS management, there is limited adoption of evidence-based lifestyle interventions such as dietary modification and regular physical exercise.

Table 2.3 Frequency and percentage distribution of multiple responses based on the item eliciting physical symptoms.

N-200

Items	Frequency (f)	Percentage (%)
PHYSICAL SYMPTOMS		
Exercise most comfortable		
Walking	60	30
Yoga	18	09
Stretching	40	20
Others	78	39
Symptom preventing exercise		
Pain	64	32
Tiredness	60	30
Lack of time	14	07
Lack of interest	56	28
Others	08	03
Home remedies		
Hot water bag	68	34
Warm bath	24	12
Gentle massage	16	08
Music therapy	96	48
Others	13	6.5
Place applying heat for relief		
Lower abdomen	87	43.5
Lower back	14	07
Both abdomen and back	25	12.5
Thighs	16	08
Others	54	27

Table 2.3 indicates that while some respondents engage in physical activity, barriers such as pain, fatigue, and lack of motivation significantly limit participation. There is a notable reliance on passive and comfort-based home remedies, particularly music therapy and heat application, for symptom relief.

Table 2.4 Frequency and percentage distribution of multiple responses based on the item eliciting physical symptoms. N- 200

Items	Frequency (f)	Percentage (%)
Physical symptoms		
Type of clothing feeling comfortable		
Loose clothing	145	22.5
Soft fabric clothing	25	12.5

No change in clothing	24	12
Others	04	02
Taking rest		
Reduces discomfort	75	27.5
Slightly helps to reduce symptoms	46	23
No change in symptoms	54	27
Others	15	7.5
Prefer to rest		
Home	133	66.5
School	01	0.5
Both	67	33.5
Others	00	00
Sleep change		
Difficulty falling asleep	37	18.5
Waking up during night	25	12.5
Feel more tired during day	60	30
I sleep more than usual	88	44
Others	25	12.5

Table 2.4 indicates that respondents commonly preferred loose clothing and resting at home to manage physical discomfort. Sleep disturbances were also prevalent, with sleeping more than usual and increased daytime tiredness being the most frequently reported changes.

Table 2.5 Frequency and percentage distribution of multiple responses based on the item eliciting emotional symptoms. N-200

Items	Frequency (f)	Percentage (%)
EMOTIONAL SYMPTOMS		
RELAXATION TECHNIQUES		
Medication	04	02
Deep breathing	05	2.5
Listening to music	87	43.5
Resting or sleeping	113	56.5
Others	23	11.5
Emotional support		
Mother	90	45
Family members	23	11.5
Friends	54	27
No one	45	22.5
Others	06	03
Types of support		
Emotional support	54	27

Physical help	23	11.5
Understanding and care	80	40
Others	04	02
Selfcare practices		
Personal rest/relaxation	98	49
Personal hygiene	76	38
Positive thinking	87	43.5
Others	13	6.5
Personal strategies		
Rest	122	61
Activities	38	19
Relaxation	16	08
Others	24	12
Manage emotional symptoms		
Journaling or writing about my emotions	29	14.5
Spending time with friends and family	125	62.5
Meditation or deep breathing exercise	95	47.5
Engaging in hobbies or creative activities	40	20
Others	06	03

Table 2.5 indicates that respondents commonly managed emotional symptoms through resting or sleeping, listening to music, and seeking support from their mothers. Spending time with friends and family, practicing self-care and relaxation and engaging in meditation or deep breathing exercises were the most frequently reported coping strategies.

Table 2.6 Frequency and percentage distribution of multiple responses based on the item eliciting mood swings. N-200

Items	Frequency (f)	Percentage (%)
MOOD SWINGS		
Feeling after exercising		
Relaxed	35	17.5
Energetic	25	12.5
No change	125	62.5
More tired	15	7.5
Others	00	00
Activities help calm irritability		
Exercises/walking	34	17
Meditation/breathing	08	04
Talking it out	57	28.5
Alone time	98	49

Others	123	61.5
--------	-----	------

Table 2.6 indicates that exercise had little effect on mood for most respondents, while some reported feeling relaxed or energetic after physical activity. To manage irritability, respondents commonly preferred spending time alone, talking about their feelings, and engaging in various personal coping strategies.

Table 2.7 Frequency and percentage distribution of multiple responses based on the item eliciting behavioural symptoms. N-200

Items	Frequency (f)	Percentage (%)
BEHAVIOURAL SYMPTOMS		
DIETARY CHANGES		
Avoid junk/oily food	67	33.5
Drink more water	45	22.5
Increase fruits and vegetables	35	17.5
Don't feel like eating	123	61.5
Others	06	03
Food help to feel better		
Fruits/vegetables	36	18
Spicy foods	45	22.5
Non-vegetarian foods	27	13.5
Light meals	102	51
Others	54	27
Food to avoid		
Spicy foods	54	27
Fried foods	98	49
Sugary foods	56	28
Do not avoid any foods	45	22.5
Others	06	03

Table 2.7 indicates that behavioural symptoms were commonly associated with changes in dietary habits, particularly reduced appetite and modifications in food choices. Respondents frequently reported preferring light meals, avoiding fried and sugary foods, and making dietary adjustments such as avoiding junk food and increasing water intake to improve their well-being

Table 2.8 Frequency and percentage distribution of multiple responses based on the item eliciting behavioural symptoms. N-200

Items	Frequency (f)	Percentage (%)
Beverages		
Tea	143	71.5

Coffee	06	03
Soft drinks	07	3.5
Do not avoid beverages	34	17
Others	67	33.5
Glasses of water		
More than 8	76	38
5-8 glass	34	17
2-4 glass	23	11.5
Less than 2	13	6.5
Others	89	44.5
Homemade drinks		
Warm water	98	49
Turmeric milk	24	12
Cinnamon water	36	18
Fenugreek water	56	28
Others	03	1.5
Kind of herbal teas		
Ginger tea	34	17
Mint tea	14	07
Lemon tea	109	54.5
Tulsi tea	16	08
Others	67	33.5

Table 2.8 indicates that respondents commonly consumed tea and maintain adequate water intake as part of their dietary practices. Warm water, fenugreek water, and herbal teas, particularly lemon tea, were frequently used as homemade beverages to support comfort and well-being.

Table 2.9 Frequency and percentage distribution of multiple responses based on the item eliciting behavioural symptoms. N-200

Items	Frequency (f)	Percentage (%)
BEHAVIOURAL SYMPTOMS		
Difficulties in following dietary measures		
Food cravings	22	11
Lack of availability	56	28
Lack of knowledge	67	33.5
No difficulty	00	00
Others	87	43.5
Traditional practices		
Family practices	43	21.5
Religious practices	26	13
None	00	00

Others	56	28
Difficulties in using methods other than medicines		
Lack of time	58	29
Lack of support	78	39
Lack of awareness	56	28
Others	15	7.5
Prevents using methods		
Severe discomfort	112	56
Busy schedule	35	17.5
Lack of motivation	34	17
Others	16	08
Improve natural PMS management		
Better awareness	60	30
Family support	86	43
School support	38	19
Others	00	00

Table 2.9 indicates that respondents faced several challenges in adopting Non-pharmacological approaches for symptom management, including lack of knowledge, support, and time. Severe discomfort was a major barrier to using alternative methods, while increased awareness and family support were identified as important factors that could improve natural management of symptoms.

Table 2.10 Frequency and percentage distribution of multiple responses based on the item eliciting behavioural symptoms. N-200

Items	Frequency (f)	Percentage (%)
BEHAVIOURAL SYMPTOMS		
Changes in daily routine		
Take more rest	59	29.5
Reduces physical work	45	22.5
Continue routine as usual	67	33.5
Others	04	02
Type of environment		
Quiet environment	135	67.5
Comfortable room	56	28
Reduced activities	38	19
Others	56	28
Natural methods		
Safety	63	31.5
Family advice	42	21
Personal preference	68	34
Others	00	00

Specific foods craving		
Sweets/chocolates	132	66
Salty snacks	57	28.5
Carbs(bread/pasta)	50	25
Savory/fried	56	28
Others	08	04

Table 2.10 indicates that respondents often modified their daily routines by taking additional rest or reducing physical activities, while many continued their usual routine. A quiet and comfortable environment was preferred for symptom management, and natural methods were mainly chosen due to personal preference and perceived safety, with sweets and chocolates being the most commonly reported food cravings.

4. Discussion

The findings of the present study reveal that adolescent girls commonly experience physical, emotional, behavioural, and mood-related symptoms associated with premenstrual and menstrual syndrome. Similar findings were reported by Dasgupta et al. and Singh et al., where abdominal pain, mood swings, irritability, and fatigue were identified as the most common symptoms among adolescents.

The present study identified that home remedies, relaxation techniques, rest, dietary modifications, and emotional support were the commonly adopted non-pharmacological measures for symptom management. Similar findings were reported by Amasha et al. and Pinar et al., where adolescents preferred self-care and behavioural approaches over pharmacological methods.

The findings also revealed that many adolescent girls preferred quiet environments, sleep, music, and emotional support from mothers and family members during menstruation. These findings are consistent with studies which identified family support and emotional coping as important factors influencing adaptation to premenstrual and menstrual syndrome symptoms.

The present study found that home remedies were one of the most commonly adopted measures among adolescent girls for managing premenstrual and menstrual syndrome. Similar findings were reported by Steiner et al. and Patel et al., where adolescents preferred natural and home-based management methods due to easy accessibility and cultural acceptance.

The findings further revealed that many adolescent girls preferred rest and reduced physical activity during menstruation to relieve discomfort. Similar observations were identified in studies conducted by Kumari et al. and Dehnavi et al., where adequate rest and relaxation significantly reduced physical symptoms such as abdominal pain, fatigue, and body discomfort.

Dietary modifications were another important coping strategy identified in the present study. Many participants preferred increased fluid intake, homemade foods, and warm beverages during menstruation. Similar findings were reported by Rad et al., who identified that healthy dietary practices reduced the severity of premenstrual and menstrual syndrome symptoms among adolescents.

The present study also highlighted that emotional symptoms such as irritability, anxiety, sadness, and mood swings affected the daily functioning of adolescent girls. Similar findings were reported by John et al., where psychological symptoms associated with premenstrual and menstrual syndrome negatively affected academic performance and emotional stability among school girls.

Many participants in the present study preferred listening to music, spending time alone, and emotional support from family members to cope with mood-related symptoms. Similar findings were reported by Pinar et al. and El-Gala et al., where emotional coping strategies and family support played an important role in improving adaptation to premenstrual and menstrual syndrome.

The present study findings also showed that adolescent girls preferred quiet and comfortable environments during menstruation. This finding is similar to previous studies which demonstrated that environmental comfort and stress reduction measures contribute to improved emotional well-being and symptom relief.

Previous studies also demonstrated that exercise, yoga, and relaxation techniques effectively reduce the severity of premenstrual and menstrual syndrome symptoms among adolescents. The present findings support the importance of healthy lifestyle practices and menstrual health awareness programmes in schools and communities.

The present study further highlights that adolescent girls prefer non-pharmacological approaches because they are safe, accessible, economical, and culturally acceptable. However, lack of awareness and limited professional guidance may influence the effectiveness of symptom management. Therefore, appropriate health education programmes and counselling services should be strengthened to improve menstrual health practices and promote healthy coping strategies among adolescent girls.

5. Conclusion

The present study concludes that premenstrual and menstrual syndrome is highly prevalent among adolescent girls and significantly affects their physical comfort, emotional well-being, behavioural responses, and daily activities. The findings revealed that adolescent girls commonly adopt non-pharmacological measures such as rest, relaxation techniques, home remedies, dietary modifications, hot water bag application, adequate sleep, and emotional support to manage symptoms. The study emphasizes the importance of menstrual health education, healthy lifestyle practices, family support, and school-based awareness programmes to improve the quality of life and well-being of adolescent girls. Appropriate guidance and counselling regarding effective non-pharmacological management strategies can help adolescents cope with premenstrual and menstrual syndrome more effectively.

Acknowledgment

We would like to thank all the adolescent girls who participated in the study. We express our sincere gratitude to the Director, Lisie Hospital and Educational Institutions, management authorities, school authorities, teachers, and parents who supported and encouraged us throughout the study.

References

1. World Health Organization. Adolescent health. Geneva: WHO; 2023.
2. Pearlstein T, Steiner M. Premenstrual syndrome and premenstrual dysphoric disorder: guidelines for management. *J Psychiatry Neurosci*. 2008;33(4):291-301.
3. Dasgupta A, Sarkar M. Menstrual hygiene and premenstrual symptoms among adolescent girls. *Indian J Community Med*. 2008;33(2):77-80.
4. Rad M, et al. Dietary habits and premenstrual syndrome among adolescent girls. *Int J Adolesc Med Health*. 2018;30(4):1-7.

5. John J, et al. Psychological symptoms of premenstrual syndrome and their impact on academic performance among school girls in Thiruvananthapuram. *Int J Nurs Educ*. 2014.
6. Dehnavi Z, Jafarnejad F, Sadeghi M. Effect of aerobic exercise on severity of premenstrual syndrome symptoms. *Iran J Nurs Midwifery Res*. 2018;23(6):506-510.
7. Singh A, et al. Prevalence and severity of premenstrual syndrome among adolescent girls. *J Nurs Health Sci*. 2016;5(3):1-6.
8. Amasha HA, et al. Complementary and alternative therapy use for premenstrual syndrome among adolescents. *J Nurs Educ Pract*. 2014;4(3):154-163.
9. Pinar G, Colak M, Oksuz E. Premenstrual syndrome among high school students in Turkey. *Int J Caring Sci*. 2011;4(1):21-28.