# Knowledge and Self-care Practices of Adolescent Students with Premenstrual Syndrome in Erbil City

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## ABSTRACT

**Background and objectives:** Premenstrual syndrome includes recurrent, troublesome physical and emotional symptoms that develop 7–14 days before the onset of menstruation and subsides when menstruation occurs. This study aimed to assess adolescent student's knowledge and self-care practices toward premenstrual syndrome in intermediate and secondary schools at Kurdistan Region of Iraq.
**Methods:** A descriptive study was carried out in primary and secondary schools in Erbil city from January 2018 to June 2018. Purposive (non-probability) sampling technique was used to target 200 adolescent students through in person interviews by a questionnaire. The clinical criterion of American College of Obstetricians and Gynecologists for Premenstrual syndrome was used. Data were presented using descriptive statistics in the form of frequencies, percentages, and Chi Square test.
**Results:** The majority (72.5%) of adolescent students were between ages 13-16 years. The majority (75.5%) of students knew about symptoms of Premenstrual syndrome different from woman to woman or cycle to cycle, while most (63%) of school girls never practiced yoga to decrease Premenstrual syndrome symptoms. The results revealed that the majority of overall study sample, 60% had fair knowledge toward premenstrual syndrome. The assessment of student's mother is fair because majority (42%) of their mothers were illiterate, while most (71.5%) of subjects sometimes used self-care practices to manage or control symptoms of premenstrual syndrome. There was no significant association between levels of knowledge of students with self-care practices.
**Conclusions:** Knowledge and self-care measures about premenstrual syndrome were insufficient among the adolescent school girls. Students are needing educational program to increase female awareness and practice about Premenstrual syndrome .
**Keywords:** Premenstrual syndrome; Adolescent; Knowledge; Self-care, Iraq.

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## INTRODUCTION

Premenstrual syndrome (PMS) is one of the most common disorders among women of reproductive age that can be seen in different intensities in 90-85% of women. PMS is approximately defined as the group of symptoms occurring only during the luteal phase of a woman's menstrual cycle, meaning that occurs 14 days before the menstrual period and decrease with the onset of the menstrual [1]. It is associated with physical, psychological and behavioral changes. PMS can affect menstruating women of any age and the effect is

different for each woman. This is a difficult problem in adolescence as the psychological changes that are occurring during this time of a woman's life are often complex and stressful [2].

The American College of Obstetrics and Gynecology (ACOG) published the diagnostic criteria for PMS. PMS is considered to exist if at least one of the six affective and one of the four somatic symptoms are reported five days prior to onset of menses in prior three cycles and cease within four days of onset of menses. There are numerous emotional and behavioral symptoms such as depression, angry outbursts, irritability, crying spells, anxiety, confusion, social withdrawal, poor concentration, as well as sleep disturbance, thirst, and appetite changes. There are also physical symptoms, including breast tenderness, bloating, and weight gain, in addition to headache, swelling of hands or feet, and aches or pains. It is estimated that up to 85% of women who menstruate experience at least one premenstrual symptom, occurring within 2 weeks before menses and easing after menses begins [3].The causes of PMS are unclear, though an underlying neurobiological vulnerability to normal fluctuations in the circulating sex hormones levels during the menstrual cycle is thought to contribute [4].

Self-care refers to those activities an individual performs independently throughout life to promote and maintain personal well-being[5]. Management of premenstrual syndrome in young aged women focus on pharmacological treatments for PMS in the form of -hormonal interventions, antidepressants, high-dose estrogen as transdermal patches or subcutaneous implants, nonsteroidal anti-inflammatory drugs for severe degrees. Also positive coping techniques and life style modifications are often recommended for alleviated severity of physical and psychological symptoms of PMS especially among mild and moderate degrees in the form of yoga, exercises. Dietary restrictions through (sodium restriction has been proposed to minimize bloating, fluid retention, and breast swelling and tenderness. Also caffeine restriction is recommended because of the association between caffeine and premenstrual irritability and insomnia [5].PMS has been studied and evaluated extensively in the West and only a handful amount of research studies have been conducted in Asia [6]. Very little information is available on premenstrual syndrome self management. Knowledge about PMS is presumed to help with coping with the negative impacts of PMS among the adolescent girls. Therefore the investigator assessed the knowledge on PMS among adolescent girls.

## METHODS

A descriptive study design was used to assess their knowledge and self-care practices of 200 adolescent female students about premenstrual syndrome from January to April 2018 at four schools. The number of samples consisted of 50 students from each school, include: Shamamk secondary school, Layla zana intermediate school, Kazhin secondary school and Razhan intermediate school in Erbil City in the Kurdistan Region of Iraq. A non-probability, purposive sample technique was used. Diagnostic of PMS based on ACOG criteria for diagnosing premenstrual syndrome as national institute of mental health that must be present in the five days before menses for at least three previous menstrual cycles in a row, end within four days after of the onset and must be present in the absence of any pharmacologic therapy, hormone ingestion, or drug or alcohol use. Girls who had not attained menarche, those who have irregular

menstrual cycles, those who are suffering from chronic diseases and girls who are taking hormonal therapy or anti-depressants were excluded. The data were collected through direct interviews. The questionnaire comprised of four main parts, part one include socio-demographic characteristics of the adolescent students such as age, marital status, a parent's level of education, parent's occupational state, height and weight and family history with PMS. Height and weight were obtained for each student. Height was taken by asking the student to stand in the front of the wall then a mark was taken then by using measuring tape the height was obtained in cm (centimeter); on the other hand the weight was obtained by asking the student to remove her shoes then step on the weighing scale to measure her weight in kg then the Body Mass Index (BMI) was calculated by the following equation: BMI = [Weight/ kg] [Height/m]$^2$. Part two-includes severity of premenstrual symptoms assessment according to ACOG. The students were asked to rate 19 symptoms commonly found in PMS on a three-point scale with responses ranging from: 1=mild; 2=moderate; 3=severe disabling with regard to the degree of interference and disruption to usual family, school, and social activities. Part three- include 11 questions related to knowledge regarding the premenstrual syndrome such as definition, cause, factors associated with PMS, signs and symptoms, and ways to reduce PMS symptoms. The responds of the knowledge items were include two answers (0 =Incorrect and 1=Correct). The calculation of overall levels of knowledge (11 items) was categorized to three groups of Poor knowledge (0-3), Fair knowledge (4-7), and Good knowledge (8-11).Part four- Items related to self-care practice assessment which includes care for PMS, used dietary changes, exercise, mind-body interaction, and medication. The responds of the management and self-care practice items were include three answers (0 =Never, 1= Sometimes and 2=Always). The calculation of overall levels of practice (10 items) was categorized to three groups of Never practiced (0-6), Sometimes practiced (7-13), and Always practiced (14-20).The validity of the questionnaire was checked initially by panel of 14 experts from different field. The expert responses were based on agreement or disagreement with items of questionnaire. The results indicated that all experts agreed the content of the questionnaire with some modifications. The researcher took into consideration their responses and prepared the final version of the questionnaire. A pilot study was conducted on 20 participants that were not included for the final study, in order to determine the reliability of the questionnaire (internal consistency by split-half). The alpha correlation coefficient was 0.792, which is statistically adequate. Formal administrative approval was obtained from the directorate of Education/Ministry of Education in Kurdistan Region and permission to carry out the study was obtained from relevant school authorities for the purpose of data collection. Informed oral consent was obtained from each participant. In addition, the researcher told each participant that their participation was voluntary, and that they were free to leave at any time, even the interview process was not finished. After data collection, the variables and data were entered to statistical application (Statistical Package for Social Science -SPSS Version 23). The data were analyzed through using SPSS software that included descriptive statistical analysis (Frequency, Percentage, and Chi square test). The P-value of each test >0.05 considered non-statistically significant.

## RESULTS

Students who participated in the study were between seventh and twelfth grades.

Table 1shows the sociodemographic characteristics of the 200 students. Regarding age group, the highest percentage of the study sample was between age 13-16 years old (72.5%) and the highest percentage of students (24%) at 10th grade. The same table indicates (42%) of student's mother was illiterate, while 26% of fathers was able to read and write. The same table also shows that the majority (80%) of students' mother were housewives, while 53% of their fathers had free work. The highest percentage (85%) of the study sample had own house. The result of the current study revealed that a high percentage (61%) of the students in the sample were healthy ( normal ) weight and more than half (55%) had a family history with premenstrual syndrome. Table 2 shows the knowledge levels of the 200 participants regarding premenstrual syndrome. The result of the current study indicated that the majority (75.5%) of the study sample had correct knowledge for the question “The symptoms of PMS vary from cycle to cycle or from one woman to another “. Most (74.5%) of school girls had known for the question " Symptoms of PMS that interfere with lifestyle functioning". Over half (60%) of students had sufficient information regarding " As a woman matures, symptoms may improve or worsen". Conversely, regarding students are mentioned incorrect answer is lower that correct answer and include: The highest percentage (60.5%) of samples had insufficient information regarding" The exactly cause of PMS is unknown as general", while 57.5% of them had incorrect knowledge about knowledge score" Too much caffeinated beverages are worsens symptoms" and more than half (53%) of students had insufficient information related to " High-sugar diet is one of the risk factors to get PMS".

Table (3) describes management and practice of students with premenstrual syndrome. The results indicated that most (63%) and (56%) of them never practiced yoga and meditation to reduce symptoms of PMS respectively. More than half (54%) of study sample stated that they sometimes drunk of fluids daily to diminish symptoms of PMS. More than half (52%) of study sample never took drugs to manage premenstrual symptoms. The same table indicates that the highest percentage (46.5%) of the study sample stated that they were taking sleep sometimes throughout the month and less than half (45.5%) of the students stated that they sometimes eaten frequent, small meals. Only 9.5% of them always practiced regular exercise throught the month to decrease PMS symptoms.

Regarding overall evaluation of student's knowledge about premenstrual syndrome, results in Table 4 show that the majority of the students indicated that school girls had a fair knowledge regarding premenstrual syndrome (60%), while 14% of them had poor knowledge about premenstrual syndrome.

Table 5 reveals overall management and self-care practices, a highest percentage (71.5%) of study sample sometimes had practices concerning management and self -care, while only (2%) of adolescent students always did practice related premenstrual syndrome.

Table 6 describes the correlation between knowledge of students with their practices that the majority (70%) of students sometimes had a fair knowledge concerning management and self-care regarding premenstrual syndrome. There were non-significant statistical association between knowledge and self-care practice (P=0.139).

**Table 1:** Demographic characteristics of the study sample

| Demographic characteristics | F (%) |
|---|---|
| **Age group(years)** | |
| 13-16 | 145 (72.5%) |
| 17-20 | 55(27.5%) |
| **Class** | |
| $7^{th}$ | 36 (18%) |
| $8^{th}$ | 41 (20.5%) |
| $9^{th}$ | 23 (11.5%) |
| $10^{th}$ | 48 (24%) |
| $11^{th}$ | 41 (20.5%) |
| $12^{th}$ | 11 (5.5%) |
| **Education level for student's mother** | |
| Illiterate | 84 (42%) |
| Read and write | 45 (22.5%) |
| Primary school | 47 (23.5%) |
| Intermediate school | 8 (4%) |
| Secondary school | 9 (4.5%) |
| Institute/college | 7 (3.5%) |
| **Education level for student's father** | |
| Illiterate | 38 (19%) |
| Read and write | 52 (26%) |
| Primary school | 40 (20%) |
| Intermediate school | 25 (12.5%) |
| Secondary school | 22 (11%) |
| Institute/college | 23 (11.5%) |
| **Occupational state for student's mother** | |
| Government employee | 13 (6.5%) |
| Special sector employee | 1 (0.5%) |
| Free work | 18 (9%) |
| Retiring | 6 (3%) |
| Unemployed/Housewife | 160 (80%) |
| Student | 2 (1%) |
| **Occupational state for student's father** | |
| Government employee | 66 (33%) |
| Special sector employee | 9 (4.5%) |
| Free work | 106 (53%) |
| Retiring | 9 (4.5%) |
| Unemployed | 10 (5%) |
| **House ownership** | |
| Own | 170 (85%) |
| Rent | 30 (15%) |
| **Body Mass Index** | |
| Underweight | 26 (13%) |
| Normal weight | 122 (61%) |
| Overweight | 42 (21%) |
| Obese | 10 (5%) |
| **Family history with PMS** | |
| Yes | 110 (55%) |
| No | 90 (45%) |

**Table 2:** Knowledge of student's regarding premenstrual syndrome

| Premenstrual Syndrome Knowledge Questionnaire | Incorrect | Correct |
|---|---|---|
| | F (%) | F (%) |
| PMS usually starts 1 to 2 weeks before your period. | 105 (52.5%) | 95 (47.5%) |
| PMS improves when menstruation begins, or soon after. | 98 (49%) | 102 (51%) |
| Premenstrual syndromes are a group of physical, mental and emotional. | 96 (48%) | 104 (52%) |
| The exactly cause of PMS is unknown as general. | 121 (60.5%) | 79 (39.5%) |
| Psychological factors (stress) do not cause PMS. | 102 (51%) | 98 (49%) |
| High-sugar diet is one of the risk factors to get PMS. | 106 (53%) | 94 (47%) |
| Too much caffeinated beverages are worsens symptoms. | 115 (57.5%) | 85 (42.5%) |
| Symptoms of PMS that interfere with lifestyle functioning. | 51 (25.5%) | 149 (74.5%) |
| The symptoms of PMS vary from women to another. | 49 (24.5%) | 151 (75.5%) |
| As a woman matures, symptoms may improve or worsen. | 80 (40%) | 120 (60%) |
| Change in lifestyle has an important role for relieve symptoms. | 86 (43%) | 114 (57%) |

**Table 3:** Management and Self-care practices of student's regarding premenstrual syndrome

| Questions | Never | Sometimes | Always |
|---|---|---|---|
| | F (%) | F (%) | F (%) |
| Do you drink a plenty of fluids? | 56 (28%) | 108 (54%) | 36 (18%) |
| Do you eat frequent, small meals or snacks? | 45 (22.5%) | 91 (45.5%) | 64 (32%) |
| Have you a balanced diet with whole grains, fruits and vegetables? | 48 (24%) | 89 (44.5%) | 63 (31.5%) |
| -Do you eat plenty of fiber-rich foods like vegetables? | 63 (31.5%) | 87 (43.5%) | 50 (25%) |
| -Do you do regular exercise? | 93 (46.5%) | 88 (44%) | 19 (9.5%) |
| -Do you try to get plenty of sleep? | 17 (8.5%) | 93 (46.5%) | 90 (45%) |
| Do you do yoga or deep-breathing exercises? | 126 (63%) | 51 (25.5%) | 23 (11.5%) |
| Do you do meditation exercise to reduce stress? | 112 (56%) | 57 (28.5%) | 31 (15.5%) |
| Do you massage yourself to relax? | 99 (49.5%) | 71 (35.5%) | 30 (15%) |
| Do you use pain relievers? | 104 (52%) | 49 (24.5%) | 47 (23.5%) |

**Table 4:** Overall knowledge of adolescent students with premenstrual syndrome

| Level of Knowledge | F (%) |
|---|---|
| Poor | 28 (14%) |
| Fair | 120 (60%) |
| Good | 52 (26%) |
| **Total** | **200 (100)** |

**Table 5:** Overall Management and self-care practices of the study sample regarding premenstrual syndrome

| Overall Management and Self-care practice | F (%) |
|---|---|
| **Never** | 53 (26.5%) |
| **Sometimes** | 143 (71.5%) |
| **Always** | 4 (2.0%) |
| **Total** | **200 (100)** |

**Table 6:** Association between knowledge and self-care practices of adolescent students with PMS

| Overall Knowledge | Overall Management and Self-care practice | | | P-Value |
|---|---|---|---|---|
| | **Never** | **Sometimes** | **Always** | |
| | **F (%)** | **F (%)** | **F (%)** | |
| **Poor** | 11(39.3%) | 17 (60.7%) | 0 (0%) | |
| **Fair** | 34 (28.3%) | 84 (70%) | 2 (1.7%) | **0.139** |
| **Good** | 8 (15.4%) | 42 (80.8%) | 2 (3.8%) | **NS** |

## DISCUSSION

This study was conducted among adolescent school girls their age ranged from 13-20 years old. Results of the present study revealed that the majority (72.5%) of the study sample were within the ages (13-16) years and these results are similar with a study carried by Sarkar and Mandal in 2015, conducted a cross – sectional descriptive study, which included 244 adolescent students in India, mentioned that 61.5% of girls were within ages 13-17 years [7].

In the current study, percentage of students knowing symptoms of PMS vary from women to women or cycle to cycle is high. These findings are similar with a study carried by Taylor and Colino at New York in 2002, they documented that premenstrual symptoms are change over reproductive lifespan and fluctuate in intensity from cycle to cycle (8). In the same study, we found that the highest percentage (74.5%) of school girls had adequate information regarding the relationship between premenstrual symptoms and life style, this finding is agreeing with a study performed by Barry in 2013, at Newfoundland/ Canada, included 521 social workers, reported that the majority (85%) of respondents had correct answer regarding PMS influence work and daily life functioning (9).

The highest percentage (60.5%) of samples had insufficient information regarding the exactly cause of PMS is unknown as general but change in hormone may play a role. The finding is similar with the results of a study done by Abdalla and Gibreel in 2016, conducted in Saudi Arabia and included 60 students to determine the effects of an educational program in increasing knowledge and reducing premenstrual syndrome symptoms and severity among nursing college students, they found that less than half (45%) of students had knowledge regarding disorders of female hormones may cause PMS (10).

The present study assess knowledge of students regarding the factors associated with premenstrual syndrome such as drinking tea or coffee, most (57.5%) of students had lack of knowledge about drinking too much caffeinated beverages like tea or coffee are worsens PMS symptoms. These results were contrast with the results of a study carried by Rossignol et al, in 1989 at China to evaluate the fact that drinking tea causes premenstrual syndrome, they found that a strong association between tea consumption and the prevalence of premenstrual syndrome (11).

The practice of healthier behavior like lifestyle modifications and self-care practices during PMS are important indicators of health and determinant of health especially during the reproductive age of a woman (see table 3). Regarding doing yoga relaxation technique, the highest percentage of students never practiced yoga actions to alleviate PMS symptoms. Results of this study is contrast with a study carried by Tsai at Taiwan in 2016 to assess the effects of yoga intervention on premenstrual syndrome, they found that the regular yoga exercise intervention decreased abdominal cramps, breast tenderness, work stress, abdominal swelling and improved sleep status (12).

In the current study, more than half of students were never using meditation exercise to reduce PMS symptoms especially for stress and depression. These results are inaccordance with a study done by Askari and Abbaspoor in 2018, at Iran to assess the effect of mindfulness-based cognitive behavioral therapy on PMS symptoms. They supported the effect of a mindfulness -based cognitive therapy such as meditation and breathing exercise intervention on reducing the severity of symptoms in the ones with premenstrual syndrome (13). Regarding fluid intake, more than half (54%) of the study sample mentioned that they sometimes drinked fluid. In contrast to the present study carried by Gamal and Shahin in Egypt and Yemen , at 2015, and included 2000 clients to evaluate the effect of evidence-based nursing management on severity of premenstrual syndrome. They indicated that a low percentage (33%) of school girls are taken fluid (14). Half (45%) of study sample stated that they were taking sleep to feel comfortable and ease PMS symptoms. The findings are in contrast with the result of a study done by Abdalla and Gibreel, in Saudi Arabia at 2016 and included 60 students between 20-24 years to determine the effects of an educational program in increasing knowledge and reducing premenstrual syndrome symptoms and severity among nursing college students, they reported that the majority of the students were taking sleep throught month to manage symptoms of PMS (10).

Regarding the overall evaluation of student's knowledge related to PMS by the researcher, most of the students required of needing the major improvement in knowledge by researcher. The majority (60%) of students had fair knowledge about premenstrual syndrome. The study results are similar with a study by Mohib et al in 2018 at Pakistan and majority of the female students were familiar of PMS (15). Furthermore, another study are in contrast with a study done by Habib et al in 2014, included 448 female students to find out the existence, knowledge, and the attitude of female students towards premenstrual syndrome (PMS) between the ages of 18 to 30 years, reported that Almost all female students (96.4%) had knowledge about premenstrual syndrome [16]. Regarding overall assessment of adolescent student's practice about PMS. In the current study most (71.5%) of all school girls sometimes used self-care practices to manage their symptoms of PMS because menstruation and related subjects are considered in our

society and included in curriculum of school. This result is similar with a study done by Ozturk et al at Turkey in 2006, they found that most (94.1%) of women taked sleep and rest and more than half (57.1%) of them preferred taking painkillers to reduce fatigue and control symptoms (17). There is no association between knowledge and self-care practices of adolescent students regarding premenstrual syndrome were found. The results of this study is agreeing with findings of a study carried by Mohib et al in 2018, at University Students in Karachi, which found that there was not association between knowledge and management and practices with premenstrual syndrome and it statistically not significant (P>0.001) [15]. Small sample size, limited number of involved schools and not welcoming by mangers of the schools were the main limitation of the present study.

## CONCLUSIONS

The findings indicated inadequate levels of knowledge about PMS and regarding self-care practices. Further research is required for a larger population and including students from various socio-economic backgrounds to better assess the situation and strategies to manage this rising problem.

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