

## PREVALNCE OF PREMENSTRUAL SYNDROME AMONG MEDICAL STUDENTS IN MOSUL UNIVERSITIES

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### ABSTRACT

Menstruation is the monthly bleeding of a woman. This period extended between the first day of a bleeding and the first day of the next period. During this time, the woman experiences changes in her body, especially in the uterus and ovaries of her reproductive system, due to the action of the female sex hormones (FSH, LH, estradiol and progesterone) that are preparing the body for a possible pregnancy. Premenstrual syndrome (PMS) encompasses clinically significant somatic and psychological manifestations during the luteal phase of the menstrual cycle, leading to substantial distress and impairment in functional capacity. These symptoms disappear within a few days of the onset of menstruation. The pooled prevalence of reproductive age women affected with PMS worldwide amounts to 47.8%. Among these, about 20% of women experience symptoms severe enough to disrupt their daily activities. The aim of this study is to find the prevalence among different medical colleges & to study the premenstrual cycle Among them. Cross section analysis has been adopted by using anonymous self-completed questionnaires. A value of  $P < 0.05$  was considered statistically significant. The study included 600 students (450 have the symptoms of PMS & 150 don't have symptoms). The overall prevalence was found to be 75%. The 450 participants (75%) suffered from some type of PMS symptoms. The most frequent PMS symptoms were abdominal Cramps (95.1%), lower Back pain (69.3%). Most frequent psychological symptoms were anxiety & loss of concentration (78.2%), tiredness & fatigue (67.8%). Huge part of the participants chooses laying down & sleep as their favorite way to deal with the symptoms (46.9%), (23.3%) uses analgesics, (0.4%) of the participants use IV fluid which reflect the severity of the symptoms. Most of participants (81.5%) think that symptoms appear during exams. Which mean that there is an obvious relation between exams stress and PMS syndrome. Most participants among University Students from Sharjah, UAE (88.9%) had experienced dietary changes during pre-menstruation, while in this study the sum of the dietary changes was (57.5%). Abdominal pain/discomfort is one of the most frequently reported physical symptoms among surveyed females. However, this finding disagrees with recent studies on relevant college students from China and India. "physiological symptoms" was dominant among the students unlike the subjects in this study and the Palestinian study. There was a significant relationship between menstrual cycle regularity and symptoms of PMS (The p-value is .000213. Significant at  $p < 0.05$ ), also there was a significant relationship between marital states of the participants and their BMI (The p - value is.001689. Significant at  $p < 0.05$ .) For conclusion, PMS is common among medical college students and it is mostly due to psychological stress experienced by students especially during their exams.

**KEYWORDS:** The aim of this study is to find the prevalence among different medical colleges & to study the premenstrual cycle Among them.

### INTRODUCTION

Menstruation or period is the monthly bleeding of a woman. During this time, the woman experiences change in her body, especially in the uterus and ovaries of her reproductive system, due to the action of the female sex

hormones (FSH, LH, estradiol and progesterone) that are preparing the body for a possible pregnancy. **Premenstrual syndrome (PMS)** encompasses clinically significant somatic and psychological manifestations during the luteal phase of the menstrual cycle, leading to

substantial distress and impairment in functional capacity. Symptoms of PMS include changes in appetite, weight gain, abdominal pain, lower backache, headache, swelling and tenderness of the breasts, nausea, constipation, anxiety, irritability, anger, fatigue, restlessness, mood swings and crying.<sup>[1,2]</sup>

The etiology of premenstrual syndrome is uncertain. Since PMS symptoms occur simultaneously with the hormonal fluctuations of the menstrual cycle, hormonal disproportion like estrogen surplus and progesterone deficiency have been proposed. Symptoms are also associated with serotonin to link as a key etiological factor. As a prognosis, symptoms of PMS can mostly recur after stopping the treatment, except after oophorectomy. There is also evidence that relates the PMS to increased suicidal risk in hormone-sensitive females.<sup>[5]</sup>

For Ethical consideration, This study was approved by local Ethical Committee. All participants were informed of the purpose, general contents, and data use.

The treatment goals for patients with premenstrual disorders are to relieve symptoms and improve functional impairment. A number of approaches, including lifestyle measures (exercise and relaxation techniques), cognitive behavioral therapy, and medications (selective serotonin reuptake inhibitors [SSRIs] and/or combined oral estrogen-progestin contraceptives (COCs) are effective for women with PMS. Some women report relief from their PMS symptoms with yoga or meditation. Others say herbal supplements help relieve symptoms. Some studies showed relief from PMS symptoms with these herbal supplements, but other studies do not. Many herbal supplements should not be used with other medicines. Some herbal supplements women use to ease PMS symptoms include, Chasteberry.<sup>[6,7]</sup>

#### **Aim & specific objects of this study**

Is to study the premenstrual cycle among the students of different medical colleges Find out the prevalence of premenstrual syndrome among medical university students in different colleges and fields in Nineveh governorate, Compare the prevalence of PMS among different college samples and Signify the relationship between the regularity of the menstrual cycle among study participants who have the symptoms and who don't, also to examine if there is a significant relationship between the marital state & PMS. To detect the statistical significance of BMI of the study participants with premenstrual syndrome, also Classify the distribution of the symptoms among the study participants. Schedule the attitude of the symptomatic subjects toward symptoms.

## **METHODOLOGY**

### **Study setting**

Cross section study design was adopted.

### **Study Sampling**

Random sample of 600 student participated from different students from medical fields in mosul city. female university students filled two self-administered structured questionnaire that included personal information and the validated Arabic Premenstrual Syndrome Scale (A-PMS).

### **Screening period**

The study started from 5<sup>th</sup> December 2022 till 19<sup>th</sup> February 2023 And was performed among students in Nineveh universities, included medical colleges only.

### **Tool of the study (questionnaire)**

Google forms was used to create the questionnaire and contains 14 questions.

### **Data collection**

the data was collected using an online questionnaire in which consent was obtained in advance of participation.) Appendix I)

### **statistical analysis**

All data analysis was done by using Excel 2016 and chi-square Test for statistical computing.  $P < 0.05$  was considered statistically significant.

### **Ethical consideration**

This study was approved by local Ethical Committee. All participants were informed of the purpose, general contents, and data use.

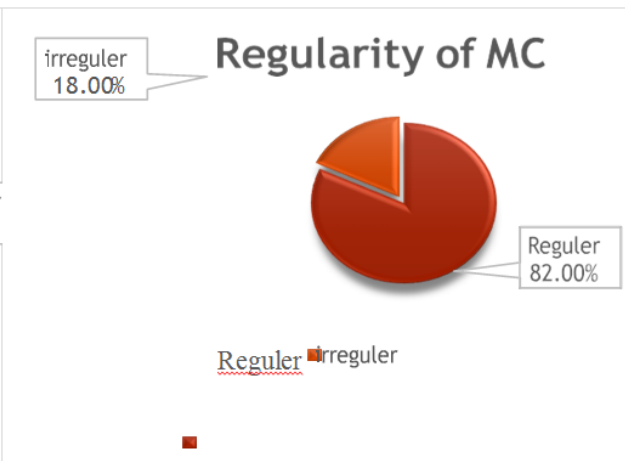
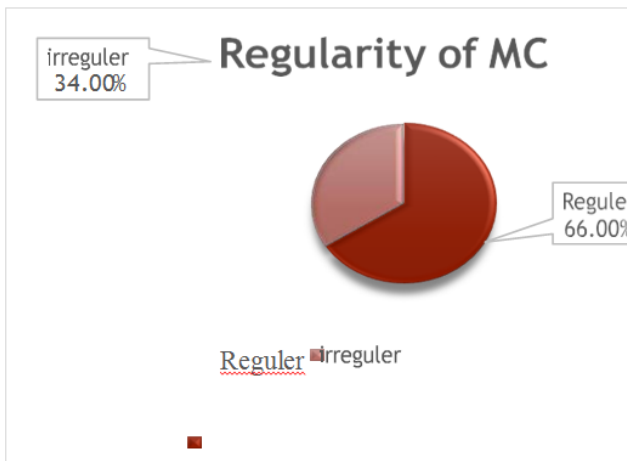
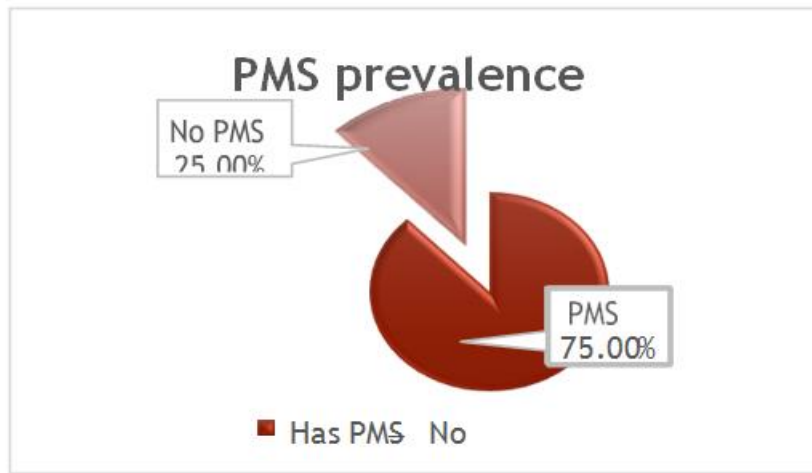
### **Strengths and limitations**

The sample of this study was representative of the population. The research tools were previously validated for Arabic culture participants. only 1 previous study was done to identify the prevalence of PMS & was adopted by one of Nineveh college of medicine students years ago, The limitations of the study are that this study included students from Medical colleges and fields only. The study identified the distribution of the symptoms and the way that the study subjects used to deal with the pain, rather than the cause-effect relationship. The overall severity of PMS according to menstrual cycle was not determined in this study, which is an important subject that should be considered in future studies.

## **RESULT**

### **Prevalence of PMS among the study subjects**

In this study, 450 (75%) of the study subjects suffered from symptoms of PMS.



Tow Third of the study sample with PMS had regular cycle Fig (4), while more than four fifth (82%) of study sample without PMS had regular cycle. A significant difference (p value = 0.001) was found between them According to BMI categorization most of the symptomatic single participants 236 (59.9%) had normal weights, 99 (25%) were overweight, 31 (7.8%) were obese, and 30(7.5%) wereunderweight. Table3A.

While among symptomatic married study participants, the result was close between normalweight 20(37%) & overweight 19(35.1%), 14 (25.9%) were obese and only 1(1.8%) was underweight. Table 3B single participants with no symptoms34 (39.5%) had normal weights, 38

(44.2%) were overweight, 9 (10.4%) were obese, and 5(5.9%) were underweight. Table 3C. married study participants, normal weight 24(37.5 %), overweight 29(45.4%),7 (10.9%) were obese and only 4(6.2%) was underweight. Table 3D

There was a significant relationship between normal BMI & abnormal BMI to PMS, (underweight, overweight & obesity were considered to be abnormal BMI), (p - value = 0.001), also there was a significant relationship between normal BMI & abnormal BMI to the marital state of symptomatic participants. (p - value = 0.002).

**Table 1: BMI For single & married participants who are symptomatic and not.**

Status	Single participants	Married participants	P value
Underweight BMI <18.5	7.8%	1.8%	0.001
Normal weight BMI 18.5-24.9	59.9%	37%	
Overweight BMI 25-30	25%	35.1%	
Obese BMI >30	7.5%	25.9%	
<b>Total</b>	<b>100%</b>	<b>100%</b>	
<b>BMI for not symptomatic subjects</b>			
Status	Single participants	Married participants	
Underweight BMI <18.5	5.9%	6.2%	
Normal weight BMI 18.5-24.9	39.5%	37.5%	
Overweight BMI 25-30	44.2%	45.4%	

Obese BMI >30	10.4%	10.9%	
<b>Total</b>	<b>100%</b>	<b>100%</b>	

High percentage of the Study subjects chooses laying down & sleep as their favorite way to deal with the symptoms 211(46.9%), 104(23.3%) uses analgesics,

(0.4%) of the participants use IV fluid which reflect the severity of the symptoms.

**Table: Attitude of the symptomatic subjects toward PMSsymptoms.**

parameter	Number	percentage
Laying down & sleep	211	46.9%
Feet warming	116	25.7%
Analgesics use	104	23.2%
Nothing	89	19.7%
Hot pads	68	15.1%
Medical herbs “chamomile, cinnamon”	49	10.9%
Hot Drinks “tea, milk”	4	0.9%
IV fluid	2	0.4%

For the time of the appearing of the symptoms, most of the symptomatic subjects 209(46.6%) think that their symptoms appear during studying load, in contrast, 2 of

the participants think that symptoms appear when they are “free from studying”.

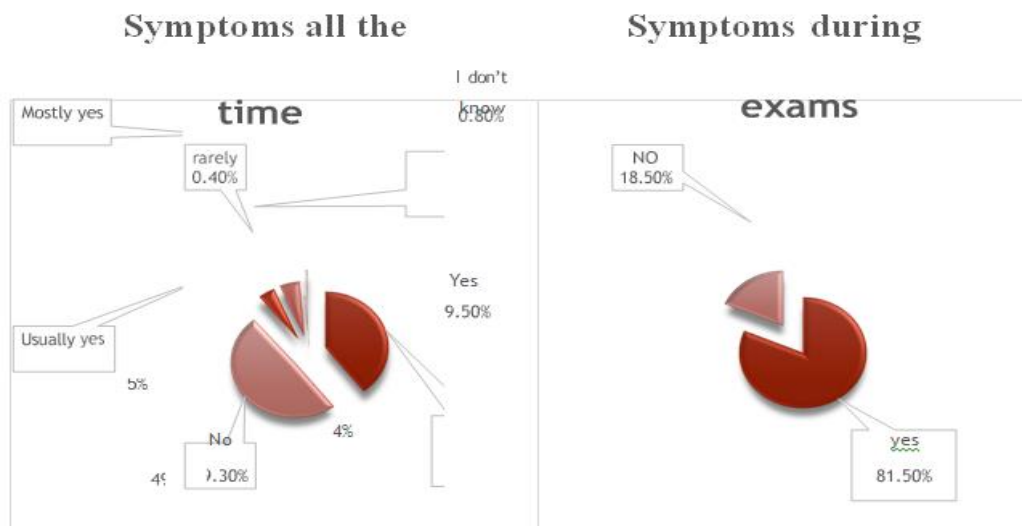
**Table: Timing of the symptoms.**

Timing of PMS symptoms	Number	Percentage
<b>Without study load</b>	159	35.3%
With study load	209	46.6%
<b>a. Usually yes</b>	24	5.3%
<b>b. Mostly yes</b>	4	0.9%
<b>c. It’s presented all the time, but during studying period is increased</b>	52	11.5%
<b>d. Symptoms tend to appear when Iam “free from studying”</b>	2	0.4%

Most of symptomatic study subjects said that the symptoms don’t appear all the time 222(49.3%) and 178 (39.5%) say that the symptoms were present all the time, on the otherside, most of participants 376(81.5%) think

that symptoms appear during exams. which reflect a strong relationship between exams & PMS symptoms. Table().

**Table 7: Timing of the symptoms.**



## DISCUSSION

The present study aimed to assess the prevalence and severity of PMS symptoms among a sample of medical university students.

Among the study participants (75%) suffered from some kind of PMS symptoms. The rate of PMS in this study is very high among this group, and adversely affects their quality of life and academic performance. The reported prevalence of PMS among female university students varies between different countries; for example, 39.4%–56.9% in Iran, 65% in Egypt, 72.1%–91.8% in Turkey, 79% in Japan, 80% in Pakistan, 89.5% in South Korea, and 80.2%–92.3% in Jordan.<sup>[9,10,11,12]</sup>

This geographical variability in the prevalence of PMS may be attributed to differences in genetic, dietary, and lifestyle factors among the young adult females examined. Differences in the prevalence of PMS may also be explained by community-adopted practices before and during menstruation, as well as differences in study methodology such as controls for confounding variables, methods of assessment, and independent variables. Further, variability in reported prevalence of PMS across cultures may also be accounted for by differences in the social meaning or construction of particular embodied and psychological experiences as a disorder associated with the reproductive body.<sup>[13]</sup>

Most participants among University Students from Sharjah, UAE (88.9%) had experienced dietary changes during pre- menstruation, while in this study the sum of the dietary changes was (57.5%). Abdominal pain/discomfort is one of the most frequently reported physical symptoms among surveyed females.<sup>[13]</sup>

However, this finding disagrees with recent studies on relevant college students from China and higher school girls in India. This variation in the type of reported physical symptoms could be explained by the variation in dietary and lifestyle behaviors, and the coping practices that surveyed females were following before and during their menstruation.

This goes in line with the vast majority of surveyed females in many other works.<sup>[13]</sup> Body mass index (BMI, kg/m<sup>2</sup>) was calculated and classified according to World Health Organization criteria, where participants with BMI below 25.0 kg/m<sup>2</sup> were considered as being normal weight, and those with a BMI of  $\geq 25$  kg/m<sup>2</sup> considered as overweight or obese. The average BMI of participating students in the emeriti students was higher than the normal range (76%) is the percentage of the abnormal BMI. while in this study (95%) was within the normal range.<sup>[13]</sup>

In a Palestinian study, (72.1%) had normal weights<sup>[15,16]</sup> During menstruation, 228 (57.7%) drink herbal tea, which is very high percentage compared with this study “only (0.9%) drinks hot drinks. Also in the same

Palestinian study, the most frequently reported premenstrual symptoms were abdominal cramps 428(95.1%), lower backache 312(69.3%). Most frequent psychological symptoms were anxiety & loss of concentration 352(78.2%), tiredness & fatigue 305(67.8%). Which is similar to this study.<sup>[16]</sup>

While in the emeriti study depressed mood (95%), lethargy/fatigue/decreased energy (92%) symptoms were abdominal Cramps 428(95.1%), lower backache 312(69.3%). Compared with results of this present study which clarified the most frequent psychological symptoms were anxiety & loss of concentration 352(78.2%), tiredness & fatigue 305(67.8%). As a conclusion, “physiological symptoms” was dominant among the students of the emeriti unlike the subjects in this study and the Palestinian study.<sup>[13,14,15,16]</sup>

Same results of the emeriti study were found in a Moroccan study, the most frequently reported affective symptoms were irritability (49 %), anxiety (46.1 %) and mood swinging (45.1%). As for somatic symptoms, most participants reported experiencing backache (52.9 %), breast tenderness (36.3 %) and fatigue (24.5 %).<sup>[18]</sup> No statistical significance was observed with duration of menses, regularity of cycle, blood flow and dysmenorrhea and the occurrence of PMS, while in this study, regularity of cycle was highly significant among the study subjects with PMS.

PMS is associated with depressive symptoms, especially among young female students.

In support of this present study results, previous studies have also found increased emotional symptoms, including anxiety and depression.<sup>[17]</sup>

This is also explained by the varying estrogen and progesterone levels and decreased serotonin levels during the premenstrual period.<sup>[17,18]</sup>

## CONCLUSION

PMS is very serious issue among female students with high prevalence (75%). symptoms reported by all symptomatic study subjects. The most frequent PMS Physical symptoms were: abdominal cramps, which was more than 95% of the participants suffer from and back pain, while the most frequent psychological symptoms included loss of concentration & anxiety. Majority of the participants chooses laying down & sleep as their favorite way to deal with the symptoms 211(46.9%), 104(23.3%) uses analgesics, (0.4%) of the participants use IV fluid which reflect the severity of the symptoms.

## Recommendation

Changing lifestyle, which including reducing stress as much as possible by creating a soothing environment, getting enough sleep, emotional support, practice deep breathing or meditation, and connect with others, as the high prevalence of PMS among university students & a

significant relationship was found among the symptomatic females with timing of exams and cycle regularity, requires an action to help and support those who suffer a lot. Raising awareness toward this syndrome is a necessary. Education programs can be implemented by various ways including traditional educational module or using innovative technological methods.

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