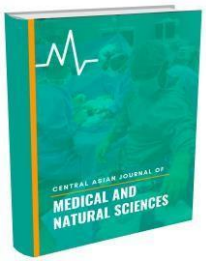

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Article

Premenstrual Syndrome Among Kerbala University Female Students

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Abstract: Premenstrual syndrome (PMS) is a common gynecological condition characterized by behavioral, physical, and psychological changes during the luteal phase, ending with menstruation. Despite its prevalence, the relationship between PMS symptoms and socio-demographic and reproductive characteristics in female students remains underexplored. This study aimed to assess PMS symptoms among female students and examine their association with socio-demographic and reproductive factors. A descriptive correlational study was conducted from September 26, 2023, to June 4, 2024, at Kerbala University, involving 372 female students. Data were collected using a self-report questionnaire, including a 40-item PMS scale covering physical, psychological, and behavioral symptoms, and demographic and reproductive characteristics. Validity and reliability were established through expert review and a pilot study. Data analysis using SPSS revealed that 57.3% of participants experienced moderate and 30.6% severe PMS symptoms. Significant relationships were found between PMS symptoms and residency, perceived monthly income, family history, menstrual duration, and amount of bleeding (p-values= .013, .019, .001, .012, and .001 respectively). No significant relationships were found with other variables. The study concludes that PMS symptoms among female students are moderate to severe, with notable associations with specific socio-demographic and reproductive factors. These findings underscore the need for targeted interventions to manage PMS symptoms in this population.

Keywords: Premenstrual Syndrome, Female Students, Symptoms, Socio-demographic Characteristics, Reproductive Health

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1. Introduction

Premenstrual syndrome is a common gynecological disease whose symptoms appear and include a group of behavioral, physical, and psychological changes in females during the luteal phase, ending with the onset of mense [1]. These changes affect a woman's life in one way or another, causing difficulty in performing daily tasks. A wide range of psychological symptoms, including mood swings, anxiety, sadness, impatience, and a lack of confidence, are associated with premenstrual syndrome. In addition, there are bodily complaints, including mastalgia and bloating. The diagnosis of PMS is supported by the timing of symptoms, not the types of symptoms, and the extent to which they interfere with everyday activities [2].

Using a record of symptoms for more than two menstrual cycles and based on the patient's symptoms and complaint , premenstrual syndrome is diagnosed [3]. Because of

the changes that occur to women during the premenstrual period, which affect the woman's performance and emotions, her life and perhaps the lives of those around her are affected, and because women are an active and important element in society and her well-being is considered one of the most important basic health issues, studying the symptoms of the syndrome and how to cope with it and treat it has become a topic of interest for many researchers [4]. Women with premenstrual disorder have a decreased quality of life and decreased job performance, which makes them have strange thoughts. Therefore, previous research focused on studying the relationship between suicide and premenstrual disorder. It has been shown that there is a relationship between suicidal ideation and severe premenstrual disorder [5].

2. Materials and Methods

A descriptive correlational design was used in this study between 26th September 2023, and 4th June 2024. Female students from five colleges (college of nursing, college of applied medical sciences, college of physical education and sports sciences, college of tourism sciences, and college of law) participated in this study. These colleges were chosen randomly from 17 colleges at Kerbala University by using a lottery. According to [6] sample size was calculated using a special formula. The students were selection by utilizing a non-probability (convenience) sample.

The study was approved by the Ethics Committee of College Nursing at the University of Kerbala. The study tool was then presented to a group of experts from various Iraqi universities to evaluate and modify it. The researcher took the experts' modifications into account. As for the students' consent, it was obtained verbally and in writing through the paragraph on the respondent's consent on the first page of the tool. The researcher used a scale [7] to measure premenstrual syndrome, and it contained 40 items divided into three subsections: physical, psychological, and behavioral. In addition to the section on the demographic and reproductive characteristics of the participants (age, marital status, college, stage of study, monthly income, mother's level of education, family history, duration of menstruation, amount of bleeding, age at first menstrual period, menstrual interval, and menstruation regularity).

A pilot study was conducted on 37 female students in order to determine the reliability of the tool used in the period between the 24th and 27th of December. About 17 to 25 minutes is the time each student took to complete the questionnaire, which is an acceptable time. The researcher used Cronbach's alpha coefficient in order to determine the internal consistency of the tool. The result was excellent, which means that the tool has high internal consistency and is measurable. It must be noted that the pilot study sample was not included in the original study. After explaining the study and its objectives to the students and obtaining their consent, the data was collected during the period from January 1 to January 21, 2024. Data Analysis: To analyze the data, Version 26.0 of SPSS was used.

3. Results

The average age for female students is 2.9±1.7 years and the highest percentage of them is 47.8% who are seen with age group of 21- 23 years. The marital status for female students refers that 73.4% of them are still unmarried and only 23.1% of them are married. The residency reveals that 78.2% of female students are resident in urban while 21.8% of them are resident in rural. Regarding college, 30.4% of female students are from Law College, 21% are from Nursing College, 20.4% from Applied Medical Sciences, 15.6% of them are from College of Physical Education and Sport Sciences, and 12.6% from College of Tourism Science. Concerning scholastics grade, 29.6% of them are seen from third grade,

25.5% from second grade, 22.6% from first grade, and 22.3% from fourth grade. More of female students reported that they living with their families (83.9%) and only 16.1% are living with their friends. The level of education for students' mothers refers to college and higher among the highest percentage of 31.5% among them. Regarding family monthly income, 68% of female students perceived adequate monthly income and 30.4% perceive partially adequate income as shown in table (1).

Table 1. Distribution of Female Students according to their Socio-demographic Characteristics

List	Characteristics		F	%
1	**Age (year)** **M±SD= 20.9 ± 1.7**	**18 – 20**	**163**	**43.8**
		21 – 23	**178**	**47.8**
		24 – 26	**31**	**8.4**
		Total	***372***	***100***
2	**Marital status**	**Unmarried**	**273**	**73.4**
		Married	**86**	**23.1**
		Widowed	**1**	**.3**
		Divorced	**12**	**3.2**
		Total	***372***	***100***
3	**Residency**	Rural	81	21.8
		Urban	291	78.2
		Total	***372***	***100***
4	**College**	Law	113	30.4
		Nursing	78	21
		Tourism science	47	12.6
		Applied medical sciences	76	20.4
		Physical education and sport science	58	15.6
		Total	***372***	***100***
5	**Grade**	First	84	22.6
		Second	95	25.5
		Third	110	29.6
		Fourth	83	22.3
		Total	***372***	***100***

f: Frequency, %: Percentage, M: Mean, SD: Standard deviation

About 54.8% of students have positive family history of premenstrual syndrome. The average age at first menstrual cycle refers to 12.6±1.5 years among female students and 66.4% of them seen with age group of 12-14 years as a first menstrual cycle started. Regarding menstruation duration, 49.5% of female students associated with 3-5 days and 43% associated with more than 5 days duration. The menstrual interval refers to 21-35 days among 66.4% of them while 13.7% of them are seen with interval of more than 35 days. The regularity of menstruation is reported among 68.5% of female students while 31.5% reported irregular menstruation. The amount of bleeding during menstruation refers to moderate among 71.8% of female students while 16.7% reported severe bleeding as reveals in table (2)

Table 2. Distribution of Female Students according to their Reproductive Health Characteristics

List	Characteristics		f	%
1	**Family history of Premenstrual syndrome**	No	168	45.2
		Yes	204	54.8
		Total	***372***	***100***
2	**Age at first menstrual cycle M±SD= 12.6 ± 1.5**	9 – 11 year	83	22.3
		12 – 14 year	247	66.4
		15 year and more	42	11.3
		Total	***372***	***100***
3	**Menstrual duration**	Less than 3 days	28	7.5
		3 – 5 days	184	49.5
		More than 5 days	160	43
		Total	***372***	***100***
4	**Menstruation interval**	Less than 21 days	74	3.9
		21 – 35 days	247	66.4
		More than 35 days	51	13.7
		Total	***372***	***100***
5	**Regularity of menstruation**	No	117	31.5
		Yes	255	68.5
		Total	***372***	***100***
6	**Amount of bleeding during menstruation**	Mild	43	11.6
		Moderate	267	71.8
		Sever	62	16.7
		Total	***372***	***100***

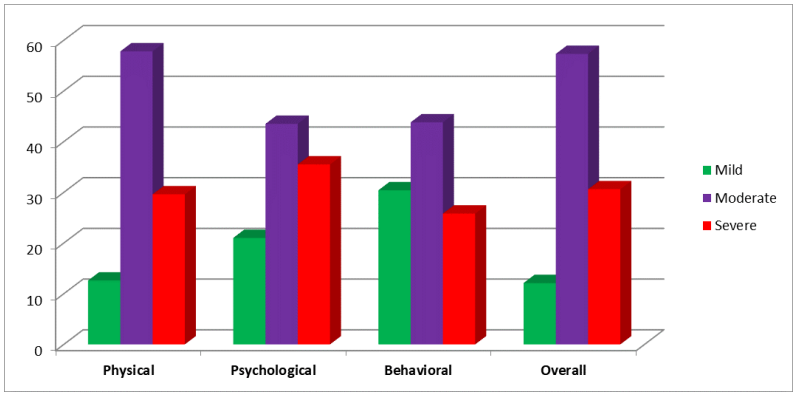

Figure 1. Severity of Premenstrual Syndrome Symptoms among Female Students (N=372)

Figure (1) shows that female students experience moderate to severe symptoms related to premenstrual syndrome (moderate= 57.3% and severe= 30.6%); in which they associated with moderate severity of physical symptoms (57.8%), psychological symptoms (43.5%), and behavioral symptoms (43.8%).

Table 3. Association among Female Students' Symptoms and their Socio-demographic Variables (N=372)

Variables		Symptoms				Association
		Mild	Moderate	Severe	Total	
Age (year)	18 – 20	24	89	50	163	**F= .240** **P-value= .787** **Sig= N.S**
	21 – 23	15	112	51	178	
	24 – 26	6	12	13	31	
	Total	45	213	114	372	
Marital status	Unmarried	34	144	95	273	**F= 1.052** **P-value= .370** **Sig= N.S**
	Married	9	60	17	86	
	Widowed	0	1	0	1	
	Divorced	2	8	2	12	
	Total	45	213	114	372	
Residency	Urban	19	40	22	81	**t= 2.498** **P-value= .013** **Sig= S**
	Rural	26	173	92	291	
	Total	45	213	114	372	
College	Law	16	54	43	113	**F= 1.777** **P-value= .133** **Sig= N.S**
	Nursing	8	50	20	78	
	Tourism science	6	32	9	47	
	Applied medical sciences	7	38	31	76	
	Physical education and sport science	8	39	11	58	
	Total	45	213	114	372	
Grade	First	13	40	31	84	**F= .348** **P-value= .791** **Sig= N.S**
	Second	10	62	23	95	
	Third	10	69	31	110	
	Fourth	12	42	29	83	
	Total	45	213	114	372	
Living with	Family	41	178	93	312	**t= 1.193** **P-value= .234** **Sig= N.S**
	Friends	4	35	21	60	
	Total	45	213	114	372	
Mother's education	Doesn't read & write	5	14	7	26	**F= .105** **P-value= .957**
	Primary school	13	64	36	113	

F= F-statistics, t= independent sample t-test, p= Probability, Sig= Significance, N.S= Not significant, S= Significant, H.S= High significant

Table (3) indicates that there is significant relationship among female students' symptoms with their residency and perceived monthly income at p-values= .013 and .019. The findings did not reveal any significant relationship with other variables of age, marital status, college, grade, living status, and mothers' education. Also this study mentioned that there is significant relationship among female students' symptoms with their family history, menstrual duration, and amount of bleeding at p-values= .001, .012, and .001 respectively. The findings did not reveal any significant relationship with other variables of age at first menstruation, menstruation interval, and regularity of menstruation as reported in table (4).

Table 4. Association among Female Students' Symptoms and their Reproductive Variables (N=372)

Variables		Symptoms				Association
		Mild	Moderate	Severe	Total	
Family history of PMS	No	23	108	37	168	**t= 3.818** **P-value= .001** **Sig= H.S**
	Yes	22	105	77	204	
	Total	45	213	114	372	
Age at first menstrual cycle	9 – 11 year	12	43	28	83	**F= 1.973** **P-value= .141** **Sig= N.S**
	12 – 14 year	26	145	76	247	
	15 year and more	7	25	10	42	
	Total	45	213	114	372	
Menstrual duration	Less than 3 days	7	17	4	28	**F= 4.463** **P-value= .012** **Sig= S**
	3 – 5 days	23	107	54	184	
	More than 5 days	15	89	56	160	
	Total	45	213	114	372	
Menstruation interval	Less than 21 days	10	40	24	74	**F= .712** **P-value= .491** **Sig= N.S**
	21 – 35 days	23	150	74	247	
	More than 35 days	12	23	16	51	
	Total	45	213	114	372	
Regularity of menstruation	No	12	65	40	117	**t= .759** **P-value= .448** **Sig= N.S**
	Yes	33	148	74	255	
	Total	45	213	114	372	
Amount of bleeding during menstruation	Mild	5	23	15	43	**F= 8.756** **P-value= .001** **Sig= H.S**
	Moderate	38	158	71	267	
	Sever	2	32	28	62	
	Total	45	213	114	372	

4. Discussion

The socio-demographic information of (372) female students participating in this study showed that the highest percent (47.8%) among them had an average age of 21 to 23 years, as shown in Table (1). This is in agreement with research done in Egypt by Abdel Hafez et al. (2015) [8] Regarding marital status, The results of this study showed that (273) female students were single out of (372) students, which is equivalent to (73.4%), this finding was consistent with the results of another study conducted in Iraq by Al-Khazrajy and Hameed, (2023) [9]. Most of the female students lived in urban areas (78.2%) and in rural areas (21.8%), which is considered supportive of the study (Hussein, F. 2014).

Regardless of the college, the study showed that female students in the second and third stages achieved the highest participation rates of 25.5 and 29.6 percent, respectively. Which is consistent with the result of the Ethiopian study conducted by [10]. It was found in this study that 83.9% of female students live with their families, which is the largest percentage, and this is what several studies also found, including [11]. As for the mother's educational level, the percentages were very close between those who completed university education and those who obtained a secondary degree. In first place came mothers who graduated from university, at a rate of 31.5%, and in second place were mothers who obtained only a secondary degree, at a rate of 31.2%.

This result is matched with [12], as their results were about 51.5% and 32.5% for those with a university degree and those with a secondary degree, respectively. According to the perceived family income, this study showed that the monthly income is adequate from the point of view of 68% of the female students. This is a result consistent with the study conducted by [13]. Concerning reproductive characteristics as reported in table (2) (54.8%) of the female students had a family history of premenstrual syndrome, and this supports [14] study that showed that 57.8% of the women participating in it had a family history of this syndrome. According to the first menstrual cycle and the menstrual duration, the results of this study were consistent with the study conducted by [15], the result indicated the average age when the first menstrual period occurred for most female students was between 12 and 14 years (66%), and the duration of menstruation for the largest number of them was 3-5 days (49%), while, in the Indian study mentioned above, the average age of most female students at the first period (89.7%) ranged between 12 and 15 years of age, and the duration of menstruation was 3-5 days (68.9%).

The results showed that (66.4%) was 21 to 35 days, which is an identical result with what was shown in the study conducted by [16]. (68.5%) of female students had regular periods, this is what this study showed, and it is a result consistent with the results of other studies, including [17]. The amount of blood flowing during menstruation for 71% of female students was moderate, which is a very close percentage to the [18] study, which showed that 70% had a moderate amount of bleeding.As mentioned in figure (1) The overall score of PMS symptoms indicates that female students are associated with moderate-to-severe symptoms of premenstrual syndrome, (57.3%) of them with moderate symptoms and 30.6% with severe symptoms. 57.8% of female students were associated with moderate physical symptoms related to premenstrual syndrome, while 28.6% of them were associated with severe physical symptoms. according to psychological symptoms 43.5% of female students are associated with moderate symptoms, and 35.5% are associated with severe symptoms. In addition, 43.8% of female students are associated with moderate behavioral symptoms, and 25.8% of them are associated with severe behavioral symptoms, Which is in agreement with [19] that found (58.7%) of physicians who work in port said city had "moderate to severe PMS.

The study did not show a relationship between age, marital status, educational level, living with, and educational level of the mother with PMS, but it did show that there is a statistically significant relationship between residency and family income with PMS. According to residency ($p = 0.013$), this was proven by [20] at ($p = 0.033$) and (19) ($p = 0.016$) too, while with regard to monthly income, it was ($p = 0.019$), which is a result supported by [22] and [23]. Also, this study reveals that there is a high significant correlation among female students' PMS symptoms and their family history (p-values =0.001), which is in agreement with a Turkish study conducted by [24] and [25] that reported that a positive family history of symptoms of premenstrual syndrome increases the chances of symptoms of this syndrome occurring among participants. In this study, the duration of menstruation was significantly associated with premenstrual syndrome ($p = 0.012$), as other studies, including [26] showed the same finding.

As for the amount of bleeding during the menstrual cycle, this study showed that it is highly statistically associated with premenstrual syndrome ($p = 0.001$), which is the same

result presented by [27, 28]. The findings did not reveal any significant relationship with other variables of age at first menstruation, menstruation interval, and regularity of menstruation.

5. Conclusion

This study concluded that premenstrual syndrome (PMS) symptoms among female students at the University of Kerbala are moderate to severe, with 57.3% experiencing moderate symptoms and 30.6% severe symptoms. Significant relationships were identified between PMS symptoms and socio-demographic and reproductive factors, including residency, perceived monthly income, family history, menstrual duration, and amount of bleeding. These findings suggest that specific socio-demographic and reproductive characteristics may influence the severity of PMS symptoms. The implications of this study highlight the necessity for targeted interventions, such as workshops and educational programs, to raise awareness and provide coping strategies for PMS among female students. Further research is recommended to explore the underlying causes of the associations between PMS symptoms and factors such as residency, menstrual duration, and bleeding amount, potentially involving larger and more diverse populations to enhance the generalizability of the results.

Recommendations:

1. Holding special workshops and courses for female students in order to increase their awareness of the premenstrual period and the changes that occur to them during it.
2. Guiding students on how to deal with the changes that occur in the premenstrual period in healthy and effective ways.
3. Find out the reason behind the relationship between premenstrual syndrome and residence, duration of menstruation, amount of bleeding, and monthly income through conducting studies that are more extensive.

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