

## Prevalence of Premenstrual Syndrome: Complementary & Alternative Therapy among Nursing Students

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### Abstract:

**Background:** premenstrual syndrome is particularly common among younger age groups, therefore represents a significant public health problem which affected young girls. There is no consensus regarding premenstrual syndrome treatment; however, all current interventions focus on management of the most troubling symptoms. **This study aimed to** estimate the prevalence of premenstrual syndrome among adolescent girls and to identify complementary and alternative therapy used by nursing schools students to minimize premenstrual syndrome. An exploratory **design** was adopted in the current study. A study was conducted at all secondary technical nursing schools, which available in Dakahlia governorate from March, 2014 to May, 2014. A purposive **sample** of 1120 nursing students was included. **Two tools** were used to collect data; interview questionnaire sheet and Modified Version of Menstrual Distress Questionnaire. **Results** of the present study showed that, the prevalence of premenstrual syndrome was (73.4%). Almost of the study samples (87.0%) used complementary and alternative therapy to minimize premenstrual syndrome. **Conclusion** the majority of students had premenstrual syndrome. Almost of the study subjects use complementary and alternative therapy to minimize premenstrual syndrome, herbal therapy was the main complementary and alternative therapy used followed by hydrotherapy, food Change, massage and exercise.

**Keywords:** Alternative therapy, Complementary therapy, Premenstrual Syndrome.

### I. Introduction

Premenstrual tension is the lay term that is used for premenstrual syndrome (PMS); premenstrual dysphoric disorder is the extreme, predominantly psychological, or end of the PMS spectrum (*Ísmail, & O'Brien, 2005*). PMS is characterized by one or more of physical, behavioral, and psychological symptoms that happen repetitively and in a cyclic pattern in association with the luteal phase of the menstrual cycle and the girls are symptom - free between two luteal phases (*Gul et al., 2011*).

The definition and diagnostic criteria of PMS have varied substantially over the years, and controversy persists (*Braverman, 2007*). Moreover, the disagreement about the medical definition of PMS has been used to support the position that, PMS is not only a “physiologic condition, but also a cultural/ideological construct” (*Knaapen, & Weisz, 2008*).

*O'Brien et al., (2011)* were described the timing of symptoms as the key characteristic of PMS, which occur only during all or part of the two weeks leading up to menstruation (the luteal phase of the menstrual cycle). A complete description of its definition; symptoms disappear by the end of menstruation and do not recur before ovulation, a symptom-free interval of at least one week.

A severe form of PMS is known as premenstrual dysphoria or premenstrual dysphoric disorder (PMDD), and was previously also known as late luteal phase dysphoric disorder (LLPDD). Symptoms should remit within a few days of menstruation. This definition has been questioned because it focuses on severe psychological symptoms while placing relatively little importance on physical symptoms, and may exclude some women with debilitating symptoms that do not meet these specific criteria (*O'Brien et al., 2011*).

The prevalence of premenstrual symptoms was found to be (89.6 %) among medical students of Ain Shams University, Egypt (*Bakr and Ez-Elarab, 2010*), 80.2% among El-Minia University students, Egypt (*Seedhom et al., 2013*). In addition, it was found that, more than three quarter (77.7%) of rural adolescent girls had experienced PMS (*Yassin, 2012*). Other data reported by *Karout et al., (2012)* showed that, 54.0% of the nursing students who attended to the Islamic University, Lebanon experienced PMS.

There are no specific physical examination or laboratory tests specific to detect PMS (*Braverman, 2007*). Over 200 symptoms have been associated with PMS. When taking a medical history, questions regarding the most common physical, emotional, and cognitive symptoms must be included, and pay close attention to symptoms time regarding menstrual cycle (*Raines, 2009*). The nature and frequency of the symptoms vary

between women and also in different cycles in the same women (Milewicz, & Jedrzejuk, 2006). A symptom calendar can help women to identify the most troublesome symptoms and confirm the diagnosis of PMS (Oncel, & Pinar, 2006). Absence of symptoms between the end of menstruation and ovulation is the diagnostic key of PMS (Halbreich, 2006).

Women with confirmed PMS report significantly have; lower quality of life, higher absenteeism rate from work, less work productivity, impaired relationships with others and increased visits to health providers compared with other women (Qiao et al., 2012).

The management of PMS is often frustrating for both patients and physicians. Many women seek alternative therapies, vitamins and minerals because conventional therapies do not help them, or they want to avoid the side effects of hormonal or psychotropic drugs (Webster et al., 2006; Kimberly, & Lori, 2009). National Center for Complementary and Alternative Medicine (NCCAM) stated that, “complementary and alternative medicine is a group of diverse medical and health care systems, practices, and products that are not presently considered to be part of conventional medicine” (NCCAM, 2012).

Complementary and alternative therapies (CATs) are popular with women who have PMS. A systematic review designed by Stevinson, and Ernst (2001) to determine whether the use of such therapies is supported by evidence of effectiveness from rigorous clinical trials. These randomized controlled trials investigating a complementary and alternative therapy in women with PMS including twenty-seven trials to investigate; herbal medicine (7 trials), homeopathy (1), dietary supplements (13), relaxation (1), massage (1), reflexology (1), chiropractic (1), and biofeedback (2).

In Egypt, 72.7% of rural adolescent girls with menstrual disorders used herbal remedies for treatment (Yassin, 2012). Also, it was observed that warm drinks, warm bathing, sports and activities, comfortable / rest period and medications are practiced by girls to overcome symptoms of PMS (Abd EL-Hamid et al., 2013). Despite some positive findings, the evidence was not compelling for any of these therapies due to various methodological limitations. So, no complementary and alternative therapies can be recommended as a treatment for PMS.

### **1.1 Significance of the study:**

There is more and more researches focused on women's symptoms during premenstrual period however, very little are known focused on how women cope with these symptoms during this period. Moreover, there is a little knowledge about adolescents' health-seeking behaviors for management of menstrual problems. It is urgent to estimate prevalence of PMS among nursing students and identify complementary and alternative therapy used by them to minimize such symptoms.

### **1.2 Aim: The aim of this study had two folds:**

- A. To estimate the prevalence of premenstrual syndrome (PMS) among adolescent girls at secondary technical nursing schools in Dakahlia governorate.
- B. To identify complementary and alternative therapies used by adolescent girls to minimize PMS.

### **1.3 Research Question:**

To achieve the aim of this study the following research questions are formulated:

- A. What is the extent of the prevalence of PMS among nursing students at secondary technical nursing schools in Dakahlia governorate/ Egypt?
- B. What are the most common CATs used by adolescent girls to minimize PMS?

## **II. Material And Methods**

### **1. Material**

#### **1.1 Research design:**

An exploratory design was used in this study to fulfill the aim of the study and answer the research questions.

#### **1.2 Setting:**

This study was carried out at all secondary technical nursing schools (fifteen schools), which available in Dakahlia governorate/ Egypt. These schools were; secondary technical nursing school at; Mataria, Manzala, Gamalia, Mit Slsell, Menit Alnaser, Dekernis, Bany Ebied, Mahal Dimna, Talkha, Nabarouh, Sherbin, Belkas, Sanblawin, Aga, and Mit Ghamr.

### **1.3 Subjects:**

A purposive sample of 1120 nursing students attending the previous mentioned secondary technical nursing schools between March and May 2014. All students during the period of the study and were eligible for inclusion in the study. Excluded were these who were married.

**1.4 Tools of data collection:** Two tools were used in the current study to collect the necessary data.

**1.4.1 Tool I:** Interview Questionnaire Sheet: It was developed by the researcher; it was consisted of three parts:

Part 1: general characteristics data such as; age, school grade, father and mother education .....etc.

Part 2: menstrual history such as; age of menarche, duration, regularity....etc.

Part 3: questions related to complementary and alternative therapy used during premenstrual syndrome, such as; used modalities, types of used CAM ...etc.

**1.4.2 Tool II:** Modified Version of Menstrual Distress Questionnaire (MMDQ):

The MMDQ is a self-report measure used to assess symptoms that participants' experiences in the week before their period. It consists of 50 items with eight subscales; (pain, GIT and elimination symptoms, autonomic reaction, water retention, general manifestation, concentration, behavioral change and negative affect) each of these items is rated on a five- point likert scale was used to assess the severity of the PMS symptoms. The answer categories were "No, mild, moderate, strong, and severe".

## **2. Methods**

### **2.1 Ethical Considerations:**

An official letter from the Faculty of Nursing, Port-Said University was directed to the responsible authorities to obtain their permission to conduct the study after explaining its purpose. Written approvals were obtained from the head masters of each school included in the study. Consents forms were obtained from participate in the study and confidentiality was maintained by assuring security and privacy to all students. All data used for the purpose of the study.

### **2.2 Content Validity and Reliability:**

Content validity was tested by five experts in nursing field. The questionnaire was modified according to the expert's comments and recommendations.

### **2.3 Pilot Study:**

The pilot study was conducted on 10% of the total sample (there was 124 students, the researcher was selected 10.0% from each school, which were equally selected as the first names in the classrooms' checklist from first, second, and third year). It was conducted over a period of one month from the beginning of December, 2013 to the beginning of January, 2014. The students included in the pilot study were excluded from the main study sample. Degree of reliability by Cronbach's alpha test was 95.0%.

### **2.4 Field of work:**

An official written permission to conduct the study was obtained from the manager of each school, and verbal consents were obtained from each participant after explaining the purpose of the study. The students were assured that, all information will be confidential and will be used only for the purpose of the study. Data were collected over a period of three months from the beginning of March, 2014, to the end of May, 2014 for five days per week. During the interview, the researcher read each item / question on the questionnaire and explained its meaning to the student. Then the student was asked to write down her answers immediately following asking each item / question. The interview time ranged from 15 to 20 minutes and the students were allowed to ask for any interpretation, elaboration or explanation.

### **2.5 Statistical Data Analysis:**

Data were extracted from the interview questionnaire and computerized in Microsoft Excel 2007. Analysis was undertaken using IBM SPSS (Statistical Package for Social Science) version 20.0. Qualitative data were described using number and percent. Quantitative data were described using minimum and maximum, mean and standard deviation. Level of significance was at 5.0%. Data were presented using descriptive statistics in the form of frequencies and percentages for qualitative variables, and means and standard deviations for quantitative variables.

## **III. Results**

Results showed that the mean age of the students under study was ( $16.77 \pm 0.88$  years). The mean age of menarche was ( $13.04 \pm 1.08$ ). Most of them had their first menstrual period at the age of 12-14 years. The

results showed that, the prevalence of PMS was (73.4%) and severity of symptoms of PMS was found to be mild in (55.8%), moderate in (34.2%), strong in (9.6%) and severe in (0.4%) (Fig.1, 2).

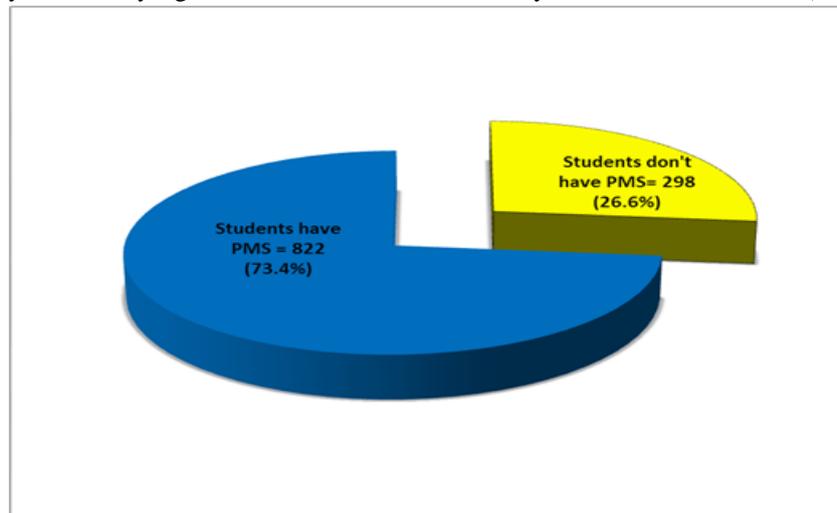
Almost of the study students' (87.0%) were used complementary and alternative therapies to minimize premenstrual syndrome. The greater part of the students (97.5%) were reported that, the herbal therapy was the main CAT used to minimize PMS followed by hydrotherapy (75.5%), food change (60.1%), massage (49.7%), exercise (43%), fixed oils (5.7%), pray (4.2%), aromatherapy (3.1%), and finally others (rest / sleep and hot apostasy) (0.6%) (Fig. 3, 4).

As regards relationship between menstrual history and prevalence of premenstrual syndrome table (1) show that there was a highly statistically significant relation between age of menarche, the amount of blood flow and PMS's prevalence ( $P= 0.04$  &  $<0.001$ ) respectively. The same table reveals that, there was no statistically significant relation between duration of blood flow ( $P=0.63$ ), menstrual interval ( $P=0.24$ ), menstrual regularity ( $P=0.40$ ) and prevalence of PMS.

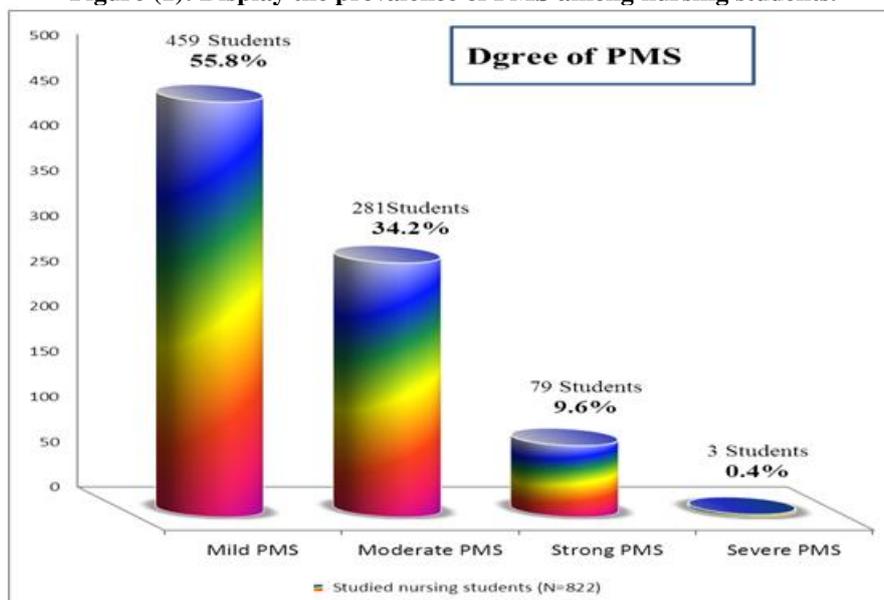
Regarding relation between physical exercises and prevalence of premenstrual syndrome table (2) showed there was a statistically significant relation between physical exercises and PMS ( $P=0.04$ ); students who didn't perform physical exercise were suffered from PMS more than students performed it.

Concerning relationship between menstrual history and using of CAT table (3) presents that, there were no statistically significant differences between PMS in relation to their age of menarche, amount of blood flow or menstruation regularity, the same table mentioned that, there was a statistically significant relation between mean of duration of blood flow and PMS ( $P=0.011$ ); long duration of blood flow lead to CATs' using.

As regards relation between degree of premenstrual syndrome and using of CAT table (4) show that, there was a highly statistically significant relation between severity of PMS and used CAT ( $P=0.002$ ).



**Figure (1): Display the prevalence of PMS among nursing students.**



**Figure (2): Display the degree of PMS among nursing students.**

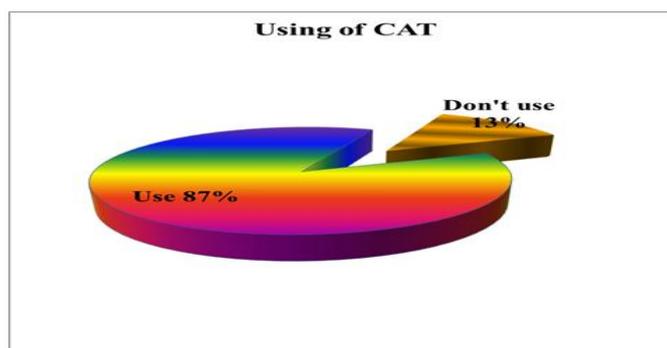


Figure (3): Illustrate using of CAT among nursing students

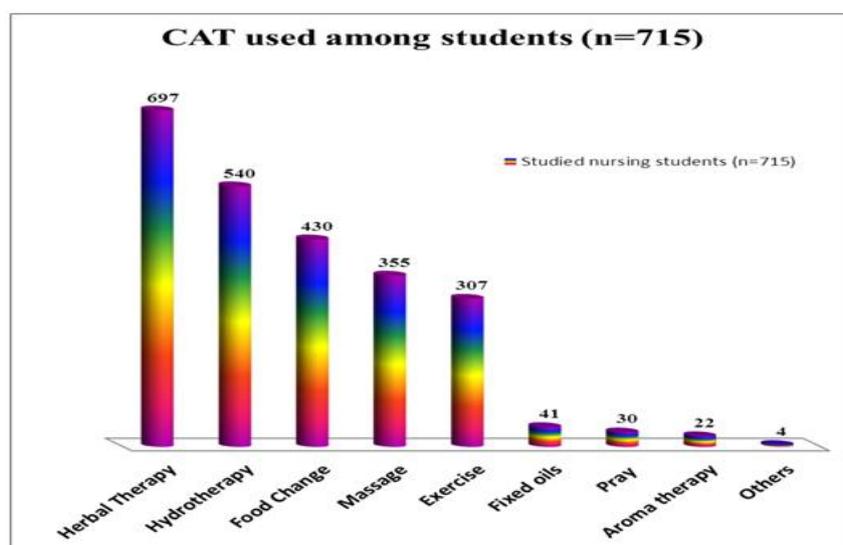


Figure (4): Illustrate nursing students according to CAT used to minimize PMS (N = 715)

Table (1): Relation between menstrual history and prevalence of premenstrual syndrome (N=1120)

Menstrual history	Prevalence of PMS (n=1120)				Test of sig.	P
	No (n = 298)		Yes (n = 822)			
	No.	%	No.	%		
<b>Age of menarche</b>						
10 – 12	18	6.0	47	5.7	$\chi^2 = 12.573^*$	$MC P = 0.042^*$
12 – 14	191	64.1	492	59.9		
14 – 16	89	29.9	283	34.4		
Min. – Max.	10.0 – 16.0		10.0 – 16.0		t = 2.61	0.794
Mean ± SD	13.02 ± 1.10		13.04 ± 1.07			
<b>Duration of blood flow</b>						
< 3	2	0.7	5	0.6	$\chi^2 = 0.938$	0.626
3 – 7	288	96.6	785	95.5		
> 7	8	2.7	32	3.9		
Min. – Max.	2.0 – 15.0		2.0 – 11.0		t = 1.840	0.066
Mean ± SD	5.12 ± 1.32		5.28 ± 1.28			
<b>Amount of blood flow</b>						
Scanty	5	1.7	21	2.6	$\chi^2 = 17.616^*$	<0.001*
Moderate	277	92.9	684	83.2		
Excessive	16	5.4	117	14.2		
<b>Menstrual interval</b>						
< 21 day	1	0.3	12	1.5	$\chi^2 = 2.840$	0.242
21 – 35 day	266	89.3	714	86.9		
> 35	31	10.4	96	11.7		
Min. – Max.	18.0 – 120.0		14.0 – 150.0		t = 0.600	0.549
Mean ± SD	31.72 ± 12.53		31.24 ± 11.47			
<b>Menstrual regularity</b>						
Regular	203	68.1	538	65.5	$\chi^2 = 0.697$	0.404
Irregular	95	31.9	284	34.5		

\*: Statistically significant at  $p \leq 0.05$

**Table (2): Relation between physical exercises and prevalence of premenstrual syndrome (N=1120)**

Items	Prevalence of PMS (n=1120)				Test of sig.	P
	No		Yes			
	No.	%	No.	%		
<b>Physical exercises</b>	<b>n = 298</b>		<b>n = 822</b>			
Performed	6	2.0	39	4.7	$\chi^2 = 4.230^*$	0.040*
Not performed	292	98.0	783	95.3		

\*: Statistically significant at  $p \leq 0.05$

**Table (3): Relation between menstrual history and using of CAT (N = 822)**

Menstrual history	Using of CAT				Test of sig.	P
	Yes (n= 715)		No (n= 107)			
	No.	%	No.	%		
<b>Age of menarche</b>						
10-12	43	6.0	4	3.6	$\chi^2 = 6.721$	$^{MC}P = 0.309$
12-14	427	59.7	65	60.7		
14-16	245	34.3	38	35.5		
Min. – Max.	10.0 – 16.0		10.0 – 16.0		t = 0.911	0.362
Mean ± SD	13.03 ± 1.07		13.13 ± 1.11			
<b>Duration of blood flow</b>						
< 3	4	0.6	1	0.9	$\chi^2 = 1.080$	$^{MC}P = 0.569$
3 – 7	684	95.7	101	94.4		
> 7	27	3.8	5	4.7		
Min. – Max.	2.0 – 11.0		2.0 – 8.0		t = 2.556*	0.011*
Mean ± SD	5.33 ± 1.27		4.99 ± 1.31			
<b>Amount of blood flow</b>						
Scanty	15	2.1	6	5.6	$\chi^2 = 5.275$	0.072
Moderate	595	83.2	89	83.2		
Excessive	105	14.7	12	11.2		
<b>Menstrual interval</b>						
< 21 day	11	1.5	1	0.9	$\chi^2 = 3.321$	0.190
21 – 35 day	626	87.6	88	82.2		
> 35	78	10.9	18	16.8		
Min. – Max.	14.0 – 150.0		20.0 – 90.0		t = 0.616	0.538
Mean ± SD	31.15 ± 11.46		31.88 ± 11.61			
<b>Menstrual regularity</b>						
Regular	470	65.7	68	63.6	$\chi^2 = 0.196$	0.658
Irregular	245	34.3	39	36.4		

\*: Statistically significant at  $p \leq 0.05$

**Table (4): Relation between degree of premenstrual syndrome and using of CAT (N=822)**

Degree of PMS	Using of CAT (N = 822)				$\chi^2$	P
	Yes		No			
	No.	%	No.	%		
	<b>n= 715</b>		<b>n= 107</b>			
Mild	386	54.0	73	68.2	15.459*	$^{MC}P=0.002^*$
Moderate	250	35.0	31	29.0		
Strong	77	10.8	2	1.9		
Severe	2	0.3	1	0.9		

\*: Statistically significant at  $p \leq 0.05$

#### IV. Discussion

The aim of the current study was to estimate the prevalence of premenstrual syndrome among adolescent girls at secondary technical nursing schools and identify complementary and alternative therapies used by nursing schools students to minimize PMS. This aim was achieved by the present study findings and the research questions were answered.

According to the results yielded by the present study, the prevalence of premenstrual syndromes was estimated to be (73.4%) as measured by (MMDQ). The present study was in consistence with *Seedhom et al. (2013)*, who was reported that, the prevalence of PMS was (80.2%) among 253 unmarried female students El-Minia University. Also, the results of the current study in agreement with *Mohamed et al. (2013)*, who was found that, the prevalence of premenstrual syndrome among females in child bearing period in ALganaan Village (Suez Canal), Egypt was (80.8%).

Another study in rural village in Elbehira Governorate, Egypt was conducted by *Yassin (2012)* who was reported that, more than three quarter of the study subjects had experienced PMS. Additionally, the current

results are close to findings of **Ibrahim et al. (2012)** who were reported that, 80.0% of students were affected by PMS at Faculty of Nursing, Ain Shams University.

Furthermore, **Bakr and Ez-Elarab (2010)** were reported that, the prevalence of PMS among medical students of Ain Shams University was estimated to be (89.6%). As well as, a study was conducted by **El Defrawi et al. (2007)** in Suez Canal area, they was noticed that, the prevalence rate was (69.6%).

In disagreement with **Mekhail (2006)** who was reported that, the prevalence of PMS was found (47.2%) among the studied females in El-salam district, Ismailia city, Egypt. In addition, a study by **Karout et al. (2012)** who were carried out a study of prevalence and pattern of menstrual disorders among Lebanese nursing students in Beirut, the results were showed that, 54.0% suffered from PMS. It may be due to the differences in geographical areas, differences in target populations, social and cultural contexts, screening tools and age of participant.

The present study was revealed that, slightly more than half students had mild PMS followed by moderate PMS, while the minority of them had strong and severe PMS.

The results of the current study go in the same line with **Balaha et al. (2010)** who were conducted a study at College of Medicine, Al Ahsa, King Faisal University (KFU), Saudi Arabia, they were reported that, the frequency distribution of the cases were allocated to the three subgroups; (45.0%) mild, (32.6%) moderate, and (22.4%) severe cases.

Furthermore, the current study findings are in constant with **Nisar et al. (2008)** who were conducted a study on 172 unmarried medical students at Isra University Hospital, Hyderabad, Sindh, Pakistan. Their study results were illustrated that, more than half of students had mild PMS, 29.2% of them had moderate, and 11.2% had severe PMS.

The current study results converse with **Seedhom et al. (2013)** who were found that, the most participants had moderate PMS (64.8%) followed by mild PMS (21.7%), and finally severe PMS (13.4%). With respect, **Mohamed et al. (2013)** reported that, 49.0% of their study subjects had moderate degree of PMS, 27.0% had mild degree of PMS, and 24.0% had severe degree of PMS. Moreover, **Ibrahim et al. (2012)** their study findings were revealed that, (29.5%, 33.9%, & 36.6%) of students had mild, moderate, and severe degree of PMS respectively at initial assessment. In addition, a study by **Al-Batanony, and AL-Nohair (2014)** were reported that, (45.2%, 48.9%, & 5.9%) of students had mild PMS, moderate PMS and severe PMS respectively. This difference may be related to individual variations and changes in the symptoms threshold from person to person.

In the present study, the almost students were participated in the current study subjects, who were suffering from PMS, use complementary and alternative therapy to minimize premenstrual syndrome symptoms. The same findings were reported by **Yassin (2012)**, was stated that, more than three quarter of the study subjects had experienced PMS (77.7%), 72.7% of them used herbal remedy for treatment of PMS, 12.4% of them sought medical treatment and 14.9% of them did not seek any treatment. Also, this finding go in the same line with **Anamika et al. (2008)** who reported that, 60.0% of their study subjects were taking allopathic treatment for their menstrual problems, 3.0% were taking ayurvedic or homeopathic treatment, and 40.0% were taking home remedies for the relief of menstrual problems.

The current study finding was in converse with **Ibrahim et al. (2012)** who indicated that, the most previous methods used to relieve PMS were analgesic with music, antispasmodic with light therapy, and light therapy with calcium (28.1%, 21.3%, & 19.2%) respectively. Also, **Rizk et al. (2006)** who were found that, the affected subjects (45.2%) were currently taking treatment for premenstrual syndrome and the majority of them (60.0%) used pharmacological therapy.

In the current study the herbal therapy was the most types of complementary and alternative therapy, followed by hydrotherapy, food Change, massage, exercise, Fixed oils, prayer, Volatile oil "Aroma therapy" and others (rest / sleep and hot apostasy) used to minimize premenstrual syndrome (fig. 4).

The present study results were supported by **Abd EL-Hamid et al. (2013)** who displays that, the most common used measures by the studied sample to overcome the premenstrual syndrome symptoms were; warm bathing, warm drinks, sports and activities, comfortable and rest period and medications (77.88%, 60.18%, 51.33%, 26.55%, & 24.78%) respectively.

Moreover, the results of current study were disagreed with the finding of **Ismail (2009)** who was observed that, the most common reported practice by the studied sample to overcome the symptoms of premenstrual syndrome was nutritional approaches, herbal therapy was the most common intervention used in the current study.

Also, the results of **Bakr, and Ez-Elarab (2010)** who were mentioned that, the commonly used remedy were relaxation and rest to overcome the symptoms of PMS, which were reported by the studied female participants', while the present study was illustrated that, the rest was used in only 3.1% of girls.

In addition, **El-Gazar (2009)** was stated that, all of their study subjects, who did use CATs for management of their menstrual disorders, had used herbal therapy either alone or in combination with massage,

hydrotherapy, or diet therapy. The herbal therapy was also used among substantial proportions of those who suffered from PMS in the current study with a highly percentage (97.5%).

*Chandraratne, and Gunawardena (2011)* were reported that, PMS was not significantly associated with age at menarche, whether it was below 12 years or above ( $P=0.65$ ) while, the present study was noted that, 59.9% of students whose age of menarche was 12-14 years had PMS and this association was statistically significant ( $P=0.04$ ).

Regards the relation between menstrual history and prevalence of premenstrual syndrome the current study results were showed no significant association between the prevalence of PMS and duration of blood flow or menstrual interval. However, it is interesting to know that, the current study was showed a strong significant association between prevalence of PMS and amount of blood flow ( $P < 0.001$ ). It was consistent with *Balaha et al. (2010); Erbil et al. (2010)*.

The present study noted that, 65.5% of students who suffered from PMS had regular menstrual cycles compared to the students whose cycles were irregular. This finding is consistent with (*Balaha et al., 2010; Chandraratne and Gunawardena, 2011*) both studies reported that a higher prevalence of PMS was seen among participants who had regular menstrual cycles compared to the participants whose cycles were irregular. But disagree with study by *Shiferaw et al. (2014)* who reported that, students who had irregular menstruation were 1.87 times more likely to have PMS compared to students who had regular menstruation.

In addition, the current study findings were showed that, there is a statistically significance relation between using of CAT and mean of duration of menstrual blood flow ( $P=0.011$ ), but there is no statistically significance relation between using of CAT and (age of menarche, amount of menstrual blood flow, menstrual interval and menstrual regularity), long duration of blood flow lead to CATs' using.. The study in this area is lack.

It was clear from the present study that, students didn't perform physical exercise more risk to suffer from PMS (95.3%) whereas ( $p=0.04$ ), there was a strong association between lack of physical exercise and prevalence of premenstrual syndrome; it was supported by *Anandha et al. (2011)* who were reported that, only 26.2% had PMS while, 73.8% of the students who were not involved in physical exercise had PMS.

## V. Conclusion

Based on the findings of the present study, it can be concluded that, the majority of the students suffered from Premenstrual syndrome (PMS). Premenstrual syndrome was most common among; students at age 17 year, not practiced physical exercise, age of menarche at 12-14 year, and girls who had a moderate amount of blood flow. Almost of them was used complementary and alternative therapies to relieve PMS symptoms, herbal therapy was the main CAT were used followed by hydrotherapy, food change, massage, exercise, fixed oils, prayer, aromatherapy, and finally rest / sleep and hot apostasy, which were effective among almost of the study samples.

## VI. Recommendation

**Based on the finding of the present study, the following recommendations were suggested:**

1. Curriculum of secondary schools should contain efficient knowledge about menstruation: its nature, cycle disorders especially premenstrual syndrome (PMS), and management.
2. Enhance adolescent knowledge regarding PMS and how to deal with its symptoms through booklet, educational programs, mass media, and articles....etc.
3. Upgrading nursing school student's knowledge and teacher's knowledge concerning PMS and complementary / alternative therapy (CAT) used to manage it.

### Further studies:

1. Experimental studies should be conducted to determine the efficacy of different types of CAT on PMS (hydrotherapy, aromatherapy, etc).
2. The findings of the current study were showed that, the health team (nurses or doctors) had a minimum role in health education. So, it is advised to conduct educational programs to health team about PMS and CAT used to relieve it.

## Acknowledgements

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