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Knowledge, Attitudes and Severity of Symptoms of Premenstrual Syndrome in a sample of Medical and Nursing Students: A Cross Sectional Study.

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ABSTRACT

Menstruation has important implications on the physical, psychological, behavioral and emotional well being of adolescent's reproductive health. The purpose of this research was:-To analyze the frequency and severity of the various PMS symptoms in a sample of young female students. To evaluate the knowledge and attitude towards menstruation and premenstrual syndrome (PMS) from an ethnically mixed group of rural and urban girls. To provide insight into menstrual related education information in order to keep adolescent girls manage the physical and psychological changes associated with menstruation. This cross-sectional study was performed on 498 medical and nursing students in the age group of 16-24 years, recruited from different medical and nursing colleges of Punjab after taking informed consent. They filled different questionnaires covering American College of Obstetrics and Gynecology (ACOG) criteria to diagnose PMS, demographic and reproductive factors, physical activity and mental condition. Using ACOG diagnostic criteria, statistically a highly significant difference was found among mild, moderate and severe grade of premenstrual symptoms. Also, the frequency distribution of different PMS symptoms was evidenced more in the younger age group (<20 years) as compared to older age group (≥20 years). The study calls for an education program related to PMS and menstrual related disorders to provide information and support to adolescents. This will help them to cope better with menstrual-related problems.

Keywords: Premenstrual Syndrome, Symptoms, Attitude, Students.

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INTRODUCTION

Premenstrual syndrome (PMS) is used to describe physical, cognitive, affective, and behavioral symptoms that occur cyclically during the luteal phase of the menstrual cycle and resolve quickly at or within a few days of the onset of menstruation [1].

Premenstrual symptoms are experienced by up to 90% of women of child bearing age. A smaller subset meet criteria for premenstrual syndrome (PMS) and less than 10% of them are diagnosed as having premenstrual dysphoric disorder (PMDD) (American Psychiatric Association 2000) [2, 3].

The American College of Obstetrics and Gynecology (ACOG) published the diagnostic ten criteria for PMS. It was considered if at least one of the 6 affective and one of the 4 somatic symptoms was reported five days prior to the onset of menses in the three prior menstrual cycles and ceased within 4 days of onset of menses [4].

Various biosocial and psychological causes have been proposed as the cause of the syndrome, including abnormal serotonin function, presence of progesterone, altered endorphin modulation of gonadotrophin secretion, exercise habits, smoking, use of alcohol, altered transcapillary fluid balance and a diet rich in beef or caffeine containing beverages [5]. A myriad of studies has emphasized the importance of examining the cultural context in menstrual experiences. One large multi-country study from 14 cultural groups and women from 10 countries identified different patterns of beliefs regarding interpretations and implications of menstruation reflecting socialization according to demographic variables [6].

Menarche is one of the markers of puberty and in many countries, the age at menarche is declining. Once every month or so, the lining tissues of the inside of the womb come away and are passed out through the vagina with some blood which is known as menstruation "or having a period" [7]. Though menstruation is a normal biological process, it may also cause physical or psychological problems too, to a woman of reproductive age [8]. Hence, it has been surrounded by myths, superstitions, rituals and even laws since time immemorial.

In modern times, it is viewed with remarkable openness. Nevertheless, differences between attitudes still occur between different population and cultures (9). Since menstrual flow is a normal phase of life and a positive sign of good health, women need to be encouraged to be normally active during menstruation [10].

In fact at least 75% of women with regular menstrual cycles report unpleasant physical or psychological symptoms premenstrually. For the majority of women, these symptoms are mild and tolerable. However, for a certain group of women, these symptoms can be disabling and may cause significant disruption in their lives [11].

Premenstrual syndrome is a combination of psychological, emotional and physical changes around the time of ovulation which continue until the start of menstruation. The most common physical symptoms include abdominal bloating, headache, muscle and joint pain and breast tenderness. The behavioral symptoms most commonly observed in women with PMS are fatigue, forgetfulness, poor concentration and mild mood changes including irritability and depressed mood.

Premenstrual dysphoric disorder (PMDD) is a more severe form of premenstrual syndrome affecting 3-8% of women in their reproductive years.

We therefore undertook this study to ascertain the age at menarche, symptoms and attitude towards menstruation of female nursing and medical students.

MATERIAL AND METHODS

This cross-sectional study was conducted in a sample of 498 female medical and nursing students in the age group of 16-24 years recruited from different medical and nursing colleges of Punjab over a six months period.

The students with current medical, psychiatric or gynecological problems were excluded from the study including pregnancies, amenorrhea and significant pelvic pain secondary to a proven or presumptive diagnosis of pelvic inflammatory disease or endometriosis.

They were given questionnaire having 44 questions covering all the socio-demographic, life style and reproductive variables and also including all symptoms of ACOG PMS diagnostic criteria and is attached with consent form.

ACOG PMS diagnostic criteria: A questionnaire was constructed based on ACOG PMS criteria [1, 4] including the following six behavioral and four somatic symptoms; depression, angry outbursts, irritability, anxiety, confusion and social withdrawal breast tenderness, abdominal bloating, headache and swelling of extremities.

Participants were deemed to meet the ACOG criteria for PMS if they rated their experience of at least one of the six behavioral symptoms and one of the four somatic symptoms. These symptoms must be recorded in the absence of any therapeutic intervention resulting in social or physical dysfunction and if there was no history of psychiatric and non psychiatric conditions. Symptoms should start during the five days before the menses and relieved within four days of the onset of the menses without recurrence until at least cycle day 13 and are evident for two consecutive cycles.

To estimate the severity of PMS, each item was rated on a scale of 0 “not at all” to 3”extreme”. The highest score of each symptom in the premenstrual period was calculated. Then the total score of PMS was calculated as the sum of the symptom’s score divided by the number of symptoms (mean) and converted to percent. Therefore, the score between 0% -33% represented mild form of PMS, 33% - 66% as moderate and more than 66% was accounted as a severe form of PMS. All the data was analyzed by applying Chi square test using SPSS version 16 to find out the statistical significance. A p-value of <0.05 was considered to be significant.

RESULTS

Table 1: Socio-demographic characteristics of the study population (n=498)

		No	%	DOF	Chi Square	P Value
Age in years:	(mean ±SD)	18.9±1.68				
Age groups (years)	16-18	56	11.24	3	X=439.85	0.00
	18-20	327	65.66			
	20-22	64	12.85			
	22-24	51	10.24			
Study group (students)	Medical	290	58.23	1	X=14.56	0.0001
	Nursing	210	42.17			
Residence	Urban	269	54.02	1	X = 3.21	0.07
	Rural	229	45.98			
Fathers occupational status	Unstable	193	38.75	2	X =17.40	0.00
	Employed	184	36.95			
	Professional	123	24.70			
Mothers occupational status	Housewife	304	61.04	2	X =206.04	0.00
	Employed	153	30.72			
	Professional	43	8.64			
Father Income	Low (<1.5 lac)	167	33.53	2	X =169.10	0.000
	Middle (1.5-3.0Lac)	298	59.84			
	High (>3.0Lac)	45	9.04			
Mother income	Low (<1.5 lac)	49	9.84	2	X =64.05	0.00
	Middle (1.5-3.0Lac)	117	23.49			
	High (>3.0Lac)	30	6.02			

Of the 498 student participants, study group comprises of 58% medical and 42% nursing students. The mean age of participants was 18.9 ± 1.68 with majority of students falling in age group of 18-20 yrs (65.66%) followed by equal distribution among the other age groups i.e. 16-18 yrs, 20-22 yrs and 22-24 yrs (10-12%). And out of 498 study population, 54% belong to rural and 45% to urban group. Regarding father and mother occupational status, 38% and 36% fathers have unstable job and employed respectively and around 61% mothers are housewives and 30% employed. Pertaining to fathers and mother's annual income majority of participants fall in middle income group (1.5-3 Lacs per annum) i.e. 59% and 23% respectively as depicted in Table 1.

As detailed in Table 2, the mean age of menarche of the participants was 13.26 ± 1.10 with 71% students having age of menarche >12 yrs. and 28% students ≤ 12 yrs. Also majority (91%) experienced menstruation regularly and the average duration of their menstrual period was 4.75 ± 1.01 with 92% having 3-7 days of menstrual bleeding. Regarding the amount of menstrual bleeding, majority (89%) experienced average amount of flow and regarding the family history of PMS, 85% showed positive family history of PMS.

Table 2: Reproductive characteristics of the study population (n=498)

		No	%	DOF	Chi Square	P Value
Age at menarche (years):	(mean \pm SD)	13.26 \pm 1.10				
	≤ 12	142	28.51	1	X = 91.96	0.000
	>12	356	71.49			
Regularity of menstruation:	Irregular	44	8.84	1	X = 337.55	0.000
	Regular	454	91.17			
Duration of menstrual bleeding (days):	mean \pm SD	4.75 \pm 1.01				
	<3	8	1.60	2	X = 782.51	0.000
	3-7	460	92.37			
	>7	30	6.02			
Amount of menstrual bleeding:	Less than average	10	2.01	2	X = 706.66	0.000
	Average	445	89.36			
	More than average	43	8.64			
Family history of PMS:	(Sister/ mother)					
	Absent	73	14.66	1	X = 250.63	0.000
	Present	427	85.74			

Table 3: ACOG diagnostic criteria of premenstrual syndrome (n =498)

	Total positive		Mild		Moderate		Severe		Chi square	P value
	No.	%	No.	%	No.	%	No.	%		
Abdominal bloating	335	67.26	150	44.78	138	41.20	47	14.00	16.96	0.00
Breast tenderness	153	30.72	114	74.51	38	24.83	1	0.65	85.08	0.00
Headache	211	42.37	128	60.66	63	29.86	20	9.48	39.85	0.00
Confusion	344	69.08	155	45.06	146	43.44	43	12.5	19.64	0.00
Irritability	390	78.31	189	48.46	146	37.44	55	14.10	18.47	0.00
Social withdrawal	116	23.30	73	62.93	29	25.00	14	12.07	41.93	0.00
Angry outbursts	200	40.16	113	56.5	57	28.5	30	15.00	26.89	0.00
Anxiety	228	45.78	136	59.65	74	32.46	18	7.89	40.22	0.00
Depression	243	48.80	117	48.15	95	39.10	31	12.76	20.28	0.00
Swelling of extremities	29	5.82	19	65.52	6	20.70	4	13.80	47.33	0.00

Using the ACOG criteria shown in Table 3, the total assigned score was categorized into mild, moderate and severe. Premenstrual symptoms were presented in Table 3 in regard to their ranking and severity. The frequency of somatic symptoms was abdominal bloating (67%), headache (42%) and breast tenderness (30%) with majority of all these symptoms falling under mild to moderate grade. Whereas the distribution of affective (psychological) symptoms were confusion (69%), irritability (78%), depression (48%), anxiety (45%), angry outbursts (40%) and social withdrawal (23%) and again majority of all these symptoms falling under mild to moderate grade thus showing a statistically significant difference ($p < 0.05$) between mild to moderate grade and severe grade of the symptoms of premenstrual symptoms.

The table 4 shows the comparison of different PMS symptoms among the younger (<20 yrs) and older age groups (≥ 20 yrs) with 77% participants falling in age group <20 years and 23% in age group ≥ 20 years. The frequency of different PMS symptoms in younger age group (<20 yrs) was found to be more than in older age group (≥ 20 years). Maximum frequency was found in backache (79%) followed by loss of concentration (67%), impatience (52%), increased frequency of micturition (49%), anxiety (48%), joint pains (48%), depression (47%), acne (45%), dysmenorrhoea and crying spells (both 42%), hostility and aggression (41%), food cravings (38%) and lastly mastalgia, reduced confidence, headache, having frequency (31%), (30.02%) and (30%) respectively. A highly significant statistically difference ($p < 0.05$) was seen in headache, anxiety and reduced confidence among the two groups. Few other symptoms, though statistically borderline ($p = 0.06, 0.07$), had showed a clinical significance which includes backache, dryness of skin and crying spells.

Table 4: Comparison of Different PMS symptoms in two age groups- <20 years and ≥ 20 years

	Age <20 yrs		Age ≥ 20 yrs		Chi square	P value
	N=384 (77%)	%	N=116 (23%)	%		
Constipation	105	27	25	21.73	1.55	0.21
Food Cravings	146	38	36	31.30	1.88	0.17
Dysmenorrhoea	163	42	41	35.65	1.89	0.17
Increased frequency of micturition	188	49	46	40	3.10	0.08
Headache	116	30	19	16.52	8.64	0.00
Joint pains	187	48.8	51	44.34	0.80	0.37
Backache	306	79.89	83	72	3.41	0.06
Acne	176	45.9	47	40.86	1.02	0.31
Dryness of skin	76	19.84	14	12.17	3.06	0.06
Mastalgia (tender breasts)	122	31.85	31	26.95	1.07	0.30
Loss of concentration	257	67.1	87	75.65	2.87	0.09
Depression	183	47.78	60	52.17	0.59	0.44
Crying Spells	162	42.29	38	33.04	3.30	0.07
Hostility and Aggression	158	41.25	41	35.65	1.25	0.26
Anxiety	187	48.8	41	35.65	6.40	0.01
Impatience	200	52.21	52	45.20	1.88	0.17
Reduced confidence	115	30.02	18	15.62	9.50	0.00
Work problems (unpunctuality)	82	21.40	34	29.56	3.17	0.08

Table 5: Attitude towards menstruation

Response	N=498	%	Chi square	P value
Normal part of women's life (physiological)	469	94	390.73	0.00
Abnormal part (pathological)	29	6		

Majority (94%) of the study participants believed that menstruation is a part of women's life i.e. showed a positive response while 6% believed that it was a curse on womanhood i.e. had shown a negative response as presented in Table 5.

DISCUSSION

In present study, 498 medical and nursing female students suffering from PMS were observed for the prevalence, symptomatology, and physical and mental health impact occurring during PMS.

In this study, a result of 14 yrs of age at menarche was consistent with the range of 11 to 15 yrs in previous studies [8,11-13]. Also the average duration of their menstrual period was 5 days which was also evidenced by Moronkole and Uzuegbu [14]. Moreover 85% cases show positive family history of PMS which is consistent with Balaha et al [15]. Positive associations between PMS and a family history of PMS were also found in other studies [16]. Shared biological and psychological factors which may influence expectations and self-awareness may explain mother- daughter dyads.

The frequency distribution of the PMS cases (n=489) as measured by ACOG diagnostic criteria was allocated as mild, moderate and severe. In this study, majority of the PMS symptoms were found in mild to moderate grade and it was nearly similar to what had been reported by Abubashim et al [17] and Nisar et al [18] but these findings were contrary to what was reported by Tabassum et al [19]. The difference could be due to increase in empowerment and positive gender attitude of young women as a result of development and modernization of society thus increasing the perception and awareness.

In the current study, the most frequently reported symptoms were irritability (78%), confusion (69%) and abdominal bloating (67%) followed by depression (48%), anxiety (45%), headache (42%) and breast tenderness (30%). This finding was also reported by Moronkola and Uzuegbu [14], and is contrary to results found by Fakeye and Adegoke [20]. and Derman et al [21]. This difference may be due to different cultural and sociodemographic variables. Grant stated that individuals in low social ladder may not cope with stress of increasingly more challenging environment that may negatively impact physical and psychological well being [22].

Also the comparison of various PMS symptoms was done in a study group of 498 students by dividing them into two age groups i.e. < 20 yrs and ≥ 20 yrs and it was found that percentage distribution of all the symptoms was more in age group of < 20 yrs i.e. backache (79%), loss of concentration(67%), impatience(52%), and so on. While only 3 symptoms showed a higher frequency in the age group of >20 yrs which included loss of concentration (75%), depression (52%) and work problems(29%).This could be due to increasing awareness and better perception towards PMS as they grow older i.e. upgrade in knowledge occurs as the age advances. These results were consistent with Clecknedr Smith et al [23] and Balhshani et al [24] but contrary to Freeman [25] and Balaha et al [15] who reported that PMS was increasing with age.

In this study, majority (94%) had a positive attitude towards menstruation by agreeing that menstruation is a part of women's life and only 6% showed a negative response by saying that it's a curse on womanhood. These findings were similar to many previous studies including Rupani and Lema[26], Moronkole and Uzuegbu [14], Robinson and Swindle [27], Gulten [28]. These all studies did not consider it as an illness, rather as a normal part of their femininity and so because of such positive attitude towards it, the condition does not appear to be associated with any serious morbidity. While some studies are contrary to these findings including Scrambler and Scrambler [29], Houston et al [30], Wong and Khoo [31] which shows the functional impairment and decrease in quality of life during PMS including higher rates of school absenteeism, restriction of social and recreational activities and difficulty to mingle with friends.

In this study, no significant findings were seen between rural and urban group in contrary to Shershah et al [32] and Balaha et al [15] where rural residence was associated with increased PMS due to presence of social habits, different living conditions and other co-factors.

CONCLUSION

Though menstruation is an indication of positive reproductive health status of women, it is a common problem in young students. Many of the symptoms are likely to affect the socio-emotional health of young people. The findings of this study showed that psychological symptoms. (Confusion, irritability) dominated over somatic symptoms. So the issue of premenstrual and menstrual symptoms needs to be well understood and managed by young women.

In addition, in this study menstruation was considered to be a natural event by most of the students and the rate of PMS was found to be of mild to moderate grade than that found in previous researches. So they all need to be encouraged to seek medical advice for their reproductive health needs, so for that purpose introduction of a reproductive health component into college health education program could help in

providing information, education and support to young students and thus helps in inculcating positive attitude towards premenstrual syndrome.

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