

Pre menstrual syndrome and health related quality of life among young adult females at Northern India: A cross-sectional study

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Abstract

Introduction: Premenstrual syndrome (PMS) is a cyclic recurrence of distressing somatic and affective symptoms in the luteal phase of menstrual cycle; which may affect the quality of life. However, there is paucity of data related PMS its impact on quality life among young student nurses.

Methods: This cross-sectional analytical study was undertaken to assess the PMS and its impact on health-related quality of life among randomly selected 235 young student nurses studying in institute of national importance in Uttarakhand, India. Data was collected through administration of pre-validated self-structured questionnaires.

Results: It was found that mean age of subjects was 21±1.7. Twenty-one percent participants reported very sever PMS symptoms, followed by 27% sever, 3% moderate and 17% mild level PMS symptoms. Further, majority of participants (80%) reported excellent-to-very good quality of life, followed by good (17%) and very few (3%) reported poor quality of life. PMS had moderately negative impact on health-related quality of life among participants ($r = -0.63$).

Conclusion: Premenstrual symptoms are common among young student nurses; which had moderately negative impact on their health related quality of life. Therefore, regular consultation and lifestyle modification must be advised to them to have better health-related quality of life.

Keywords:

Premenstrual syndrome; Health related quality of life; Young student nurses

Introduction

Premenstrual syndrome (PMS) is a cyclic phenomenon of physical and psychological symptoms appearing in the days preceding menstrual cycle and interfering with women's work or lifestyle followed by a symptom-free interval [1]. Premenstrual tension is the lay term which is used for premenstrual syndrome and premenstrual dysphoric disorder (PMDD) that is mainly psychological. The main symptoms of PMS and PMDD are: anxiety, mood disorders, aches, cramps, anger, nutritional imbalance and impairment in activities of daily living [2]. These symptoms fall into three domains: emotional, physical, and behavioral. The American College of Obstetricians and Gynecologists (ACOG) defined PMS as "a clinical condition characterized by the cyclic presence of physical and emotional symptoms unrelated to any organic disease that appear during the 5 days before menses in each of the three prior menstrual cycles and disappear within 4 days of the onset of menses, without recurrence until at least cycle day" [3].

The prevalence of PMS among adolescents' ranges from 8% to 53%, depending on the population studied and diagnostic criteria used. For example, prevalence rates of PMS were 8% reported in a US population based study and a Swiss study reported that women experiences PMS and PMDD were 10% and 3% respectively. While prevalence rates of PMS and PMDD were 53% and 1.2%, respectively reported in a Japanese study [3]. Previous Indian studies have reported the prevalence of PMS among college students varies from 18.4% to 37% [4].

Women with PMS are more prone to have impairment in physical functioning and psychological health which lead to significantly lower quality of life, increased absentee rates from work, decreased occupational productivity, impaired social and interpersonal relationships and more incessant visits to hospital [3]. A study carried out to assess the quality of life among adolescents who experienced and do not experienced PMDD. It was reported that physical role score was 74 and 52 among girls who do not experience PMDD and experienced PMDD respectively and the emotional score in adolescents who do not experience PMDD was 70 while who experienced PMDD score was 44.7 [5-6]. PMS is associated with high

suicide and accident rates, school absenteeism, poor academic performance and acute psychiatric problems. Epidemiological studies around the globe reported that PMS symptoms are more prevalent and severe among highly educated women than less-educated women with a possible relationship of stress with PMS [2].

As nursing students have more stress due to their academic and clinical requirements. Therefore, there is a great need to know the health related quality of life of adolescence specially budding nursing students with PMS. Hence, we carried out this study with the primary aim to assess the PMS and its impacts on female nursing students' health related quality of life.

Materials and Methods

A cross-sectional analytical study was conducted among nursing students at All India Institute of Medical Sciences, Rishikesh, during February to March 2019. Ethical clearance was obtained from the Institutional Ethics Committee of AIIMS, Rishikesh wide letter no. AIIMS/IEC/19/858. Data was collected after getting formal permission from the concerned authorities. A written informed consent was taken from each participants after explaining purpose of the study. Sample size was calculated by using formula, $= N/1+Ne^2$; where N = Population size (346), absolute error of 4%, confidence interval as 95% and minimum estimated sample size needed was 212 approximately. An overall sample of 235 participants was selected; consideration 10% drop out rate [7]. Simple Random Sampling technique was used in enrolling the participants.

Eligibility criteria of participants included: 1) age 18-25 years and 2) unmarried. Participants were excluded if they had histories of: 1) any current medical or gynaecological disorders 2) psychiatric disorders; or 3) Amenorrhoea. A self-structured questionnaire was used for data collection, which was validated by seven experts. The reliability was established by test-retest methods for pre-menstrual syndrome assessment scale and health related quality of life assessment scale and it was found 1.0 and 0.9 respectively.

The self-structured questionnaires consisted of four sections. The first section included socio-demographic and clinical profile of participants. The second section contained menstrual profile, assessment of dysmenorrhoea, and methods

used for relieving pain. The third section contained items related to pre-menstrual syndrome and it has 3 sections with 30 items related to physiological, psychological and behavioral symptoms. The scores range from 30 to 150, where score less than 20%, 21-40%, 41-60%, 61-80% and more than 80% implies no symptoms, mild, moderate, severe and very severe symptoms respectively. The last section consisted questions related to health related quality of life (HRQOL) and it has 4 sections with 20 items including physical health, psychological health, social relation & support and activities of daily living. The scores range from 20 to 100, where lower score suggests poorer health related quality of life.

Descriptive and inferential statistics were used for analysis of data with SPSS version 23.0 as per the study objectives and hypothesis. In descriptive analysis, calculations were done by using frequency, percentage, mean and standard deviation; and in inferential statistics, the correlation between PMS and health related quality of life was analyzed via the Karl Pearson's correlation coefficient test.

Results

A total of 235 participants were enrolled into the study; where response rate was 100%. The mean age of the study participants was 20.7 ± 1.26 years. Majority 139 (59%) of participants were from urban area and were Hindus 193 (82%). Of 235 more than two-third 179 (76%) were in lower socio-economic group and 152 (65%) were vegetarian.

With regards to clinical profile of participants, majority 164 (70%) of them had weight between 34-55 kg. and 116 (50%) were in 156-165 cm height group. More than two-third 182 (77%) of participants had normal BMI.

With regards to menstrual profile of participants, the age of menarche was 13-15 years for majority 159 (68%) of participants followed by the age of 10-12 years 58 (24%). The usual menstrual cycle of the 157 (67%) participants was 24-28 days and regular in 169(72%) participants. Menstrual duration was 3-5 days reported by 184 (78%) participants. The menstrual flow type of the majority 204 (87%) of the participants were of moderate type followed by heavy menstrual flow which was 23 (10%) and all most of all 232 (99) participants used readymade sanitary pads (Table 1).

Table 1: Socio-demographic, Clinical and Menstrual Profile of the Participants N=235.

Variables	f (%)	Variables	f (%)
Academic year	96 (41)	Age at menarche (in years)	58 (24)
First year	47 (20)	10-12	159 (68)
Second year	49 (21)	13-15	18 (8)
Third year	43 (18)	16-18	
Fourth year			
Age (in years)	163 (69)	Menstrual regularity	169 (72)
18-21	72 (30)	Regular	66 (28)
22-25		Irregular	

Habitat	69 (29)	Duration of menstruation (in days)	15 (6)
Rural	139 (59)	<3	184 (78)
Urban	27 (12)	03-05	36 (16)
Semi urban		>5	
Religion	193 (82)	Duration of menstrual cycle (in days)	03 (1)
Hindu	14 (6)	<24	157 (67)
Muslim	14 (6)	24-28	75 (32)
Sikh	14 (6)	>28	
Christian and others			
Dietary habits	152 (65)	Type of sanitary product used	03 (1)
Vegetarian	83 (35)	Self-made	232 (99)
Non vegetarian		Readymade	
Socio economic status*	47 (20)	Amount of flow	23 (10)
Upper middle	179 (76)	Heavy	204 (87)
Lower middle	09 (4)	Medium	08 (3)
Upper lower		Scanty	
Height (in cm)	86 (36)	Dysmenorrhea	24 (10)
140-155	116 (50)	Absent	123 (52)
156-165	33 (14)	Mild pain	54 (23)
166-175		Moderate pain	34 (15)
		Severe pain	
Weight (in kg)	164 (70)	Relief measures	08 (3)
34-55	71 (30)	Pharmacological method	177 (75)
56-83		Non pharmacological method	44 (19)
		Both	
BMI (in kg/m ²)	30 (13)	Non pharmacological method	14 (6)
Underweight (<18)	182 (77)	Yoga	24 (10)
Normal (18.5-24.5)	19 (8)	Home remedies	79 (35)
Over weight (25-30)	04 (2)	Hot application	76 (32)
Obesity (>30)		Taking rest	06 (4)
		Any other	27 (13)
		More than one	

*Kuppuswamy socio-economic scale, 2018.

Of 235 participants more than half of participants 123(52%) had mild pain followed by moderate pain 54(23%) and severe pain 34(15%). Majority 177(75%) participants used non-pharmacological management while only 8 (3%) used pharmacological management for their PMS symptoms. The common non-pharmacological modalities used were hot application, 79 (35%), taking rest, 76 (32%), home remedies, 24 (10%) and yoga 14 (6%). (Table 1)

Figure -1 Presents that eighty-three (35%) of the participants had moderate type of PMS symptoms; the second common type being of severe type among 62 (26%) participant followed by very severe 50 (21%) and mild symptoms of PSM in 40 (17%) participants.

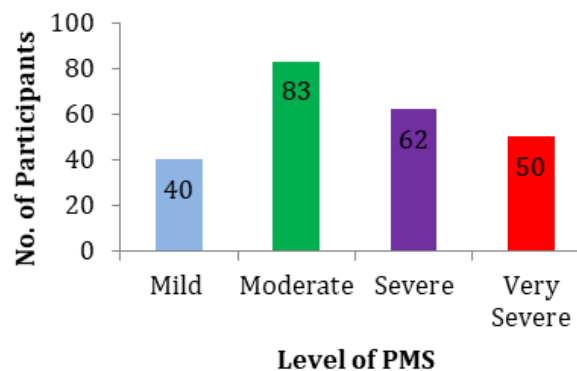


Figure 1: Level of premenstrual syndrome.

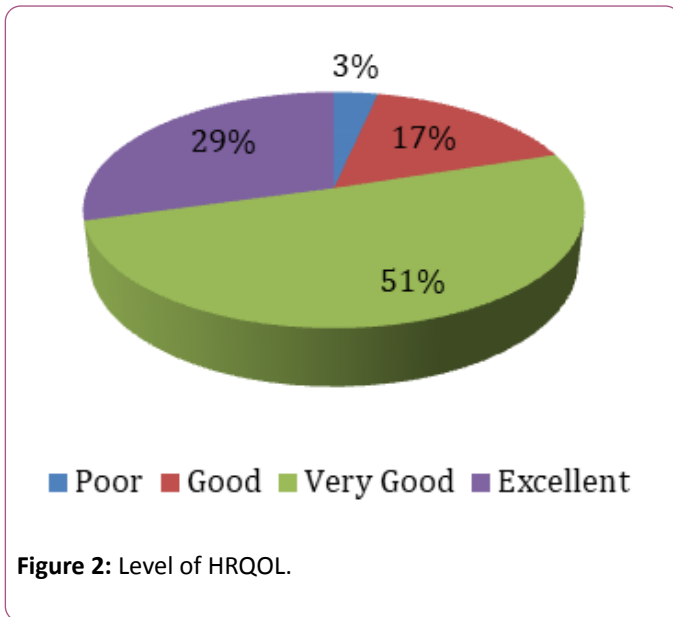


Figure 2: Level of HRQOL.

Figure -2 shows that 119 (51%) and 69 (29%) of participants reported very good and excellent health related quality of life while only 8 (3%) verbalized poor health related quality of life.

Table-2 the minimum/maximum score of PMS was 30/150 and obtained minimum and maximum score was 45 and 132 respectively. For health related quality of life, the minimum/maximum was 20/100 and obtained minimum and maximum score was 23 and 100 respectively. PMS is found to be of mild level in the subjects with mean value 76 ± 20.32 and health related quality of life of participants is considered very good with 75 ± 14.14 . It represents moderately negative relationship ($r = -0.63$) between PMS and health related quality of life which was found statistically significant at 0.01 level.

Table 2: Relationships between PMS and Health Related Quality of Life of Participants N=235.

Relationship	Minimum/maximum score	Mean +SD	R	P
PMS	30/150	76 ± 20.32	-0.6	0.01
HRQOL	20/100	75 ± 14.14	3*	S

*Moderately negative correlation, S-Statistically significant.

Discussion

Premenstrual syndrome is considered as a psychosomatic disorder of unknown cause and usually notice just before menstrual cycle. The exact etiology of PSM is still unknown but poor dietary habits, depression, physical inactivity, stress, unpleasant social situation, past sexual abuse, excess of prolactine, deficiency of vitamin B6 and magnesium play an important role [8]. It is well known that PMS is associated with impairment of the physical, social and psychological domains of adolescent girls especially with the beginning of the menarche. For this reason, PMS and its impact on health related quality of life among nursing students were analyzed in this research study.

In present study majority of participants 163 (69%) were of age group of 18-21 and 154 (68%) had menarche at 13-15 years of age. More than half 157 (67%) had time interval of menstrual cycle between 24-28 days and only 66 (20%) were having irregular menstrual cycle. Majority of subjects 184 (78%) had menstrual cycle of 3-5 days. The findings of our study are similar to a study conducted by Kaur et al. revealed that majority 221 (89.11%) had menarche at 12-15 years of age, 163 (65.72%) had at interval of menstrual cycle between 28- 30 days, only 1 (0.40%) was having irregular cycle, 186 (75%) had duration of menstrual cycle 4-5 days [9].

Majority of subjects 177 (75%) used non pharmacological relief measures followed by 8 (3%) pharmacological measures. Findings of this study was in line with a study carried out by Nagashekhara and reported that frequently used coping strategies to alleviate PMS symptoms were sleeping (63%), resting (62.3%) followed by listening to music (38.7%) and application of hot packs (32%) [9-10].

Of the nursing students in present study, majority of participants had moderate 83 (35%) to severe (27%) level of PMS and 21% of them had very severe level of PMS. This results of PMS in our study is more than that a study conducted among students in a college of health sciences in Northern Ethiopia [2] where the prevalence was 37%, and another study carried out among medical students in New Delhi, in which prevalence was 37%. However, results of our study are consistent to the study conducted in Al Qassim University among medical students, which reported a prevalence of 78.5%. [11] In a recently published meta-analysis reported that the prevalence of PMS was 47.8% for all studied participants; however, prevalence ranges from 12% (for France) to 98% (for Iran) [12]. This result suggests that prevalence of PMS varies from the number and structure of participants, cultural variations or differences in diagnostic protocol. Also, emotional and physical stress in early life affects prevalence of PMS [13].

We reported that the PMS and quality of life is negatively correlated which was found statistically among participants. These findings were similar to the study done by Eslamlau et al. and revealed that quality of life score was low in more than half of medical students especially in psychological and social components ($p < 0.5$) and quality of life score in mental and environmental health was decreased as PMS score averages increases. [14] Students with PMS have less satisfaction levels, feel less good, have more stress at work, impair academic performance, increases anxiety and proneness to conflict, and finely, these symptoms impair the performance and health related quality of life of nursing students [15].

Conclusion

The present study concluded that PMS and HRQOL was negatively correlated ($r = -0.63, p = 0.01$). PMS is a major health issue for nursing student that negatively affects their health related quality of life, and thereby academic and clinical performance. Therefore, it is deemed necessary to sensitize the nursing students regarding evidence based interventions

for the management and self-awareness approaches to cope with the cyclic PMS, which help them to promote their health-related quality of life.

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