Pre-menstrual Syndrome and Pre-menstrual Dysphoric Disorder in Female Medical Students of Nepal

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ABSTRACT

Background

Pre-menstrual Syndrome and Pre-menstrual Dysphoric Disorder can have negative impact on medical students and remains mostly underdiagnosed. Different treatment modalities like medications (doctor-prescribed or self-medicated), and alternative therapies are used by students to cope with pre-menstrual symptoms.

Objective

To estimate the prevalence and severity of Premenstrual Syndrome and Premenstrual Dysphoric Disorder among medical students in Nepal along with its impact in their quality of life, their health seeking behavior and treatment modalities used to cope with these disorders.

Method

A cross-sectional study was conducted among female medical students studying MBBS in various medical colleges in Nepal using a self-administered questionnaire from September 2020 to March 2021.

Result

The prevalence of Premenstrual Syndrome and Premenstrual Dysphoric Disorder among female medical students in Nepal was 64% and 36.3% respectively as per this study. Among the areas impacted by premenstrual symptoms, concentration in class was the most affected (68.1%), followed by distress (64.6%). Only 7.3% of the responding participants sought medical consultation for their symptoms. Among those who suffered from at least one symptom for any length of time, 34.8% of participants reported of using at least one medication (either prescribed or self-medication). Similarly, alternative remedies were used by 44.4% of the participants.

Conclusion

Premenstrual syndrome and premenstrual dysphoric disorder were found to be common in female medical students of Nepal. However, very few students sought medical consultation despite a significant impact in their academic and other activities. Self-medication and traditional therapies were common modalities used for treatment of premenstrual symptoms.

KEY WORDS

Complementary therapies, Premenstrual syndrome, Premenstrual dysphoric disorder, Self medication

INTRODUCTION

Premenstrual disorders affect up to 12% of women.[1] These conditions encompass psychological and physical symptoms that cause significant impairment during the luteal phase of the menstrual cycle, but resolve shortly after menstruation.[2] The subspecialties of psychiatry and gynecology have developed overlapping but distinct diagnoses that qualify as a premenstrual disorder.[3] As per American College of Gynecology and Obstetrics (ACOG), Pre-menstrual Syndrome(PMS) is defined as a female reporting at least one emotional (depressed moods, angry outbursts, anxiety, tension, feeling out of control, overwhelmed, elevated irritability, sensitivity, mood swings, crying spells) or physical symptom (breast tenderness, acne, weight gain, abdominal bloating/swelling, constipation or diarrhoea, increased sweating, fatigue) in the 5 days before menses in each of the three previous menstrual cycles.[4] As per DSM V (Diagnostic and Statistical Manual of Mental Disorders, 5th ed.), for the diagnosis of Pre-menstrual Dysphoric Disorder (PMDD), in the majority of menstrual cycles, at least five symptoms(including at least one affective symptom-mood swings, marked irritability, marked depressed mood or marked anxiety along with other symptoms that might include somatic symptoms) must be present in the final week before the onset of menses, start to improve within a few days after the onset of menses, and become minimal or absent in the week postmenses.[5] These symptoms are associated with significant distress and affect the quality of life in individuals with PMDD.[5]

Several studies have found that PMS and PMDD could negatively impact the academic and work performance of women.[6,7] Though studies previously done in Nepal have discussed prevalence and impact of premenstrual disorders in medical students, they have failed to address the treatment modalities sought by students to cope with the symptoms.[8,9]

Owing to academic obligations and ward-duties, medical students don't get time off when they suffer from pre-menstrual symptoms and the impact it could be having in their quality of life is often over-looked Thus, this research aims to estimate the prevalence, severity, impact of PMS and PMDD in medical students of Nepal and to address different treatment modalities opted by the students to cope with these symptoms along with their health seeking behavior.

METHODS

A cross sectional study was conducted among female medical students enrolled under MBBS (Bachelor of Medicine and Bachelor of Surgery) in all 18 medical colleges of Nepal from October 2020 to March 2021. Non-probability sampling method was used. Sample size calculation was done by using the formula:

$n = N*X /$

$X + N–1),$

where,

$X = Z_{\alpha/2}{}^2*p*(1-p)/MOE^2,$

and $Z_{\alpha/2}$ is the critical value of the Normal distribution at $\alpha/2$ (e.g. for a confidence level of 95%, α is 0.05 and the critical value is 1.96), MOE is the margin of error, p is the sample proportion, and N is the population size. Note that a Finite Population Correction has been applied to the sample size formula.

The total population size for female medical students in Nepal was found to be 4300 as per reports from University Grant Commission 2017/18. Based on this, the sample size was calculated to be 353.

The participants of the study were surveyed via Google forms circulated through email and social media sites like Facebook messenger and Viber by appointing local representatives from each batch of every medical college. The questionnaire surveyed the participants on their demographic details, regularity of their menstrual cycle, and whether or not they faced the symptoms described in the criteria for PMS and PMDD by ACOG and DSM V.[4,5] The respondents had to face at least one physical or affective symptom of any severity for at least 3 consecutive cycles to be diagnosed as PMS. If they faced any symptom for less than the designated time frame, they were excluded from being diagnosed as PMS. The participants were asked to choose among 'None', 'Mild' 'Moderate' or 'Severe' for each of these symptoms to assess their severity as well as to grade the limitations in different areas of their day-to-day life owing to these symptoms. Each participant's data was analyzed to decide if they meet the criteria for PMS or PMDD. The questionnaire also included questions about their health seeking behavior including their prior medical consultations, and treatment modalities they had used for coping with these symptoms. The participants were asked to respond about their perception towards the efficacy of alternative medicine with any of the five options: 'Strongly Agree', 'Agree', 'Neutral', 'Disagree' or 'Strongly Disagree'. The tool used for study was self-administered questionnaire that was adapted by the researchers with the help of ACOG criteria for Premenstrual Syndrome, DSM V criteria for Premenstrual Dysphoric Disorder, a Ukrainian study, and inputs from the researchers themselves.[4,5,10]

Ethical approval for the study was obtained before data collection, from the Institutional Review Board (IRB), Institute of Medicine, Kathmandu, Nepal on September 17, 2020 (Ref number: 68(6-11) 22 077/078).

Informed consent was obtained from the students before the survey. The information regarding the survey and consent for participation was displayed at the beginning of the google form itself and the participants were instructed to participate in the survey only if they consented to the

terms and conditions. The participants were allowed to leave the survey at any time as per their will. The confidentiality was maintained throughout the study and it wasn't mandatory for the participants to disclose their identity at any time during the study.

Inclusion and Exclusion criteria- All female medical students currently enrolled in MBBS program across the 18 medical colleges in Nepal were included in the study. Those having any psychiatric illness or consuming medication on a regular basis for any chronic disease (e.g. Hypothyroidism, Depression, Panic Disorders, Polycystic Ovarian Disease) that could cause or interfere with PMS symptoms were excluded from the study. The data was entered and analyzed in Microsoft Excel 2019.

RESULTS

A total of 399 students participated in the survey, however only 364 students met the inclusion criteria. The mean age of the participants was 22 years and the mean age at menarche was 12.8 years. The periodicity of the menstrual cycles is shown in table 1. The frequency and severity of different pre-menstrual symptoms faced by the participants are shown in table 2 with the acne the most common physical symptom (prevalence=74.7%), and mood swings the most common affective symptom (78.6%). Symptoms were considered to be 'marked' if they were graded as 'moderate' or 'severe' by the participants. On this basis, fatigue (marked fatigue in 31.3% participants)

Table 1. Periodicity of menstruation

Periodicity of menstruation	Frequency (%)
• Regular menstruation, every 25–30 days	236(64.8%)
• Regular menstruation, longer than every 30 days	74(20.3%)
• Regular menstruation, shorter than every 25 days	8(2.2%)
• Menstruation with irregular intervals between bleeding	46(12.6%)
Total	**364**

Table 2. Frequency and Severity of Pre-menstrual Symptoms

Symptoms	Not at all		Mild		Moderate		Severe		Marked Symptoms (Moderate or Severe)		Prevalence	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%
Breast tenderness	154	42.3	137	37.6	63	17.3	10	2.8	73	20.1	210	57.7
Acne	92	25.3	190	52.2	70	19.2	12	3.3	82	22.5	272	74.7
Weight gain	255	70.1	83	22.8	24	6.6	2	0.6	26	7.1	109	30
Swelling of hands and feet	342	94	17	4.7	5	1.4	0	0	5	1.4	22	6
Abdominal bloating/ swelling	156	42.9	130	35.7	64	17.6	14	3.9	78	21.4	208	57.1
Constipation or diarrhea	174	47.8	123	33.8	61	16.8	6	1.7	67	18.4	190	52.2
Increased sweating	300	82.4	46	12.6	15	4.1	3	0.8	18	5	64	17.6
Palpitations	275	75.6	72	19.8	14	3.9	3	0.8	17	4.7	89	24.5
Special food cravings	111	30.5	128	35.2	84	23.1	41	11.3	125	34.3	253	69.5
Fatigue	109	30	141	38.7	93	25.6	21	5.8	114	31.3	255	70.1
Increased nap taking	142	39	125	34.3	84	23.1	13	3.6	97	26.7	222	61
Changes in sexual desire	225	61.8	103	28.3	32	8.8	4	1.1	36	9.9	139	38.2
Crying spells	196	53.9	95	26.1	50	13.7	23	6.3	73	20.1	168	46.2
Confusion	233	64.0	92	25.3	32	8.8	7	1.9	39	10.7	131	36
Headache/migraine	238	65.4	91	25	27	7.4	8	2.2	35	9.6	126	34.6
Sleep disturbances	231	63.5	84	23.1	40	11	9	2.5	49	13.5	133	36.5
Depressed moods	124	34.1	142	39.	78	21.4	20	5.5	98	26.9	240	65.9
Angry outbursts	93	25.6	139	38.2	108	29.7	24	6.6	132	36.3	271	74.5
Anxiety, tension	133	36.5	127	34.9	87	23.9	17	4.7	104	28.6	231	63.5
Feeling out of control, overwhelmed	152	41.8	110	30.2	83	22.8	19	5.2	102	28	212	58.2
Decreased interest in life, activities	156	42.9	121	33.2	75	20.6	12	3.3	87	23.9	208	57.1
Elevated irritability, sensitivity, mood swings	78	21.4	126	34.6	118	32.4	42	11.5	160	44	286	78.6
Social withdrawal	167	45.9	110	30.2	64	17.6	23	6.3	87	23.9	197	54.1
Poor concentration	141	38.7	147	40.4	58	15.9	18	5	76	20.9	223	61.3

Table 3. Impact of Pre-Menstrual Symptoms in Different Areas of Life

Impact indicators	Not at all		Mild		Moderate		Severe		Prevalence	
	Frequency	%	Frequency	%	Frequency	%	Frequency	%	Frequency	%
Concentration in class	116	31.9	184	50.6	49	13.5	15	4.1	248	68.1
College attendance	231	63.5	94	25.8	34	9.3	5	1.4	133	36.5
Going out of home	160	44	122	33.5	65	17.9	17	4.7	204	56
Daily home chores	144	39.6	131	36	71	19.5	18	5	220	60.4
Homework tasks	185	50.8	117	32.1	55	15.1	7	1.9	179	49.2
Relationships with others	176	48.4	113	31	54	14.8	21	5.8	188	51.7
Distress	129	35.4	147	40.4	62	17	26	7.1	235	64.6

Table 4. Perception regarding efficacy of alternative medicine

Statement: "I believe that complementary alternative medicine (therapies) are effective in treating symptoms of PMS."	
Responses	Frequency (%)
Strongly agree	11(3)
Agree	179(49.2)
Neutral	156(42.9)
Disagree	13(3.6)
Strongly disagree	5(1.4)

Table 5. Preference in using complementary medicine along with medicinal treatment

Statement: "I prefer to use the methods of treatment by complementary alternative medicine (therapies) in lieu of or in combination with the medicinal treatments in case I suffer from PMS."	
Responses	Frequency
Strongly Agree	14(3.8%)
Agree	182(50%)
Neutral	137(37.6%)
Disagree	24(6.6%)
Strongly disagree	7(1.9%)

Table 6. Symptoms faced After Medication Use

Symptoms	Frequency
Headache	14 (11.7)
Hot flushes	8 (6.7)
Nausea	18(15)
Insomnia	3(2.5)
Gastritis	2(1.7)
Pain abdomen	1(0.8)
Weight gain	1 (0.8)
Mood swings	1 (0.8)

Table 7. Relief from Alternative Therapies

Relief from alternative therapies	Mild relief	Moderate relief	Great relief	Total	Relief (%)
Warm Compression through hot water bags	44	26	13	83	64.3
Diet changes	2	4	2	8	16.7
Massage	5	4	2	11	19
Physical Activity	13	11	8	32	36.8
Vitamins, minerals and oral supplements	1			1	4
Herbal Medicine	3	2		5	31.3

and mood-swings (marked mood swings in 44%) were the most common physical and affective symptom with marked severity. The respondents had to face at least one physical or affective symptom of any severity for at least 3 consecutive cycles to be diagnosed as PMS. If they faced any symptom for less than the designated time frame, they were excluded from being diagnosed as PMS. The prevalence of PMS among female medical students from our study was found to be 64% with 233 students meeting the ACOG criteria of PMS out of 364 students. The impact on quality of life due to PMS was evaluated to identify the daily limitations in different areas of life. The impact in different areas of life is shown in the table 3. Students mostly faced impairment in concentration in class followed by distress. Only those cases with five marked (moderate or severe symptoms) as per DSM V criteria that had at least some impact in different areas of life were taken as cases for PMDD. The prevalence of PMDD among female medical students from this study was found to be 36.3% (132 out of 364). The participants were asked to respond about their perception towards the efficacy of alternative medicine with any of the five options: 'Strongly Agree', 'Agree', 'Neutral', 'Disagree' or 'Strongly Disagree'. The responses obtained are given in the tables 4 and 5. Out of 364 responding participants, 52.2% participants agreed that complementary alternative medicine therapies are effective in treating symptoms of PMS. In terms of preference, 53.8% participants prefer to use complementary alternative medicine (includes hot water bags, physical exercise, herbal medications, diet changes, vitamins and massage) in combination with medicinal treatments if they suffered from PMS. Though there were 345 students who faced at least one symptom for at least a month, only 330 students responded to the question on health seeking behavior. Among them, only 24 students (7.3% of respondents) had visited a doctor for their problem. Out of 233 medical students suffering from PMS,

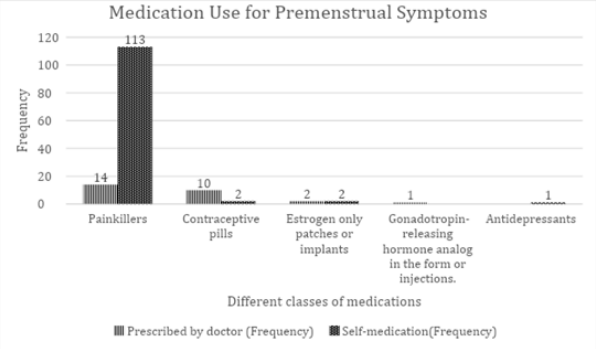

Figure 1. Medication use for premenstrual syndrome

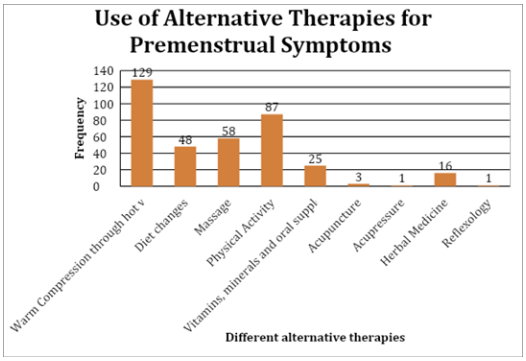

Figure 2. Use of alternative therapies for premenstrual symptoms

only 21 (only 9%) sought medical consultation and out of 132 students suffering from PMDD, only 10 (7.6%) sought medical consultation. Regarding medication use, out of 345 participants suffering from at least one symptom, 120 (34.8%) reported of using at least one medication (either prescribed or self-medicated). There were 99 students who used only self-medication, 16 who used both self-medication and doctor prescribed medication and 05 students who used only doctor prescribed medication. Self-medication was reported by a total of 115 (99 plus 16) students (33.3%) among those who faced at least one symptom. The most commonly used medication was painkillers. The detail of medication use is elucidated in figure 1. Among 120 students who used medication for PMS, 31 students (25.8%) students faced one or more symptoms (table 6). Among 345 students suffering from at least one symptom for at least a month, 153 (44.4%) students reported to have tried at least one or more alternative therapies. The details of different alternative therapies used are shown in figure 2. To assess the efficacy of alternative therapies, the students were asked if they faced any relief after trying these modalities. The result of the same is shown in table 7 showing warm compression through hot water bag as the most effective alternative treatment modality.

DISCUSSION

The prevalence of PMS among medical students in Nepal was found to be 64% (233 out of 364) participants. This is similar to another study done in Nepal in Lumbini Medical College where 61.1% female medical students met the ACOG criteria for PMS.[9] However, this is less compared to a study in Iran among female medical students and pharmacy clients where 73.4% of the students had PMS as per the ACOG criteria.[11]

Similarly, the prevalence of PMDD was found to be 36.3% (132 out of 364 participants) in this study as per the DSM V criteria. This can be compared to a study in Nepal where 38.9% medical students had PMDD and a study in Ethiopia where 34.7% medical students had PMDD.[9,12]

The most reported physical symptom from this study was Acne while the most common physical symptom of marked (moderate to severe) severity was fatigue. In the study done previously in Nepal, headache was the most common physical symptom and in the one done in Ethiopia, the most common physical symptom was easy fatiguability.[9,12] Similarly, in a study done in Iran, back pain was the most common physical symptom.[11]

The most reported affective symptom in this study was elevated irritability and mood swings followed by angry outbursts, which is similar to the finding of previous study in Nepal and Iran.[9,11]

Regarding the impact of premenstrual symptoms, the most impacted area was concentration in class seen to be affected in 68.1% of students, which is less compared to a study in Pakistan where it was affected in 73.7% of the students.[13] Similarly, 51.7% students reported that premenstrual symptoms affected their relationship with others which is less compared to the same study in Pakistan where 64.6% students reported the same. According to our study, 36.5% students missed college attendance which is more compared to the study in Northern Ethiopia where it was reported in only 28% students.[14]

Regarding the health seeking behavior, 7.3% of the responding participants sought medical consultation for their pre-menstrual symptoms which is more compared to the study in Iran where 5.3% sought medical consultation.[11] Of 345 participants suffering from at least one symptom, 34.8% reported of using at least one medication (either prescribed or self-medicated) which is less compared to study done in Iran where more than three-quarters of participants (76.9%) used at least one medication during menstruation.[11] Thus, there is a marked discrepancy in use of medication for premenstrual symptoms in students from Nepal when compared to those in Iran despite comparable prevalence (64% and 73.8% respectively).[11] Similarly, self-medication was reported by 33.3% which is less compared to the same study where self-medication was reported by 70.2% of participants.

Similarly, alternative remedies were used by 44.4% which is similar to the study done in Iran where 42.8% of participants reported to use alternative remedies and more compared to the study in Ukraine where 37.5% students reported to use alternative medicines.[11,10]

This study has its own limitations. Though there were 345 students who faced at least one symptom for at least one month, because of optional nature of questions, not all students answered the questions on health seeking behavior. This could have resulted in slight variation in data from the true picture. Further the grading of symptoms and impact it had on their day-to-day life were graded as 'mild, 'moderate' and 'severe'. The subjective nature of response collected could have resulted in some sort of bias. The symptoms were considered to be marked if they were graded as 'moderate' or 'severe' and only those symptoms that were graded as 'moderate' or 'severe' were taken into consideration as 'marked symptoms while assessing the participants for PMDD. While this done to cancel out participants facing mild symptoms from being mis-diagnosed as PMDD, the researchers accept that an objective scaling could have been a better bet for eliminating the risk of misdiagnosis. Further, for reasons of feasibility, only MBBS students were incorporated in this study. Other students from pharmacy, nursing and public health fraternities were not included and this exclusion of other fraternities could have been a major setback when it comes to depicting the true nature of impact that Premenstrual Syndrome and Premenstrual Dysphoric Disorder has in the lives of women in the health-care fraternity.

Premenstrual Dysphoric Disorder in particular is a diagnosis that can severely impact the quality of life and needs medical consultation. Our study shows that more than 1 in 3 MBBS students (36.2%) suffer from this disorder. Further research can be done to compare the prevalence of the disorder with women in other population subgroups and if any marked discrepancy exists, research needs to be done to elucidate the reasons behind high prevalence in MBBS students. Though our research has been able to show the prevalence of PMS and PMDD among MBBS students in Nepal, a domain it hasn't touched is the factors that could have led to such high prevalence which can be a potential area for research in the future.

CONCLUSION

Premenstrual syndrome and premenstrual dysphoric disorder were found to be common in medical students of Nepal. The results obtained from our study support the current literature that premenstrual disorders are widely common, however remain largely untreated. Societal stigmatization of menstruation, low awareness in the society regarding premenstrual disorders and unwillingness to seek help might have resulted in low consultation rates even among medical students. Effective counseling, encouragement, awareness about premenstrual symptoms and support systems in immediate environment might help students to effectively cope with premenstrual disorders without impacting their quality of life.

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