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Original Research Article

Prevalence of premenstrual syndrome and dysmenorrhea among medical students and its impact on their college absenteeism

Arshia Syed, Smitha B. Rao*

Department of Obstetrics and Gynecology, Yenepoya Medical College, Mangalore, Karnataka, India

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***Correspondence:**

Dr. Smitha B. Rao,

E-mail: arshiasyed3@gamil.com

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ABSTRACT

Background: Dysmenorrhea and premenstrual syndrome are two most common gynaecological problem leading to college absenteeism seen among female medical students. Aim of the study was to evaluate the factors associated and prevalence of dysmenorrhoea and PMS and its effects on the quality of life, particularly absenteeism from college in female medical students. The health care profession has an obligation to provide and to promote education on menstruation and related subjects.

Methods: This is a prospective study, conducted on 100 MBBS students studying in a medical college at Mangalore. All participants were given a preformed questionnaire to complete. Dysmenorrhea was assessed based on WaLiDD scoring system. Diagnosis of PMS in the present study was made according to diagnosis criteria proposed by American College of obstetrician and gynecology. The severity of their condition was assessed based on their absenteeism from college/classes.

Results: The average age of the participants was 21 year±1 year. The prevalence of dysmenorrhea was 45% and that of the pre-menstrual syndrome was 68%. Pre-menstrual syndrome ($p = 0.05$) is significantly associated with overweight, obesity and physical inactivity but not the same for dysmenorrhea. 73% and 60% of students consumed junk food suffered from PMS and dysmenorrhea respectively, 40% of students with dysmenorrhea reported limitation of daily activities and significantly associated with college absenteeism ($p = 0.005$). The most frequent somatic symptom of PMS in this study was breast tenderness (41%) and affective symptom was irritability (35%).

Conclusions: Dysmenorrhea and PMS is highly prevalent among female medical students; it is related to college/class absenteeism. Unhealthy and sedentary lifestyle could be the attributing factors which has to be addressed by health education in order to improve the quality of life and academic performance by the medical students.

Keywords: Absenteeism, Body mass index, Dysmenorrhea, Premenstrual syndrome

INTRODUCTION

Dysmenorrhoea is defined as painful menstrual cramps of uterine origin. Two categories of dysmenorrhoea are defined, primary and secondary. Primary dysmenorrhea usually starts around the onset of menstruation and may continue for 8 hours to 3 days. A combination of factors that are postulated to be the contributing agents are increase in synthesis and secretion of prostaglandin F₂

alpha, vasopressin and oxytocin, stimulation of the C type of pain fibres. Dysmenorrhea has various detrimental effects like work absenteeism, interference with daily activities, limitation in socialization, and higher intake of medications. NSAID given to reduce the discomfort of dysmenorrhea can increase the risk of heart attack or stroke, stomach ulcers, and bleeding, kidney, liver, and heart failure, anemia, asthma attacks and allergic reactions. In addition, stomach pain, diarrhoea,

constipation, heartburn, dizziness, nausea, and vomiting are reported as the mild to moderate side effects of the consumption of NSAIDs.¹

Premenstrual syndrome (PMS) is used to describe physical, cognitive, affective and behavioural 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.² ACOG published the diagnostic 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 four days of onset of menses. Somatic symptoms include bloating sensation, breast swelling and pain, pelvic pain, head ache, skin disorders and changes in bowel habits.³ Psychosocial symptoms like irritability, aggressiveness, depression, anxiety, inability to concentrate, hypersomnia or insomnia, change in appetite, specific food craving, change in libido and poor coordination.⁴

The menstrual function is deemed to be one of the factors reflecting the functional potentiality of women and that may be affected by stress. There is also a growing evidence of an association between psychosocial stress and menses-associated health problems in women.⁵

METHODS

Relevant data was collected from female medical students of our medical college by excluding the candidates as per exclusion criteria. Written informed consent was taken from all patients enrolled in the study. Background information included was age, course, BMI, socioeconomic status, dietary habits, physical exercise, stress, family history of dysmenorrhea and PMS. Menstrual cycle related questions elucidated frequency, regularity, duration of flow and volume of flow per cycle. Dysmenorrhea was assessed based on WaLiDD scoring system. Diagnosis of PMS in the present study was made according to diagnosis criteria proposed by American College of obstetrician and gynecology. The severity of their condition was assessed based on their absenteeism from college/classes.

Inclusion criteria

- Females who were between the age of 18 and 25 years enrolled for MBBS course at our Medical

College Hospital, had regular periods for last 3 months before start of study and who consented for voluntary participation were included.

Exclusion criteria

- Female using hormonal tablets, or who had metrorrhagia, menometrorrhagia were excluded.

Statistical analysis

Data analysis by statistical package for social science (SPSS), descriptive statistic reported as mean and standard deviation for continuous variable. Frequency, proportion as categorical variables, qualitative, education, occupation socioeconomic status.

RESULTS

Figure 1 shows that majority of the students were in the age group of 21±1 year.

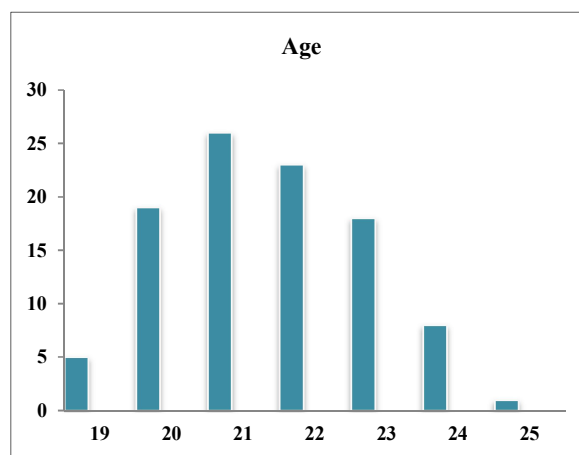


Figure 1: Age.

Table 1: Prevalence.

	Yes	No
Dysmenorrhea	45	55
PMS	68	32

As inferred by Table 1, prevalence of dysmenorrhea is 45% and that of PMS is 68%.

Table 2: Dysmenorrhea and PMS in relation to BMI.

	Under weight (BMI < 18) n = 13	Normal (BMI 18-24.99) n = 59	Overweight/obesity (BMI > 25) n = 41
Students with PMS	6	40	22 (p = 0.05)
Students with dysmenorrhoeal	7	23	15

Table 2 concludes that PMS ($p = 0.05$) is significantly associated with overweight and obesity but the same doesn't hold good for dysmenorrhea i.e., not significant ($p = 0.93$).

Table 3 denotes that among the students doing any form of physical activity, 46% reported PMS whereas 81% of the students who were not involved in physical exercise reported PMS. The chi-square statistic is 14.0225. The p value is 0.0001. Significant at $p < 0.05$. The p value of 0.001 suggests a strong association between lack of physical activity and PMS.

Table 3: Association between physical activity and PMS.

	Physical activity	No physical activity
PMS	18	50
No PMS	21	11

Table 4: Association between physical activity and dysmenorrhoea.

	Physical activity	No physical activity
Dysmenorrhoea	19	25
No dysmenorrhoea	24	40

Among the students doing any form of physical activity, 46% reported PMS where as 81% of the students who were not involved in physical exercise reported PMS. The chi-square statistic is 14.0225. The p value is 0.0001. Significant at $p < 0.05$. The p value of 0.001 suggests a strong association between lack of physical activity and PMS.

Table 4 shows no significant association between physical activity and dysmenorrhoea $p = 0.3$.

Table 5: Association between food habits and PMS.

	Junk food	Healthy food
PMS	22	23
No PMS	8	47

Table 5 interprets that out of 30 students who had frequent junk food as part of their dietary habit, 73.3% had pre-menstrual syndrome as compared to 32.8% of students who did not consume junk food frequently. Thus, the diet pattern of consuming fast foods frequently is significantly associated with pre-menstrual syndrome. The p value is 0.000193, significant at $p < 0.05$.

Table 6: Association between food habits and dysmenorrhoea.

	Junk food	Healthy food
Dysmenorrhoea	18	20
No dysmenorrhoeal	12	50

Table 6 analyses the association between the diet pattern and dysmenorrhoea. Out of 30 students having frequent fast food habits, 60% had dysmenorrhoea. Therefore, consuming fast foods frequently is significantly associated with dysmenorrhoea.

Table 7 highlights that out of the 45 students who had dysmenorrhoea, 40% of them were absent from college due to the severity in dysmenorrhoea. Out of which 9 had mild dysmenorrhoea, 6 had moderate dysmenorrhoea and 3 had severe dysmenorrhoea.

Table 7: Association between severity of dysmenorrhoea and college absenteeism.

	Mild	Moderate	Severe
College absenteeism	9	6	3
No college absenteeism	18	8	1

Table 8: PMS symptoms (affective symptoms).

	Number	Percentage
Depression	8	11.76%
Anger outbursts	12	17.64%
Irritability	24	35.29%
Anxiety	10	14.7%
Confusion	9	13.23%
Social withdrawal	5	7.35%

Table 9: PMS symptoms (somatic symptoms).

	Number	Percentage
Breast tenderness	28	41.17%
Abdominal bloating	18	26.47%
Headache	14	20.58%
Swelling of extremities	8	11.76%

Table 8 and 9 interprets that the most frequent somatic symptom of PMS in this study was breast tenderness (41%) and affective symptom was irritability (35%). Other symptoms such as abdominal bloating (26%), headache (14%), swelling of the extremities (11.7%), angry outbursts (17%), depression (11.7%), anxiety (14.7%), confusion (13.2%), and social withdrawal (7.3%) were also present in significant number of participants.

Out of the 45 students who had dysmenorrhoea, 40% of them were absent from college due to the severity in dysmenorrhoea. Out of which 9 had mild dysmenorrhoea, 6 had moderate dysmenorrhoea and 3 had severe dysmenorrhoea.

The most frequent somatic symptom of PMS in this study was breast tenderness (41%) and affective symptom was irritability (35%). Other symptoms such as abdominal bloating (26%), headache (14%), swelling of the extremities (11.7%), angry outbursts (17%), depression (11.7%), anxiety (14.7%), confusion (13.2%), and social

withdrawal (7.3%) were also present in significant number of participants.

DISCUSSION

PMS is defined as cyclic physical and behavioral symptoms that appear in the days preceding menses and interfere with work or lifestyle, followed by a symptom-free interval. Premenstrual dysphoric disorder (PMDD) describes a severe form of PMS. Primary dysmenorrhea is associated with ovulatory cycles and results from myometrial contractions, in the absence of demonstrable disease. The health care profession has an obligation to provide and to promote education on menstruation and related subjects.⁶

Premenstrual symptoms are very common, reported by up to 75% of women with regular menstrual cycles. Among female adolescents, pre-menstrual syndrome and dysmenorrhea are the commonest gynecologic disorders presenting to health care professionals today.

In this study conducted on a total of 100 students, the prevalence of PMS is 68% and of dysmenorrhea is 45%. This is comparable to another study done by Anand et al in which out of 300 students, 67% had pre-menstrual syndrome and 51% had dysmenorrhoea.⁷ Similarly an Indian study conducted by Raval CM et al, found a prevalence rate of 18.4% among college students. A higher prevalence rate of 82.81% was found in a study conducted at Riyadh.

When strictly defined based on prospective symptom diaries, clinically significant PMS occurs in 20-30% and PMDD affects 2-8% of women. As per the present study, the most frequent somatic symptom in this study was breast tenderness (41%) and affective symptom was irritability (35%). Other symptoms such as abdominal bloating (26%), headache (14%), swelling of the extremities (11.7%), angry outbursts (17%), depression (11.7%), anxiety (14.7%), confusion (13.2%), and social withdrawal (7.3%) were also present in significant number of participants. Out of the 45 students who had dysmenorrhea, 40% of them were absent from college due to the severity in dysmenorrhea. Out of which 9 (50%) had mild dysmenorrhea, 6 (33.3%) had moderate dysmenorrhea and 3 (16.6%) had severe dysmenorrhea.

The prevalence of PMS was reported to be 65% in a study done by Geeta et al. The most common somatic symptom was body pain (52%) and the most common affective symptom was irritability (50%). Only 12% of individuals with PMS become absent in class and 32% avoid joining social functions.⁸ Primary dysmenorrhea is one of the commonest reasons of class absenteeism in young females. In total, 8.7% of students reported college absenteeism in a study done by Rafiq et al, due to severe dysmenorrhea, whereas 54.5% of the students mentioned that dysmenorrhea negatively affected their studies and daily activities. These results are in line with previous

studies which highlight that educational performance of most of dysmenorrhea females (60.4%) is affected due to class absentees, loss of concentration, lack of focus in exams and inability to do homework. Moreover, Minalshewa et al, observed that 63% of their PMS respondents encountered social withdrawal and 51.4% showed decrease in academic performance.⁹

In this study concludes that pre-menstrual syndrome ($p = 0.05$) is significantly associated with overweight and obesity but the same doesn't hold good for dysmenorrhea i.e; not significant ($p = 0.93$) The mean BMI of the students was $21.69 \pm 3.27 \text{ kg/m}^2$ in a study done by Charu et al, 67.1% of the women had a normal BMI. Although not significantly associated, it was found that participants who were underweight were 0.002 times less likely, whereas those overweight and obese are more likely to suffer from dysmenorrhea when compared to participants with normal BMI.¹⁰ Menstrual problems are generally perceived as only major health concerns and thus irrelevant to the public health agenda. Data on the frequency of menstrual dysfunction and its impact on health status, quality of life and social integration among women in developing countries are scant.

The WaLIDD score contained three frequently used criteria identified in the definitions of dysmenorrhea present in the literature: days of pain (D), work ability (Wa), and anatomical region of pain location (L).¹¹ Study reported that about 16% of the students had symptoms which were severe enough for them to be absent from college. In several studies of young women, rates of absenteeism ranged from 34% to 50%. Other studies showed that up to 40% of female students in their study reported that their ability to perform work was affected.⁷ Similar studies among female high school adolescents showed that the majority of female adolescents identified dysmenorrhea and PMS as problems that significantly affected their academic performance.

CONCLUSION

Dysmenorrhea and PMS is highly prevalent among female medical students, it is related to college/class absenteeism. Unhealthy and sedentary lifestyle could be the attributing factors which has to be addressed by health education in order to improve the quality of life and academic performance by the medical students.

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