Int J Biol Med Res. 2011; 2(4): 1011 -1016

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International Journal of Biological & Medical Research

Journal homepage: www.biomedscidirect.com

Original Article

Prevalence of Premenstrual Syndrome and Dysmenorrhoea among Female Medical Students and its Association with College Absenteeism

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ARTICLE INFO

Keywords:
Body mass index
Dysmenorrhoea
Menstruation
Premenstrual syndrome
Absenteeism

ABSTRACT

Aim and objectives: To evaluate the prevalence of menstrual problem especially dysmenorrhea and pre-menstrual syndrome and its severity in female medical students and its association with college absenteeism. Methodology: This is a cross-sectional descriptive study; conducted on 300 female medical students, all participants were given a questionnaire to complete; questions were related to menstruation elucidating variations in menstrual patterns, history of dysmenorrhea and pre-menstrual syndrome and its severity and absenteeism from college/class; to detect the severity of dysmenorrhea we used the verbal multi-dimensional scoring system, participants were given 20 minutes to complete the questionnaire. Results: The prevalence of dysmenorrhea was 51% and that of the pre-menstrual syndrome was 67%; Only 9.7% of the students consulted a physician or pharmacist. 22.1% of students with dysmenorrhoea reported limitation of daily activities. Increase in BMI is significantly associated with pre-menstrual syndrome ($p = 0.035$) but its association with dysmenorrhoea was not significant ($p = 0.259$). There exists a strong association between lack of physical exercise and pre-menstrual syndrome (p value 0.005) but not with dysmenorrhoea ($p = 0.3$). diet pattern of consuming fast foods frequently is significantly associated with pre-menstrual syndrome ($p = 0.05$) and not with dysmenorrhoea. Severity of dysmenorrhoea is significantly associated with college absenteeism ($p = 0.005$).Conclusion: Dysmenorrhea and PMS is highly prevalent among female medical students, it is related to college/class absenteeism. Maximum participants do not seek medical advice and self-treat themselves.

1. Introduction

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 [1]. The American College of Obstetrics and Gynaecology (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 [2]. There are numerous symptoms that may occur but the typical ones include somatic symptoms like bloatedness, breast swelling and pain, pelvic pain, head ache, skin disorders and changes in bowel habits and the 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 [3, 4, 5, 6, 7].

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 gonodotrophins secretion, exercise habits, smoking, use of alcohol, altered trans capillary fluid balance and a diet rich in beef or caffeine containing beverages [8]. The pain associated with PMS is generally related to breast tenderness and abdominal bloating rather than a lower abdominal cramping pain. PMS symptoms begin before the menstrual cycle and resolve shortly after menstrual flow begins [9].

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Dysmenorrhea is a common problem in women of reproductive age. Primary dysmenorrhea is a painful menses in women with normal pelvic anatomy, usually begins during adolescence [10]. Affected women experience sharp, intermittent spasm of pain usually concentrated in the suprapubic area. Pain may radiate to the back of the legs or the lower back. Systemic symptoms of nausea, vomiting, diarrhoea, fatigue, mild fever and head ache or light headedness are fairly common. It is usually possible to differentiate dysmenorrhea from PMS based on patient's history. Dysmenorrhea is the most common gynaecologic disorder among female adolescents, with a prevalence of 60% to 93% [11, 12]. In the United States, dysmenorrhea is the leading cause of recurrent short-term school absenteeism [13]. Several studies have shown that adolescents with dysmenorrhea report that, it affects their academic performance, social and sports activities [14].

The aetiology of primary dysmenorrhea is not precisely understood but most symptoms can be explained by the action of uterine prostaglandins, particularly PGF2α. The disintegrating endometrial cells release PGF2α as menstruation begins. PGF2α stimulates myometrial contractions, ischemia and sensitization of nerve endings. These levels are highest during the first two days of menses when symptoms peak [9]. The risk factors for dysmenorrhea are; age < 20 years, nulliparity, heavy menstrual flow, smoking, high/upper socio economic status, and attempts to lose weight, physical activity, disruption of social networks, depression and anxiety [15].

Numerous studies have indicated that a considerable portion of women of reproductive age suffer from menses-associated health problems such as premenstrual symptoms, dysmenorrhea and irregular menstrual cycles [13, 16, 17, 18, 19]. Especially menstrual disorders are a common presentation by late adolescence. 75% of girls experience some problems associated with menstruation [20]. In a population based study conducted in Brazil, prevalence of PMS among adolescents (15-19 years) was found to be 30% higher than in older women (40-49 years) [21].

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 [22, 23, 24, 25, 26, 27, 28].

These conditions are not life threatening but they can seriously decrease the quality of life of many women and affect their mental health and their productivity [3, 4]. The number of women seeking treatment for premenstrual symptoms is on the increase.

Therefore in this study, concerned about the impact of menstrual disorders in adolescent girls especially of those of medical college students who are already under a lot of academics related stress, we tried to explore the problems faced by female medical students during menses and to investigate a potential association between the manifestations of PMS, body mass index, diet pattern, demographic and behavioural factors and its correlation with absenteeism

2. Materials and Methods

This study was carried out from April 2011 to July 2011with objectives to rule out the problems related to menstruation in last three cycles. This study was conducted in SRM medical college Hospital and research centre. A total of 300 female (1st to final year) medical students were chosen for this study and each student was given a questionnaire to complete. Back ground information about the respondents include: age, education, religion, weight, height, socioeconomic status, father's and mother's occupation, number of total family members, number of earning members in family, dietary habits, physical exercise and family history of dysmenorrhea. Questions related to menstruation, elucidated variation in menstrual patterns like length of cycle, duration of bleeding period, blood loss per cycle, (in this study abnormal menstruation was defined as subject with length of cycle is <20 or >35 days; duration of flow <2 or >7 days and loss of blood per cycle >100ml), history of dysmenorrhea and its severity, pre-menstrual symptom and absenteeism from college/classes.

Each participant was given 20 minutes to complete the questionnaire; they were advised not to write their name on the questionnaire and were be told that, their responses would remain confidential. To detect the severity of dysmenorrhea we used the Verbal-Multidimensional Scoring System [39] . "A normal menstrual cycle lasts from 21 to 35 days; with 2 to 6 days of flow and average blood loose 20 to 60 ml [42]". In this study dysmenorrhea was defined as having painful menstruation during the previous three months and the degree of pain was categorized as mild, moderate and severe. College absence was defined as missing a half day to complete day of college and class absence was defined as missing individual classes because of pain during menstruation.

Pre-menstrual syndrome (PMS) is recurrent variable cluster of troublesome physical and emotional symptoms that develop 7–14 days before the onset of menstruation and subsides when menstruation occurs. The PMS consists of low backache, fatigue, breast heaviness, abdominal bloating, increased weight, headache, irritability, skin disorders, aggressiveness, depression, gastrointestinal symptoms and loss of appetite [43]. This study included only unmarried nulliparous, healthy (1st to final year) female medical students, in age group of 18 to 25 years. The participation was purely on voluntarily basis and written consent was taken before initiating the data collection. Data were put to statistical analysis and results were analysed.

Table1: Association Between Dysmenorrhoea, Pre-menstrual Syndrome And BMI

Table 1 shows that the increase in BMI is significantly associated with pre-menstrual syndrome (p = 0.035) but its association with dysmenorrhoea was not significant (p = 0.259)

	Under weight (BMI <18) n = 54	Normal (BMI 18-24.99) n = 148	Over weight (BMI 25-29.99) n = 79	Obese (BMI ≥30) n=19	x^2 value	P value
Students with pre-menstrual syndrome	30 (14.9%)	96(47.5%)	62(30.7%)	14(7.9%)	8.63	0.035
Students with dysmenorrhoea	24(15.6%)	72(46.8%)	46(29.9%)	12(7.8%)	4.02	0.259

Table 2: Association Between Physical Exercise And Pre-menstrual Syndrome

Table 2 shows the association between premenstrual syndrome and physical exercise. Among the students doing physical exercise regularly, only 26.2% reported PMS where as 73.8% of the students who were not involved in physical exercise reported PMS. The P value of 0.001 gives a strong association between lack of physical exercise and pre-menstrual syndrome.

Physical exercise (30 minutes a day)	Students having pre-menstrual syndrome		Students not having pre-menstrual syndrome	
	No	%	No	%
Yes (n = 120)	53	26.2	67	68.4
No(n = 180)	149	73.8	31	31.6

x 2=48.80 P = 0.001 (Significant)

Table 3 shows the poor association between physical activity and dysmenorrhoea. P= 0.3 which is not significant

Association Between Physical Exercise And Dysmenorrhoea

Physical exercise	Students having dysmenorrhoea		Students not having dysmenorrhoea	
	No	%	No	%
Yes (n = 120)	66	42.9	54	37
No (n = 180)	88	57.1	92	63

x 2 = 1.08 P = 0.30

Table 4 & 5 analyses the association between the diet pattern, pre-menstrual syndrome and dysmenorrhoea. Out of 94 students having frequent fast food habits, 36.4% had pre-menstrual syndrome and 33.7% had dysmenorrhoea. Thus the diet pattern of consuming fast foods frequently is significantly associated with pre-menstrual syndrome (p = 0.05) and not with dysmenorrhoea.

Table 4. Association Between Diet Pattern And Pre Menstrual Syndrome:

Diet pattern	Students having Pre menstrual syndrome		Students not having Pre menstrual syndrome	
	No	%	No	%
Frequent fast food habits (n = 94)	56	36.4	38	26
Regular homemade/ hostel food (n = 206)	98	63.6	108	74

Table 5. Association Between Diet Pattern And Dysmenorrhoea

Diet pattern	Students having dysmenorrhoea		Students not having dysmenorrhoea	
	No	%	No	%
Frequent fast food habit (n = 94)	68	33.7	26	26.5
Regular homemade/ hostel diet (n = 206)	134	66.3	72	73.5

x 2 = 1.56 P = 0.212

Table 6 gives the association between the severity of dysmenorrhoea and college absenteeism. Out of 94 students with mild form of dysmenorrhoea, 18 were absent for the college during their menstruation and out of 46 with moderate dysmenorrhoea, 20 were absent and out of 14 with severe dysmenorrhoea, 10 (71.4%) could not attend the college. The p value is 0.005 which is highly significant.

Table 6. Association Between Severity Of Dysmenorrhoea And College Absenteeism:

Table 6 gives the association between the severity of dysmenorrhoea and college absenteeism. Out of 94 students with mild form of dysmenorrhoea, 18 were absent for the college during their menstruation and out of 46 with moderate dysmenorrhoea, 20 were absent and out of 14 with severe dysmenorrhoea, 10 (71.4%) could not attend the college. The p value is 0.005 which is highly significant.

Absenteeism	Grades of dysmenorrhoea					
	Mild (n = 94)		Moderate (n = 46)		Severe (n = 14)	
	No	%	No	%	No	
College absenteeism (n = 48)	18	19.1	20	43.5	10	71.4
No College absenteeism (n = 106)	76	80.9	26	56.5	4	28.6

x 2 = 10.50 P = 0.005 (Significant)

Table 7. Association Between Severity Of Dysmenorrhoea And Social Withdrawal

Table 7 shows the association between the severity of dysmenorrhoea and social withdrawal. The p value is 0.094 which is not significant

Absenteeism	Grades of dysmenorrhoea					
	Mild (n = 94)		Moderate (n = 46)		Severe (n = 14)	
	No	%	No	%	No	
Social Withdrawal (n = 34)	14	14.9	12	26.1	8	
Not Social Withdrawal (n = 120)	80	85.1	34	73.9	6	

x 2 = 4.73 P = 0.094

Table 8 gives the association between the severity of dysmenorrhoea and taking self medication. In mild dysmenorrhoea (n = 94), only 3 sought doctors advice and in moderate dysmenorrhoea (n = 46), 8 sought doctor's advice and in severe dysmenorrhoea (n =14), only 4 sought doctor's advice

Table 8. Association Between Severity Of Dysmenorrhoea And Taking Self Medicine

	Grades of dysmenorrhoea					
	Mild (n = 94)		Moderate (n = 46)		Severe (n = 14)	
	No	%	No	%	No	%
Seeking Doctor's advice (n = 15)	3	3.2	8	17.4	4	28.6
Not Seeking Doctors advice (n = 139)	91	96.8	38	82.6	10	71.4

x 2= 13.30 P = 0.001 (Significant)

Table 9: Premenstrual symptoms in pre-menstrual syndrome reported by severity

PMS Symptoms	Mild %	Moderate %	Severe %	Total %
				58.9
Irritability	29.8	14.2	7.7	51.7
				45.9
Nervous Tension	24	8.4	4.5	36.9
				37.6
Headache	27.2	8.4	3.2	38.8
				43.3
Dizziness or	11.6	8.4	93.8	19.2
				21.8
Palpitations	34.4	16.8	8.4	59.6
Depression Crying	12.3	4.5	5.1	21.9
				42.6
Confusion	23.3	11.6	3.2	38.1
				21.9
Fluid Retention	10.3	2.5	1.2	14
				38.8
Swollen Extremities	7.7	4.5	5.8	28
				39.4
Abdominal Bloating	37	9.7	6.4	53.1
				41.4
				17.3
Diarrhoea	6.4	1.9	1.2	9.5
Backache	29.8	24	12.3	66.1
				27.1

FIG 1: Age wise distribution of participants

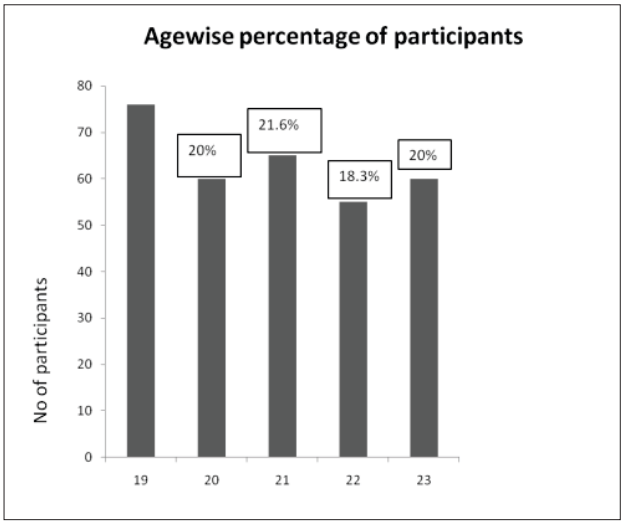
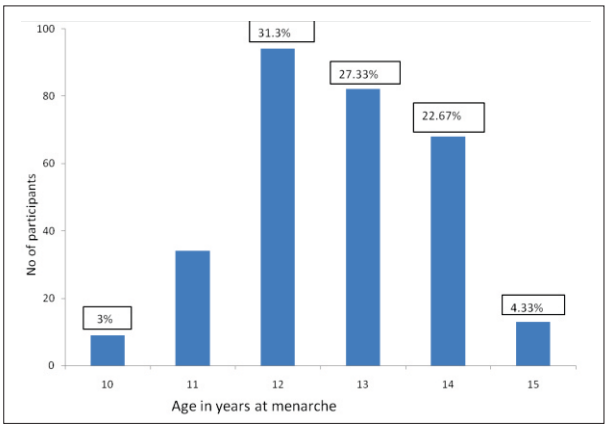


FIG.2: Menarche age wise distribution of participants



4. Discussion

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 lack of data and the private nature of menstruation perpetuate the belief that menstrual complaints do not warrant the attention of the public health community [29, 30]. Pre-menstrual syndrome and dysmenorrhoea are the commonest gynaecologic disorders among female adolescents and are among the commonest gynaecologic complaints in young women who present to doctors today [31, 32, 33]. In our study, out of 300 students, 67% had pre-menstrual syndrome and 51% had dysmenorrhoea. 66.1% of the students reported pain with menstruation during the previous 3 months [13, 29, 31, 34, 35]. The severity of dysmenorrhoea varied greatly. These differences in the degree of pain severity may be related to cultural differences in pain perception and variability in pain threshold [33].

Treatment of dysmenorrhoea should be directed at providing relief from the cramping pelvic pain and associated symptoms. Non – steroidal anti- inflammatory drugs and oral contraceptives are reported as providing the most effective treatment [29]. The use of oral contraceptives by unmarried girls is, however, culturally unacceptable in our traditional and conservative community.

In our study, only 9.7% of the students consulted a physician or pharmacist. This is consistent with other findings that most adolescents with dysmenorrhoea self-medicate with the over- the-counter preparations; few consult health care providers [33, 36]. We found that rest/relaxation, herbal /home remedies and/or drugs were used by the others. The drugs included analgesics, NSAIDs and antispasmodics, most self- prescribed.

Banikarim, chacko and kelder reported that treatment for dysmenorrhoea in Hispanic adolescents included rest (58%), medication (52%), heating pad (26%), tea (20%), exercise (15%) and/or herbs (7%) [33]. It has been reported that the most common medications used by women with dysmenorrhoea were analgesics (53%) and NSAIDs (42%) [37].

Although not life threatening, dysmenorrhoea can be particularly disruptive to a woman's daily life and productivity. In the absence of appropriate pain relief, women with severe dysmenorrhoea may not be able to carry out their normal activities [29, 30].

In our study, 22.1% of students with dysmenorrhoea reported limitation of daily activities and 77.9% reported no limitation. Activities most commonly limited due to dysmenorrhoea were daily home chores, going out of the home, participation in social events, participation in sports, concentration in class, homework tasks and attending school. All the limitations were significantly more frequent among students with severe dysmenorrhoea compared to those with mild or moderate pain [33].

In a study in morocco, menstrual pain was often cited as the main single cause of school absenteeism among adolescent girls [39]. Pain is often disregarded by many women who consider pain to be a normal part of the menstrual cycle. Thus, many women fail to report their pain to physicians. The problem of absenteeism from school or work was also under- appreciated. This 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% [33, 39, 40]. Other studies showed that up to 40% of female students in their study reported that their ability to perform work was affected [37, 40, 41]. The most common of the various pre-menstrual symptoms reported were anxiety, irritability, feeling of depression, abdominal bloating, backache, breast tenderness, fatigue, forgetfulness and weight gain. Similar studies among female high school adolescents showed that the majority of female adolescents identified dysmenorrhoea and PMS as problems that significantly affected their academic performance [14, 33].

The introduction of a reproductive health component into school and college health education programme could help in providing information, education and support to students regarding reproduction in general and menstrual problems in particular. It is essential to make treatment available for girls. Many girls may feel shameful and reluctant to report dysmenorrhoea and consequently, do not seek medical advice. It is one of the roles of health care providers in the respective institutions to ask about and screen for dysmenorrhoea and pre-menstrual syndrome and offer treatment if necessary.

5. Conclusion

In our study, out of 300 students, 67% had pre-menstrual syndrome and 51% had dysmenorrhoea. Etiologic relationships between pre-menstrual syndrome, obesity, physical inactivity and dietary habits have been proposed. The most common of the various pre-menstrual symptoms reported were anxiety, irritability, feeling of depression, abdominal bloating, backache, breast tenderness, fatigue, forgetfulness and weight gain. Menstrual disorders among female students are common and a major problem representing the leading cause of college/class absenteeism. Health education on menstrual problems targeting female students and their parents, and routine screening for menstrual problems by healthcare providers, can help prevent the absenteeism. With adequate support from parents, school and health care personnel, the problem of loss of invaluable college

time can be prevented. As mothers were the main source of information and knowledge in this study, health professionals should involve mothers in general discussions about menstrual problems and how to deal with them.

Acknowledgement

I would like to thank our head of the Institution Dr. James Pandian, M Ch (Plastic), Dean of SRM Medical college Hospital and Research centre, for his support and encouragement during this study.' I also thank the student participants for their co operation.

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