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The Prevalence and Effects of Premenstrual Syndrome among Female Health Science Students in Eritrea

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Abstract: Premenstrual syndrome (PMS) is a combination of physical and behavioral symptoms that occur in women which can adversely affect their social interaction, educational performance and emotional well-being. The objective of the study was to assess the prevalence of Premenstrual syndrome and its effects on the academic and social aspects of students in Asmara College of Health sciences. A cross sectional study was conducted among 240 female students of Asmara College of Health Sciences from January to March 2016 in Asmara, Eritrea. Respondents were selected using stratified systematic random sampling method. Data was analyzed using the Statistical Package for Social Sciences Version 20. The criterion proposed by the International Classification of Diseases 10 (ICD 10) was used for diagnosis and performance indicators were employed to measure the prevalence and effects of PMS. The results of the study show that the prevalence of PMS was found to be 17.5%. 96.5% had experienced at least one premenstrual symptom. Out of the students diagnosed with PMS, 78.6% reported their concentration in class was affected, 90.5% had stopped studying and class missing was reported by 45% of the students. Poor social interaction was also reported with their family (66.7%) and friends (40.5%). PMS affected the ability of performing home chores in 83% of respondents and 57.1% socially isolated themselves due to its symptoms. There was no significant association of any demographic characteristics with PMS. The effect of PMS with social indicators such as impaired interaction with family members and friends, inability to perform chores and social isolation were statistically significant (CI 95%, $p<0.05$). All academic effect indicators such as loss of concentration in class, stopping studying and missing classes were significantly associated with PMS (CI 95%, $p<0.05$). However there was no significant association of PMS with scoring lower grade and applying for academic withdrawal. In conclusion, although the prevalence of PMS was relatively low, it was seen to affect students negatively in their academic activities and social lives.

Keywords: Prevalence, Premenstrual Syndrome, College Students

1. Introduction and Objectives

Premenstrual syndrome (PMS), also known as premenstrual tension is defined as a complex of emotional, physical and behavioral symptoms that start at the last week of a woman's reproductive cycle and ends with the onset of menstruation [1]. PMS shouldn't be confused with the regular pain of menstruation because physiologic pain during menstruation uniquely resolves with the onset of a woman's period.

Over 150 symptoms of PMS have been identified. These symptoms have been categorized into Somatic and Behavioral symptoms. The most common behavioral symptoms are anxiety, depression, irritability, mood swings, angry outbursts, confusion, changes in appetite, decreased concentration, withdrawal from social activities and inability to cope with daily activities while the most frequent somatic symptoms include abdominal bloating, breast tenderness, body aches (general pain), back pain, upper thigh pain, headache, fatigue and swelling of extremities. [2]

Although these symptoms are diverse and may be unrelated, their common factor is the consistency in which they appear during each menstrual cycle and the way they speedily resolve with the onset of menses [3]. The extreme end of the spectrum of PMS is Premenstrual Dysphoric Disorder (PMDD) where psychological symptoms like school/work absenteeism, extreme depression and even suicide which guaranteed its classification in the manual of mental disorder (DSM-IV TR) [4].

Statistics of PMS prevalence vary across different studies. The American Physician family report prevalence from 3%-30% in women of reproductive age with around 5% of incidence of the severe form of PMS, PMDD. [5]. Iranian and Chinese studies reported prevalence rates ranging from 18-20%. [6, 7] On the other hand, several other Asian studies have reported prevalence rates exceeding 59%. [8, 9]

If PMS is indeed as prevalent in the Eritrean society as it is in other countries, should young women at school/college level and women in the work atmosphere be awarded with more privileges than their male counterparts? Should they enjoy more days of rest per annum? Should any policy changes be made at high school/college levels in relation to this syndrome? This questions once answered will not stop at recommending treatment, but will inform the health and national policy of Eritrea about the prevalence PMS and its effects.

The general objective of the study was to assess the prevalence and effects of PMS on female students of Asmara College of Health Sciences. Specifically, the study aimed to assess the prevalence and severity of experiencing premenstrual symptoms and evaluate its effect on social and academic aspects of the student's activities.

2. Methods and Materials

This study was a cross sectional study designed to assess the prevalence and effects of PMS among regular female students in ACHS. The study was conducted from February to March 2016. The total number of regular female undergraduate students registered in this college in 2016 was 637. ACHS has 12 departments which include 7 diploma and 5 degree programs. All 12 departments of ACHS were included in this study. Advanced placement students and students currently using contraception were excluded from the study. Therefore a total of 240 students were selected using single proportion formula for finite population.

After calculating the sample size, the total figure was divided proportionally to the twelve departments of ACHS according to their population of female students. The group of participants in each department was then divided, again proportionally, into each year of study according to the proportion of female students in that class year. Finally random selection of study participants was done using the sampling interval to select each respondent from the list of names of each class year.

3. Instrument

The study employed a pretested, self-administered questionnaire designed to assess the prevalence and effects of PMS among female students of ACHS. The questionnaire included four sections; demographic data, menstrual features, a section on symptoms and another section dealing with the effects of PMS.

Ethical clearance for conducting the study was obtained from the ethical review committee of the ACHS and full consent was obtained from all of the participants prior to their participation.

The collected data was analyzed using the Statistical Package for Social Sciences (SPSS) 20.

4. Results

In this study, a total of 240 students were enrolled. The mean age was 19.8 with Standard deviation of ±1.35. The prevalence of PMS among the participants was 17.5% out of which 31% of them had irregular menstrual cycle. Majority of the PMS diagnosed students had their first menstrual flow between the ages of 13 to 15 years and had menstrual cycles ranging from 21-30days.

The majority of the participants (69%) had regular menstrual cycles. The most frequent somatic symptoms were swelling of extremities, fatigue, breast tenderness and headache. Commonly reported behavioral symptoms include confusion, decreased concentration, withdrawal from social activities and changes in appetite. (Table 2)

Severe forms of somatic symptoms were reported by 52 % of the affected students. More than half (62%) of them have also reported severe forms of behavioral symptoms.

Premenstrual syndrome was seen to affect student's educational life. Forty five percent of those diagnosed with PMS in this study were missing classes. Some have stopped studying, missed exam and some experienced loss of concentration in class. (Table 3)

All indicators for academic effects were significantly associated with PMS except for applying for withdrawal and scoring lower GPA which can be affected due to factors other than PMS.

Out of the students diagnosed with PMS, more than half (66.7%) suffered mild to moderate impairment of interaction with their family members. Impaired ability to perform home chores was reported by 83.3% of the victims while 57.1% isolated themselves due to PM symptoms.

The findings report that there was no significant relationship between any of the demographic or gynecologic variables in this study to the diagnosis of PMS. However, there was significant association between PMS with all of the social effect indicators. (Table 4)

Table 1. *Demographic characteristics (n=240).*

Demographic Variables		Frequency	Percentage in %
Religion	Christian	218	90.8
	Muslim	22	9.2
Ethnicity	Tigrigna	227	94.6
	Tigre	6	2.5
	Bilen	5	2.1
	Saho	2	0.8
Current area of residence	Dormitory	105	43.8
	with family	133	55.4
	private	2	0.8
Marital status	Single	227	94.6
	married	2	0.8
	in a relationship	11	4.6
Zone	Maekel	158	65.8
	Debub	50	20.8
	Anseba	17	7.1
	Gash Barka	5	2.1
	NRS	8	3.3
	SRS	2	0.8

Table 2. *The frequency and the degree of severity of PM symptoms (n=240).*

Symptoms		Degree of Severity of Symptoms			
		Absent	Mild	Moderate	Severe
SOMATIC	Abdominal bloating	77	101	54	8
	Breast tenderness	124	65	46	5
	Body aches (General Pain)	73	54	77	36
	Back pain	60	61	83	36
	Upper thigh pain	113	69	42	16
	Headache	121	69	38	12
	Fatigue	165	49	22	4
	Swelling of extremities	168	55	9	8
BEHAVIORAL	Anxiety	136	57	31	16
	Mood changes	84	62	75	19
	Angry outbursts	115	65	36	24
	Irritability	72	65	65	38
	Confusion	139	62	27	12
	Decreased concentration	127	64	35	14
	Changes in appetite	111	58	52	19
	Withdrawal of Social Activities	120	75	37	8

Effects of PMS

Table 3. *Academic Effects.*

Effects	Percentage in %
Stopped studying	90.5
Loss of concentration in class	78.6
Missed classes	45.2
Missed exam	9.5
Low GPA	9.5
Applied for withdrawal	7.1

Table 4. *Association of PMS with its Social effects.*

Indicators for social effects		PMS Diagnosed	PMS Undiagnosed	TOTAL	P value
Impaired interaction with family members	No	59.6%	5.8%	65.4%	<0.001**
	Moderate	7.9%	5.8%	13.8%	
	Severe	0.4%	0.4%	0.8%	
	Mild	14.6%	5.4%	20%	
Impaired interaction with friends	No	59.2%	10.4%	69.2%	
	Moderate	10.1%	21.4%	17.5%	
	Severe	0	0.8%	0.8%	
	Mild	15%	2.5%	17.5%	0.003*
Isolation	Yes	27.9%	10%	37.9%	0.005*
	No	54.6%	7.5%	62.1%	
Impaired ability to perform home chores	Yes	35.4%	14.6%	50%	<0.001**
	No	47.1%	2.9%	50%	

Values denoted as * are said to have significant association with PMS for p <0.05

Table 5. *Association of PMS with its Academic effects.*

Indicators for academic effects		PMS Diagnosed	PMS Undiagnosed	TOTAL	P value
Loss of concentration in class or exam	Yes	33	87	120	<0.001**
	No	9	111	120	
Stopped studying or interruption of studying	Yes	38	89	127	<0.001**
	No	4	109	113	
Missed class	Yes	19	49	68	0.007*
	No	23	149	172	
Missed exam	Yes	4	2	6	0.001**
	No	38	196	234	
Scored lower GPA	Yes	4	15	19	0.671
	No	38	183	221	
Applied for withdrawal	Yes	3	7	10	0.288
	No	39	191	230	

Values denoted as * are said to have significant association with PMS for p <0.05

5. Discussion

This study was carried out to assess the prevalence and effects of PMS among female students of ACHS whose age range was from 17 - 26 years.

The prevalence of PMS in this study according to the diagnostic criteria of ICD 10 was found to be17.5%. This finding was similar with the studies conducted in Iran which reported a prevalence of 16% and in china 19%. [6, 7].

Two similar Indian studies on PMS by Lakshmi et al. and Mahesh et al, both conducted among female medical students, discovered figures of 67% and 59% respectively, which is much higher than the present study findings. [8, 9]. The reason for these variations can be attributed to the difference in the diagnostic criteria employed. Strict diagnosis criteria would bring about lower figures. In our study, we employed the diagnostic criteria of ICD-10 for PMDD, the severe form of PMS, except for a few necessary modifications to assure its relevance and application to PMS.

Out of the 240 participants, the study revealed that 231 (96.25%) reported experiencing at least one Premenstrual symptom of varying degree.

This study also found out that there was no statistically significant association between any of the demographic or gynecologic characteristics of participants with the diagnosis of PMS (p >0.05). This results match with the findings of the study from Ethiopia which reported that there was no significant association of the demographic characteristics they measured with PMS [10].

The most frequently reported somatic symptoms were upper thigh pain (89%) and abdominal bloating (89%) whereas from the behavioral symptoms, irritability (70%) was the highest reported symptom. This study also revealed that breast tenderness was reported by 70% of the participants.

The respondents who qualified for the diagnosis of PMS considerably suffered on their academic as well as social lives. The most common academic performance impairment was cessation or interruption of studying which was reported by 90.5% of those diagnosed with PMS. This contradicts with what was reported by the two Ethiopian studies mentioned earlier, whose highest scoring academic performance impairment was frequent class missing [10, 11].

Forty five percent of those diagnosed with PMS in this study reported missing classes. This finding was inconsistent with the findings of Ethiopian and Iranian studies, both of which reported class missing rates of 28% and 25% respectively. [10, 12] The reasons on that made the percentage of this study to be higher might be due to the fact that the later studies analyzed performance impairment of the whole participants, not of the PMS affected ones only.

This study found out that only 9.5% of the PMS diagnosed students missed an exam. This finding is logically explainable as students give priority and wouldn't want to miss their exams at any cost.

Scoring low GPA was reported by 9.5% of the PMS group

and 7% applied for withdrawal from their education due to PM symptoms.

Social performance impairment indicators were seen to be significantly associated with PMS. Around 67% of those diagnosed with PMS claimed that their interaction with family members was affected negatively. Another 40.5% reported impaired interaction with their friends while 57% isolated themselves due to PM symptoms.

Impairment of ability to perform home chores and daily activities was the most frequently reported effect of PMS on the social aspect of students' activities.

6. Conclusion

Although the prevalence of PMS was only 17.5%, almost all (96.5%) of the respondents had experienced at least one PM symptom with various degrees of severity. The most common somatic symptoms were abdominal bloating and upper thigh pain. Irritability was the most commonly reported behavioral symptom.

Severe symptoms had negative effects on the academic and social performance of the students and there was significant association between PMS and all the indicators of the effects except for scoring lower GPA and applying for withdrawal from academic studies.

Majority of the PMS victims complained of interruptions during their study hours and decreased concentration during lectures. Almost half of them had missed at least one class due to these symptoms.

Most of the victims reported that their ability to perform home chores was impaired and their interaction with their family members and friends was affected negatively. They also claimed to have socially isolated themselves due to their PMS.

Therefore, recognition of the disorder and its effects by both educational and medical authorities is necessary. At college level, introduction of counseling services and conducting periodic seminars and/or workshops regarding PMS is recommended.

Abbreviations

ACHS: Asmara College of Health Science, DSM-IV TR: Diagnostic and Statistical Manual of Mental Disorders, fourth edition, text revision, ICD: International Classification of Diseases, GPA: Grade Point Average, NRS: Northern Red Sea, SRS: Southern Red Sea, PMDD: Premenstrual Dysphoric Disorder, PMS: Premenstrual syndrome, SPSS: Statistical Package for Social Science

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References

[1] Dennerstein L, Lehert P, Bäckström TC, Heinemann K. Premenstrual symptoms-severity, duration and typology: an international cross sectional study. Menopause Int. 2009; 15(3): 120-126.

[2] Shaughn O'Brien, Andrea J Rapkin, Peter J Schmidt: Premenstrual Syndromes: PMS and PMDD. Informa 2007.

[3] Am Fam Physician. 2011; 84(8):918-924. Copyright © 2011 American Academy of Family Physicians.

[4] Rapkin AJ, Winer SA. Premenstrual syndrome and premenstrual dysphoric disorder: quality of life and burden of illness. Expert Rev Pharma- coecon Outcomes Res. 2009; 9(2): 157-170.

[5] Biggs, WS; Demuth, RH (2011). Pre- menstrual syndrome and premenstrual dysphoric disorder. American family physician 84(8): 918–24.

[6] Chau JP, Chang AM, Chang AM. Relationship between premenstrual tension syndrome and anxiety in Chinese adolescents. J Adolesc Health 1998.

[7] Bakhshani NM, Mousavi MN, Khodabandeh G: Prevalence and severity of premenstrual symptoms among Iranian female university students. J Pak Med Assoc2009, 59: 205-208.

[8] Anandha Lakshmi et. al, Prevalence of Premenstrual Syndrome and Dysmenorrhoea among Female Medical Students and its Association with College Absenteeism. Int J Biol Med Res. 2011; 2(4): 1011-1016.

[9] Mahesh A, Zubair S, Tirmizi A, Ali SS: Frequency and associated factors of Premenstrual Syndrome in Medical College Girls. Med Channel 2011, 17(1): 34–38.

[10] Tolossa and Bekele. Prevalence, impacts and medical managements of premenstrual syndrome among female students: a cross-sectional study in college of health sciences, Mekelle University, Mekelle, Northern Ethiopia. BMC Women's Health 2014 14: 52.

[11] Tenkir A, Fisseha N, Ayele B. Premenstrual syndrome: Prevalence and effect on academic and social performances of students in Jimma University, Ethiopia. J Health Dev 2002, 17: 181–188.

[12] Parvaneh N: Premenstrual syndrome among Teacher Training University students in Iran. J Obstet Gynecol India 2008, 58(1): 49–52.