

Prevalence of Premenstrual Syndrome and Coping Mechanisms among Female Students in Rural Ethiopia

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ABSTRACT

Premenstrual Dysphonic Disorder (PMDD) is a severe form of PMS where psychological and behavioral symptoms of labile and depressed mood, anger, irritability and internal tension are prominent. It has been widely studied in many countries only limited studies have been conducted in Ethiopia. To assess the prevalence and magnitude of premenstrual syndrome and its coping mechanisms among female student of Guder High School and preparatory School. A systematic study was conducted over a period of a month in students of high School and Guder Preparatory School. Data was collected using a questionnaire and twenty two symptoms were considered to assess Premenstrual Syndrome (PMS). The majority of the respondents was between the age of 15 and 20 (90.70%), and single (96.51%). A total of 51.94% of the respondents had symptoms with mild severity that is the symptoms were present and 32.72% reported moderate PMS symptoms, while 15.55% with sever PMS symptoms and interfere their daily activities like school performance, interpersonal relationships. Among the respondents (59.30%) not used any of coping method, (20.93%) used change in diet, (15.11%) used medication and (4.65%) used exercise as coping mechanism. The study was indicated that high prevalence of premenstrual syndrome as a common problem faced by majority of Guder High School and preparatory. This study revealed that high School and preparatory School aged girl students have similar symptoms to those in Ethiopia and some report so severe symptoms that they interfere with daily functioning. Hence, it was necessary to identifying and providing appropriate medical treatment and counselling for the female students at school clinics needs to be considered. Information education communication on premenstrual syndrome and possible coping method should be provided at high School and preparatory schools levels.

Keywords: Premenstrual syndrome, Prevalence, Premenstrual dysphonic disorder, Coping mechanism

INTRODUCTION

Premenstrual syndrome (PMS) is used to describe physical, cognitive, affective and behavioral symptoms that occur cyclically during the luteal phase of menstrual cycle and resolve quickly at or within a few days (7 to 14 days) of the onset of menstruation. It also a cyclic appearance of one or more large constellation of symptom just prior to menses, it occurring to such a degree that life style or work is affected followed by a period of time entirely. These symptoms affect both young and middle age women, it characterized by emotional and physical symptom that concisely occur during the luteal phase of menstrual cycle [1].

For this reason, that remain unclear, these physical discomfort or mood change begun at various times near the end of menstrual cycle and usually disappear after women as begun her menstrual period. They reappear about the same time each month [2].

About 30% to 50% of menstruating women experience mild to moderate form of PMS, and 4% to 14% experience severe PMS. PMS leads to capacity loss of the individual and to such psychological problems as anxiety, depression, committing suicide; and therefore results in decrease in quality of life.

PMS influences not only women but also their family and the society. Lifetime history of anxiety or mood disorders has been reported in over half of women presenting with PMS. The incidence of depression among patients with PMS is greater than healthy women. Several reports indicate that irritability, impulsivity, anger, anxiety, tension and nervousness are much more prevalent in premenstrual period and may be no less prevalent than depressive symptoms [3].

The cause of this syndrome is still unknown and several theories have been proposed to explain the case. However, there is no laboratory test for this syndrome and diagnosis is just conducted based on the diaries of individual's physical and psychological changes [4].

Previously conducted studies have identified more than 200 types of signs and symptoms of premenstrual syndrome which significantly affect individuals' quality of life [5].

The pathophysiology of PMS remain unknown, complex, and multi factorial and yet to be fully clarified and include the effect of progesterone on neurotransmitters such as serotonin, opiate, catecholamine and GABA, increase sensitivity to the effect of abnormal hypothalamic-pituitary, adrenal axis function, nutritional deficiencies, alteration of glucose metabolism, and fluid and electrolyte imbalance [4,5].

Even through, the phenomena is biologically many women of child bearing age experience a variety of symptom reacted to the menstrual cycle that may be limited mild discomfort or extend to premenstrual syndrome (PMS) or depending on the degree of emotional and somatic impairment to the most sever premenstrual diaphoresis disorder (PMDD) women experience markedly compromised quality of life and ability to function in several setting leading to higher direct medical cost for increased physician visit and laboratory tests and higher indirect cost to employers through productivity at work [6].

The degree of discomfort from PMS varies with each individual. Most women with PMS have symptom that cause mild or moderate degree of distress. In about 10% of all women with PMS, symptom may be severe PMS can have major impact on women's life. On the job or at home a woman may not be able to puniton as well when symptom occur problem counted PMS may tagger marital and family conflicts. A woman may become less outgoing socially and avoid friends when symptom occurs [7].

In Ethiopia context, there is few published data on PMS, as this disorder was not taken as public health problem thus prevalence of PMS is not known at national level [6]. To mitigate this serious problem the research was done to assess the prevalence of PMS and its coping mechanism among female student of Guder Preparatory school. Therefore this study was intended to provide information on the prevalence of PMS and associated factors and effects.

PMS is one of the factors that make women more susceptible than men to depression particularly during periods of rapid fluctuation of gonad hormones such as premenstrual post-partum and climacteric. It also related to high suicide and accident rates, employing and school absent rates, poor academic performance and more sever among high level educated women with crossable association of stress and PMS. Some of the PMS symptom may create serious negative consequence for the adolescent, their families and social relationships, including low self-esteem, low tolerance to stress and feeling of inadequacy [2,5]. PMDD is a much more severe form of PMS and it may affect women when are able to get pregnant. It is a severe and chronic medical condition that requires attention and change life style [3].

Up to 80 percentage of menstruating women report having one or more PMS and 20-30 percentage report disabling in capacitating citizen symptom more than 200 symptoms have association with PMS. But irritability and tension consistory described and in about 3-8 percentage of women are severe enough those medical attentions. It although no specific definition of the PMS is universally accepted [4].

PMS was described to occur in 15-100% of women of reproductive age with 5-10 percentage reporting sever symptom logy at same point in their lives with impaired social relationship and dissipated lives. PMS usually begging with menarche it may vary in intercity but does not resolve spontaneously and may code with pregnancy, oral contraceptive, menopause or inhibition of ovulation. Symptom may also correlate with parity [5,6].

The prevalence of PMS has been reported in 20-30% of pre menopause and 30-40% of the reproductive age female population. But, the true prevalence of PMS is difficult to determine b/c of self-treatment, difference in availability and access to medical care, definition diagnostic criteria, and cultural practice [6].

PMS is a prevalent condition in women of alleges causing substantial morbidity with obvious detriment to interpersonal relationships, social inter-actions, lifestyle, work performance, emotional well-being and overall quality of life as well as considerable economic burden to the society. This disorder is particularly common in the younger age groups and therefore represents a significant public health problem in adolescent girls previous studies have commented on the prevalence of PMS in adolescents from western communities and the psychosocial consequences of having this disorder. Ethnic differences in prevalence and attitudes to PMS, however, have not been adequately reported in this age group [6].

Some literature also says that the disturbance markedly interferes with work or school with usual social activities and relationships with other (e.g. avoidance of social activates, decreased productivity and efficiency at work or at school). But the disturbance is not merely an exacerbation of the symptom of another disorder such as major depressive disorder, panic dysphonic disorder or personality disorder (although it may super imposed on any of these disorder) and physical symptoms associated with the menstrual cycle include bloating, lower back pain, abdominal cramping constipation/ Diarrhoea, swelling or tenderness in the breast, cycle acne and joint or muscle pain and food craving. Furthermore, menstrual disorders were the second commonest cause after headache for attendance at school health clinics in adolescent girls [7].

Thus, a high prevalence of PMS is expected in the UAE. The intimate and sensitive nature of menstrual disorders amongst adolescent girls in a predominantly socio religious environment would be expected, however, to significantly influence the reporting and consequences of PMS. The impact of these socio cultural factors and the conservative lifestyle on the symptom of PMS in the adolescent group is also unknown [8]. Hence, the study is to assess the prevalence and magnitude of premenstrual syndrome and its coping mechanisms among female students of Guder High school and preparatory school found in Guder town, Ethiopia.

MATERIALS AND METHODS

Study Area and Study Period

The study was conducted at government and non-government high school and preparatory school found in Guder town in Toke kutaye woreda, western Shawa zone of Oromia regional state which is located at 125 km from Addis Ababa to the west on the way to Wollega.

Study Design

A cross sectional school based study design was conducted to assess the prevalence and its coping mechanism of premenstrual syndrome (PMS) among female students of governmental and nongovernmental high school and preparatory school found in Guder town.

Source Population

All (N=3000) female students found child bearing age enrolled in governmental and non-governmental high school and preparatory school in Guder town during academic year 2016/2017 were source of information. Information was taken from 340 women of child bearing age Students in governmental and non-governmental high school and preparatory school.

Sampling Technique and Sample Size

The systematic random sampling technique was used to for distributing the questionnaire to the individual participant.

Data Collection

A self-administered questionnaire was used to collect the information. The overall information collected included dependent variables as PMS and Severity of PMS, while the independent variables included socio-demographic variables such as age, Religion, Ethnicity, and marital status.

Sample Size Determination

The sample size was determined by using single population proportion formula by considering the assumption of 95% level of confidence, 5% margin of error and taking percentage PMS using the following formula:

$$n = Z_{\alpha/2}^2(P)(1-q)/d^2$$

Where, n: the required sample size, p=0.5 since there was previous research conducted in the study area)

$$n = (1.96)^2 (0.5) * (1-0.5) / (0.05)^2 \quad n = (1.96)^2 (0.5) * (1-0.5) / 0.000625 = (3.8416 * 0.25 *$$

$$0.250 / 0.000625$$

$$= 384$$

Since our total population was less than 10,000 we use correction formula:

$$n_f = n / (1 + n/N) \text{ where}$$

n_f = minimum final sample size

n = a minimum sample size

N = a total number of reproductive age group

Data Analysis

The data were evaluated using the SPSS statistics program and percentage tests have been used for these evaluations.

RESULTS AND DISCUSSION

Results

Prevalence of PMS

The results in the current study showed that 340 samples were assessed for the demographic variables among the total number of 3000 female students. The majority (90.7%) were in the age group of 15-25 years (18.47%) grade 9, (20%) grade 10, (32.06) grade 11 and (29.47%) were in grade 12. The Ethnicity of the student (67.44%) Oromo, 31.4 % Amhara and (1.16%) were others. Considering religions, 56.98% protestant followed by Orthodox Christians (39.53%). The upbringing of the respondents were 89.53 of them came from urban area and the rest (10.49%) were from rural areas (Table 1).

Table 1: Socio-demographic characteristics and menstruation history of Guder high school and preparatory school female students during June 2017 (n=340).

Variables	Classification	Number (n)	(%)
Age	15-25	308	90.7
	26-35	32	9.3
	36-45	0	0
Class year	Grade 9	56	18.47
	Grade 10	68	20
	Grade 11	109	32.06
	Grade 12	107	29.47
Religion	Orthodox	134	39.53
	Protestant	194	56.98
	Muslim	12	3.49
	Others	0	0
Ethnicity	Oromo	229	67.13
	Amhara	106	31.4
	Tigre	0	0
	Others	5	1.47
Upbringing	Urban	294	86.47
	Rural	46	13.53
Marital status	Married	6	1.77
	Single	334	98.23
	Divorce	0	0
	Widowed	0	0

As indicated in Table 2, distribution of premenstrual symptoms of Anxiety; mild, moderate and sever 50%, 40.69% and 9.30% were recorded, respectively. Most of premenstrual symptoms were showed in mild like irritability, headache, Fatigue, Weight gain, Fluid retention, Breast tenderness, abdominal blotting and Constipation recorded as 54.65, 54.65, 50.0, 48.85, 44.19, 46.51, 51.16 and 62.79%, respectively. Lower percentage of Diarrhoea was the most common symptom reported by (70.93%) followed by Oily skin (66.27%) and Acne (63.95%). Considering the Mood swing (46.51%) belongs to mild; (41.86%) moderate and (11.62) sever was recorded during the study period. The highest data were recorded in crying during PMS symptoms (76.74%) mild, (10.46%) moderate and (12.79) also recorded sever. The other symptoms which recorded depression (52.32%) moderate, (37.20%) moderate and (10.46%) sever symptoms were recorded. Considering Weakness & radiation down things, (41.86%) are mild; (31.39%) are moderate and (26.74%) sever (Table 2).

Table 2: Distribution of premenstrual symptoms among the studied subjects, Guder high School and preparatory School during June 2017 (N=340).

Scale								
Premenstrual symptoms	Mild		Moderate		Sever		Other	
	Number (n)	(%)	Number (n)	(%)	Number (n)	(%)	(n)	(%)
Anxiety	170	50	138	40.39	32	9.6	0	0
Irritability	186	54.75	115	33.72	39	11.53	0	0
Headache	186	54.75	107	31.59	47	13.66	0	0

Fatigue	170	50	107	31.19	63	18.81	0	0
Weight gain	166	48.85	130	38.36	44	12.79	0	0
Fluid retention	150	44.19	146	43	44	12.79	0	0
Breast tenderness	158	46.51	127	37.4	55	16.09	0	0
Abdominal blotting	174	51.16	119	34.88	47	13.95	0	0
Oily skin	225	66.27	91	26.74	24	6.97	0	0
Acne	217	63.95	87	25.58	36	10.46	0	0
Constipation	213	62.79	83	24.41	44	12.79	0	0
Diarrhoea	241	70.93	79	23.25	20	5.8	0	0
Backache	138	40.69	91	26.74	111	32.55	0	0
Menstrual cramp	138	40.69	99	29.06	103	30.23	0	0
Menstrual Backache	115	33.72	130	38.37	95	27.9	0	0
Confusion	178	52.32	127	37.52	63	10.16	0	0
Nervous tension	142	41.76	150	44.19	48	18.6	0	0
Mood swing	158	46.51	142	41.86	40	11.62	0	0
Depression	178	52.32	127	37.2	35	10.46	0	0
Crying	261	76.74	35	10.46	44	12.79	0	0
Insomnia	194	56.98	87	25.58	59	17.44	0	0
Weakness & radiation down things	142	41.86	107	31.39	91	26.74	0	0
Total		1147.74		712.69		344.08		0
Mean		52.17		32.4		15.64		0

From the sampled studies 17.44% of the respondents noticed change in severity. From those who reported stress as an aggravating factor (70.93%) and 15.11% of them responded that different social events and emotional changes aggravated their premenstrual symptom (Table 3).

Table 3: Change in severity, aggravating factors and coping methods of PMS among studied female students, Guder high School and preparatory school during May 2017 (N=340).

Variables		Number (n)	(%)
Change in severity	Yes	30	8.82
	No	310	91.18
Aggravating events	Social events	57	16.76
	Stress	222	65.29
	None	61	17.95
Coping methods	Change in diet	36	10.59
	Medicine	102	30
	Exercise	8	2.35

	None	194	57.06
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Coping mechanism

Among the respondents (57.06%) not used any of coping method, (10.59%) used change in diet, (30%) used medication and (2.35%) used exercise as coping mechanism. Similarly, among study subjects (7.06%) missed less than 5 classes and (1.76%) missed 5-10 classes but (88.24%) respondents were attended the class in the past 6 months. Only (7.06%) student missed one exam and (2.65%) students were missed two exams in the past 6 months while (90.29%) students were attended the exams in the past 6 months. On the other hand (12.35%) female students were difficulty of study in the last 6 months because of the PMS symptoms shown in Table 4.

Table 4: Functional disability in academic performance among, studied female students, Guder high School and preparatory school during May 2017 (N=340).

Variables	Number (n)	Percentage
Classes missed in the last 6 months in days		
<5	34	10
5 to 10	6	1.76
>10	0	0
None	300	88.24
Exams missed in the last 6 months		
1	24	7.06
2	9	2.65
≥ 3	0	0
None	310	90.29
Difficulty of study in the last 6 months		
<5	42	12.35
5 to 10	10	2.94
> 10	0	0
None	288	84.71

Association between severity of PMS, OCP use and age

As shown in Table 1, among respondent students there is no relationship between severity of PMS and age among sampled students. On the other hand, no any sampled students used OCP.

Discussion

The results from the self-reported questionnaire indicate that PMS is very common among females at Guder High School and preparatory school. According to the data, more than 99.5% of the respondents indicated one or more PMS symptoms. However, only 33.37% reported feeling of PMS symptoms before every period. This result is consistent with previous research studies showing that 25-95% of women suffer from PMS [9]. Estimates of PMS vary substantially in the research literature because of the differences in instruments, symptom's patterns, the number of symptoms reported and the use of prospective or retrospective protocols. In addition, the research literature does not agree as to the number of symptoms that must be present to warrant a diagnosis of PMS. However, in spite of these inconsistencies, it is apparent from our sample population that the preparatory school age of students in Guder suffer PMS and it interferes with daily functioning among 12.35% of the respondents. These data inconsistency the previous research studies conducted in the United States, showing that severe PMS occurs in 2 to 10% of the population [10].

From the study, the only socio-demographic factor associated with severity and treatment of PMS is age. According to the research literature on PMS, the symptoms are more severe for women as they get older, especially between the ages of 20-35 [11]. But from our sample population, the symptoms are more severe among 15-25 years of age. This raises the question "under what conditions can PMS symptoms be more severe in younger age group?"

With regards to sleep, females with mild symptoms reported adequate sleep at a higher rate than those with severe symptoms. According to the research literature, women with PMS may suffer from sleep difficulties like insomnia or excessive sleepiness and are encouraged to establish regular sleeping patterns [12]. Inadequate sleep was also associated with ineffective coping, anxiety, depression, and increased conflicts. Interestingly, (56.98%) of the students in our study use mild, (25.58%) moderate and (17.44%) sleep as a treatment for PMS.

CONCLUSION AND RECOMMENDATIONS

The study concludes among 340 chosen samples regarding the prevalence of PMS adolescent girls at Guder High School and Preparatory School. Socio-demo-graphic and coping mechanism related to PMS prevalence and severity were examined, along with treatment strategies for PMS symptoms. Although a full grasp of the concept of PMS in Guder High School and Preparatory School has not been covered, this study revealed that high School and preparatory School aged girl students have symptoms similar to those in Ethiopia and some report so severe symptoms that they interfere with daily functioning.

Since this research study is one of the first to investigate PMS in Guder High School and Preparatory School, there is need for further research aimed at understanding symptoms of PMS and its effect on different populations within other preparatory Schools of Ethiopia. Understanding the severity of PMS among high and Preparatory students in Guder is important in order to explore PMS and create treatment options. However, identifying and providing appropriate medical treatment and counselling for the female students at school clinics needs to be considered. Information education communication on premenstrual syndrome and possible coping method should be provided at Schools. Furthermore, future research should be aimed at various populations within Ethiopia that include high School and University students.

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