An Assessment of the severity of premenstrual syndrome among select Undergraduates, in University of Jos.

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ARTICLE INFO	ABSTRACT
	Premenstrual syndrome is a common but distressing entity among young females. It has attracted the attention of several studies which sought to evaluate the prevalence in several locations. In Jos, particularly among the undergraduate students of the university of Jos, we have not fully assessed the severity of this syndrome. This study was undertaken to assess the determinants of the severity of premenstrual syndrome in Jos among the undergraduate students. 449 students who gave their informed consent were recruited into the study, using pre determined questionnaire and the ICD 10 criteria for the screening of the syndrome. PMSA was diagnosed among 94.7% of the participants. Severity manifested in social withdrawal and breast tenderness (69.3% and 77.1% respectively). The limitation of activities was not a common report. It is concluded that the premenstrual syndrome is common among the undergraduate students of the University of Jos, with social withdrawal and breast tenderness as the manifestations of is severity.

INTRODUCTION

Pre-menstrual syndrome (PMS) is used to describe the physical, cognitive, affective, and behavioral symptoms that occur cyclically during the luteal phase of the menstrual cycle and resolves quickly at or within a few days of the onset of menstruation[1]. These symptoms have the capability of affecting the social and productivity outcome of young students [2].

Premenstrual symptoms are experienced by up to 90% of women of child bearing age[1,2]. A lesser subset meet the criteria for premenstrual syndrome (PMS) and a much lesser number of them are diagnosed as having premenstrual dysphoric disorder [PMDD] as stipulated by the American psychiatric Association. It is indeed common in the younger age group and therefore represents a public health problem among young girls.

The American College of Obstetrics and Gynecology [ACOG] published diagnostic criteria for premenstrual syndrome (PMS). It was considered if at least one of the six affective and one of the four 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 [5]. Premenstrual syndrome [PMS] can also be diagnosed using the ICD-10 criteria which stated that one or more symptom that occur in the luteal phase, peaks before menses and ceases with menstrual flow[6-8]. The six behavioral symptoms include, Depression, Angry outburst, Irritability, Anxiety, Confusion and social withdrawal, while the somatic symptoms include, Breast tenderness, Abdominal bloating, Headache and swelling of extremities. The differences in the various criteria have accounted for the wide variations in the prevalence of this condition across the social cultural regions of the world [3].

The exact cause is not clearly understood but, 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 gonadotrophin secretion, exercise habits, smoking, use of alcohol, altered transcapillary fluid balance and diet rich in beef or caffeine containing beverages [6]. Accordingly, while menstruation represents the girl's entrance to her expected social role as a mature woman, the previously mentioned cultural perspectives may have an evident role [9].The University students Community largely have a young population structure and PMS is particularly common in the younger age group. However, not so much is known about the extent and severity of premenstrual syndromes among young women [10-12]. Also, a minority of women with menstrual problems had sought health care and menstruation was revealed to be a highly personal and secretive topic in this kind of population [11].

In study carried out by Adewuya AO *et al* [14] where pattern and correlates of premenstrual symptomatology amongst Nigeria female undergraduates was studied, it was recommended that dysmenorrhoea and personality traits should be taken into consideration when planning and implementing effective strategy to manage perimenstrual problems in this region.

METHODOLOGY

Participants

A descriptive cross-sectional survey was conducted by using a self-administered questionnaire.

Students with current medical, psychiatric or gynecological problems were excluded from the study including pregnancies, amenorrhea and significant pelvic pains.

Instrument

Questionnaires were completed by the participants. Height and weight were taken by the trained researchers.

The questionnaire was adapted from the premenstrual symptoms screening tool for clinicians and ICD-10 diagnostic criteria for PMS (WHO 1996) [12]. The first part consisted of questions on socio-demographics and life style. The second part of the questionnaire included premenstrual symptoms days prior to their period and that wanes at the onset of the period. The final portion of questionnaire was on the severity of PMS and its effects on the day to day activities of the student.

Sample size

The sample size was arrived at using Fischers' formula:

$$\text{Sample size (n)} = \frac{(1.96)^2 \times P(1-P)}{D^2}$$

Where;

Standard error = 1.96
P= Prevalence of 50% (Adewuya AO *et al*. 2009)

Using a prevalence of 50% in Nigeria
D= Desired degree of accuracy; here taken to be 0.05

$$\text{Sample size (n)} = \frac{(1.96)^2 \times 0.5(1-0.5)}{0.05 \times .0.05}$$

$$N = \frac{3.84 \times 0.5 \times 0.5}{0.0025} = \frac{0.96}{0.0025}$$

= 384

The sample size, was adjusted to compensate for an attrition rate of 10%

Therefore 10% of 384 = 38.4 ≈ 38.

Minimum sample size = 384 + 38 = 422

Another 10% of 384 because of those that will not fill the questionnaire = 422 +38 = 460.

- Sample size of 460 was chosen
- 11 student failed to return their questionnaire, therefore a total of 449 were sampled

Procedure

Written informed consent was obtained from the respondents, pre-testing was done among twenty students earlier for validity and reliability. Questionnaires were administered by the field workers using simple random technique.

Data were analyzed using the Statistical Package for Social Sciences version 16 (SPSS Chicago IL USA). Group comparison was carried out. Regression analysis done for each group of variables to evaluate the role of the independent variable on PMS. A P value of < 0.05 at 95% confidence interval was considered significant.

RESULT

Of the 449 students sampled, prevalence of PMS was diagnosed in 425 of them (94.7%) using the ICD-10 diagnosis criteria of PMS
Using the ICD-10 criteria and the premenstrual symptoms screening tool (PSST), the occurrence of PMS were categorized into mild, moderate and severe cases which were calculated to be 63.3%, 31.2% and 5.6% respectively (Table 1).

Table 1. Severity of PMS among female undergraduates

Severity	Frequency	Percent
Not at all/mild	284	63.3
Moderate /severe	140	31.2
PMDD	25	5.6
Total	449	100.0

Premenstrual symptoms were presented in Table 2. The frequencies of somatic symptoms were; breast tenderness (77.1%), joint/muscle pain (59.7%), headache (50.1%), and weight gain (38.5%) abdominal bloating (29%).Whereas the distribution of affective symptoms were; social withdrawal (69.3%), Anger/irritability (59%), confusion/ difficulty in concentrating (56.3%), Depressed mood(53.7%), anxiety (51.7%), tearfulness (41.4%).

Table 2. Symptoms of premenstrual syndrome

Symptom	Not at all	Mild	Moderate	Severe
Anger/ irritability	184(41.0%)	99(22.0%)	127(28.3%)	39(8.7%)
Anxiety/ tension	217(48.3)%	104(23.2)	103(22.9%)	25(5.6%)
Tearfulness/ increased sensitivity to rejection	263(58.6%)	85(18.9%)	73(16.3%)	28(6.2%)
Depressed mood/hopelessness	208(46.3%)	110(24.5%)	88(19.6%)	43(9.6%)
Decreased interest in work activities	171(38.1%)	108(24.1%)	106(23.6%)	64(14.3%)
Decreased interest in home activities	178(39.6%)	112(24.9%)	100(22.3)	59(13.1%)
Decreased interest in social activities	138(30.7%)	133(29.6%)	112(24.9)	66(14.7%)
Difficulty concentrating	196(43.7%)	127(28.3%)	84(18.7%)	42(9.4%)
Fatigue/ lack of energy	131(29.2%)	146(32.5%)	115(25.6%)	57(12.7%)
Overeating/ food cravings	256(57.0%)	90(20.0%)	71(15.8%)	32(7.1%)
Insomnia	304(67.7%)	74(16.5%)	50(11.1%)	21(4.2%)
Hypersomnia (needing more sleep)	187(41.6%)	92(20.5%)	106(23.6%)	64(14.3%)
Feeling overwhelmed or out of control	284(63.3%)	92(20.5%)	47(10.5%)	26(5.8%)
Breast tenderness	103(22.9%)	132(29.4%)	142(31.6%)	72(16.0%)
Headaches	224(49.9%)	123(27.4%)	51(11.4%)	51(11.4%)
Joint/ muscle pain	181(40.3%)	118(26.3%)	87(19.4%)	63(14.0%)
Bloating	319(71.0%)	80(17.8%)	34(7.6%)	16(3.6%)
Weight gain	276(61.5%)	101(22.5%)	53(11.8%)	19(4.2%)

Table 3. Effects of PMS on daily activities.

	Not at all	Mild	Moderate	Severe
Your work efficiency or Productivity	180(41.1%)	123(27.4%)	116(25.8%)	30(6.7%)
Your relationships with co-students	171(38.1%)	125(27.8%)	126(28.1%)	27(6.0%)
Your relationships with your family	188(41.9%)	109(24.7%)	111(24.7%)	41(9.1%)
Your social life activities	143(31.8%)	137(30.5%)	130(29.0%)	39(8.7%)
Your home responsibilities	161(35.9%)	118(26.3%)	121(26.9%)	49(10.9%)

The mean age of the participants was 22.6years. Predominant age group was 19 to 24 years; mean age of menarche was 13. 5years. 95.3% were single and 66.6% had normal BMI.

Table 4. Some characteristics of the study participants

BMI	FREQUENCY	PERCENT
underweight	32	7.1
normal weight	299	66.6
overweight	95	21.2
obese	23	5.1
Total	449	100.0

PMS was significantly associated with intake of sweet food, stressful life style, increase physical exercise and unmarried status

Table 5. Premenstrual syndrome related to some demographic and lifestyle characteristic

CHARACTERISTIC	Yes= 294(65.5%)	No=155(34.5%)	TOTAL=499(100.0 %)	x^2	P-VALUE
USE CAFFEINE				.501	0.919
not at all	204(64.6%)	112(35.4%)	316(100.0%)		
Daily	10(71.4%)	4(28.6%)	14(100.0%)		
Weekly	10(66.7%)	5(33.3%)	15(100.0%)		
once in while	70(67.3%)	34(32.7%)	104(100.0%)		
ORAL CONTRACEPTIVE				3.125	0.373
not at all	261(66.2%)	133(33.8%)	394(100.0%)		
Daily	5(50.0%)	5(50.0%)	10(100.0%)		
Weekly	0(.0%)	1(100.0%)	1(100.0%)		
once in while	28(63.6%)	16(36.4%)	44(100.0%)		
SMOKING					
not at all	286(65.7%)	149(34.3%)	435(100.0%)	2.008	0.571
Daily	5(62.5%)	3(37.5%)	8(100.0%)		
Weekly	0(.0%)	1 (100.0%)	1(100.0%)		
once in while	3(60.0%)	2(40.0%)	5(100.0%)		
PHYSICAL EXERCISE				9.936	0.019
not at all	53(53.5%)	46(46.5%)	99(100.0%)		
Daily	57(63.3)	33(36.7%)	90(100.0%)		
Weekly	37(74.0%)	13(26.0%)	50(100.0%)		
once in while	147(70.0%)	63(30.0%)	210(100.0%)		
SRTRESSFUL LIFESTYLE				16.552	0.001
not at all	98(58.0%)	71(42.0%)	169(100.0%)		
Daily	76(79.2%)	20(20.8%)	96(100.0%)		
Weekly	40(76.9%)	12(23.1%)	52(100.0%)		
once in while	80(60.6%)	52(39.4%)	132(100.0%)		

DISCUSSION

PMS was diagnosed in 94.7% of cases, distributed as 63.03% mild or none, 31.2% moderate and 5.3% severe. Social withdrawal and breast tenderness were more prevalent in the PMS with values of 69.3% and 77.1% respectively. PMS affect work efficiency and productivity in 68.9% of student. Limitations of activities were more prevalent among severe cases.

The prevalence of PMS in the study was 94.7%. This was closely related to the work of Rasheed and Al-sowielem [15] in Saudi Arabia who reported prevalence rate of 96.6% and Steinerm et al,[16] from western Europe reported prevalence of 85%. In Egypt, El-Defrawi et al[17] prevalence of 69-9%.

Although, Ahizechukwu et al[22] in Nigeria had reported a higher severity rate of 31% in 2011, the severity rate reported in Maiduguri and Lagos were 6.5% and 3.1% respectively. Also severity rate of 2.9% was reported in Akron, United States [23]. Several factors are responsible for the variation in severity. Such factor includes cultural disparity, study population, dietary differences, recent increase in empowerment and positive gender attitude of young women in the society as well as increased the perception and awareness of PMS.

The most commonly reported symptom varied due to different cultural and socio-demographic variables. In our study the most common somatic symptom was breast tenderness (77:1%) and most common affective symptom was social withdrawal (69.3%). Magdy et al reported abdominal bloating to be commonest (75.3%), Derman et al[21] reported stress and nervousness to be commonest. Ahizechukwu et al reported that 50% experience physical and mental stress.

PMS in this study showed a significant relationship with marital status as it tended to be higher in women that are single than the married. This could be as a result of the unmarried been more expose to stressful conditions as they lack adequate family support. This explains why 66.6% of the single ladies experienced PMS as opposed to 36.1% of the married ones.

For those who did physical exercise daily and weekly, 63.3% and 74.0% respectively experienced pre menstrual symptoms while those with stressful life style daily and weekly, 79.2% and 76.9% respectively experienced pre menstrual symptoms. These findings were closely related to the report by Freeman et al[25]. Clecknedr-Simth et al[26] found that symptoms were significantly related to age and more with 16-18year group compared to the 13-15year group. Age was not a significant predictor from our study, which was not consistent with previous findings by some other investigators [2, 15, 20]

Limitations

The study included a highly selected sample comprising undergraduates from one academic institution instead of multi centered study.

Despite the fact that the students included in the study were based on absence of medical chronic disorders, they were not screened for other possible medical diagnosis at the time of reporting PMS symptoms.

We depended on the retrospective analysis using questionnaire as it was inherently difficult to use the prospective approach.

CONCLUSION

Premenstrual syndrome problems have assumed a public health dimension amongst young students in this part of the world. Severe PMS was associated with more premenstrual symptoms, impairment of daily activities including classroom lectures and psychological distress symptoms. Stressful life style and increased exercises could be considered as predictors for PMS. Further studies on large sample population is recommended to validate this findings as well as the introduction of a reproductive health components into college health education program that could help in providing information, education and support to the young Nigerian Students.

Conflict Of Interest:

There was no conflict of interest.

Acknowledgement:

REFERENCES

1. Magdy HS. The p henomenology of premenstrual syndrome in Female medical student; a cross sectional study. *The Pan African Medical Journal*. 2010; 5:4

2. Braverman PK. **Premenstrual Syndrome** and **Premenstrual** Dysphoric Disorder. *J Pediatr Adolesc Gynecol*. 2007 Feb; 20(1):3-12.

3. Mishell DR Jr. **Premenstrual** disorders: Epidemiology and disease burden. *Am J Manag Care*. 2005 Dec; 11(16 Suppl): S473-9.

4. American Psychiatric Association. Diagnostic and Statistical Manual of mental disorders-DSM-IV-TR (4th ed, Text Revision). Washington DC: American Psychiatric Association, 2000.

5. American College of Obstetrics and Gynecology: ACOG practice bulletin: **premenstrual**

syndrome. Washington, DC: ACOG, April 2000: 15.

6. Yonkers KA, O'Brien **PMS,** Eriksson E. **Premenstrual syndrome.** *Lancet.* 2008 Apr 5; 371 (9619):1200-10.

7. Every LJ, Thapa S, Askew I, Glor J. Menstrual experiences and beliefs: a multi-country study of relationships with fertility and fertility regulating methods. *Women Health.* 1993; 20 (2):1-20.

8. ICD 10 Criteria

9. Springer PR, Abbott DA, Reisbig AMT. Therapy with Muslim Couples and Families: Basic Guidelines for Effective Practice. *The Family Journal.* 2009; 17: 229-235.

10. Dickerson, L.M; Mazych, P.J.; and Hunter, M.H. 2003. Premenstrual Syndrome. *Amer. Fam. Phys.* 67:1743-54.

11. Al Gelban KS. **Prevalence** of Psychological Symptoms in Saudi Secondary school girls in Abha, Saudi Arabia. *Ann Saudi Med.* 2009; 29:275-9.

12. Steiner M Macdougall M, Brown E. the premenstrual symptoms screening tool {PSST} for clinicians. *Arch. Women Health* (2003) 6: 203-209 Adei

13. Al Ayafi AS. Factors associated with health behavior regarding menstruation among Saudi intermediate school girls in Riyadh city. Master Thesis applied to King Saud University, 1999.

14. Adewuya AO, Loto OM, Adewumi TA. Pattern and correlates of premenstrual Symtomatology amongst Nigeria students. *J Psychosom Obstet Gynecol* 2009 Jun; 30(2):127-32.

15. Rasheed P, Al-Sowielem LS. **Prevalence** and predictors of **premenstrual syndrome** among college-aged women in Saudi Arabia . *Ann Saudi Med.* 2003; 23:381.

16. Steiner M, Born L. Diagnosis and treatment of **premenstrual** dysphoric disorder: an update. *Int Clin Psychopharmacol.* 2000; 15 Suppl 3:S5-17.

17. El-Defrawi MH, Lotfi G, Mahfouz R. Late luteal phase dysphoric disorder, Do we need another

psychiatric category? *Egyptian Journal of Psychiatry.* 1990; 13:205-212.

18. World Health Organization. A cross-cultural study of menstruation: implications for contraceptive development and use. *Studies in family planning.* 1981; 12:3-16.

19. Tabassum S, Afridi B, Aman Z, Tabassum W, Durrani R. **Premenstrual syndrome:** Frequency and severity in young college girls. *J Pak Med Assoc.* 2005 Dec; 55 (12):546-9.

20. Abu-Hashem H, Amr M, Allam AF, Yousef H, Nemar A. **Premenstrual syndrome (PMS)** in a sample of Egyptian adolescents. *J Egy Soc Obstet Gynecol.* 2006; 32:417-18.

21. Nisar N, Zehra N, Haider G, Munir AA, Sohoo NA. Frequency, intensity and impact of **premenstrual syndrome** in medical students. *J Coll Physicians Surg Pak.* 2008 Aug; 18(8): 481-4.

22. Ahizechukwu CE, Josephat CA, Kelechi M. Predictors of premenstrual syndrome among Nigerian University students. *Intern J Gyn Obstet* 112(2011):63-71

23. Ogebe O, Abdulmalik J, Bello-Mojeed MA, Holder N, Jones HA, Ogun OO, Omigbodun O. Comparison of the prevalence of premenstrual dysphoric disorder and co-morbidities among adolescents in the United State of America and Nigeria. *J Pediatr Adolesc Gynecol.* 2011 Dec; 24(6):397-403.

24. Perkonigg A, Yonkers KA, Pfister H, Lieb R, Wittchen HU. Risk factors for **premenstrual** dysphoric disorder in a community sample of young women: the role of traumatic events and posttraumatic stress disorder. *J Clin Psychiatry.* 2004 Oct; 65(10):1314-22.

25. Freeman EW, Halberich U. **Premenstrual syndrome.** *Psychopharmacol Bull.* 1998; 34:291-95.

26. Gehlert S, Hartlage S. A design for studying the DSM-IV research criteria of **premenstrual** dysphoric disorder. *J Psychosom Obstet Gynaecol.* 1997 Mar;18(1):36-44.