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Full Length Research Paper

Correlates and self-management strategies of premenstrual dysphoric disorder (PMDD) among nursing students in a Nigerian teaching hospital

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Premenstrual dysphoric disorder (PMDD) is a severe premenstrual disorder characterized by distressing symptoms and significant impairments in personal, social and professional functioning. The study aimed to determine the magnitude of Premenstrual syndrome (PMS) and PMDD among nursing students of Usmanu Danfodiyo University Teaching Hospital (UDUTH) Sokoto State, Nigeria. A cross-sectional survey of 135 consenting female nursing students (basic and post basic) at UDUTH, Sokoto State Nigeria was conducted. Participants were interviewed using Socio-demographic and reproductive questionnaire, and Premenstrual Syndrome Screening Questionnaire (PMSSQ). Diagnosis of PMS and PMDD were made using Diagnostic and Statistical Manual 4th revised edition (DSM IV). Data were analyzed using Statistical Package for Social Sciences version 20th. Premenstrual syndrome affected 76.3% of the participants while 42.2% had PMDD. Among the participants, 9.6% suggested appropriate self-management strategy. The frequently reported symptoms of PMDD among the participants were reduced interest in school activities (54.9%), difficulty in concentration (57.0%), excessive sleep (47.8%), breast tenderness (54.5%) and interference with daily activities (41.5%). PMS and PMDD was prevalent among the nursing students. Majority lack appropriate self-treatment strategy. This strongly suggest the need to further educate the students on the implication of the disorder and the need to seek for expert management in severe cases. Self-management of Selective Serotonin Reuptake Inhibitors (SSRI's) should be discouraged.

Key words: Premenstrual syndrome, premenstrual dysphoric disorder, nursing students.

INTRODUCTION

Premenstrual syndrome (PMS) is used to describe physical, cognitive, affective, and behavioral symptoms that occur cyclically about a week before menstruation and resolve quickly at or within a few days of the onset of menstruation (Braverman, 2017).

Premenstrual dysphoric disorder (PMDD) is the severe form of PMS. The fourth edition of the Diagnostic and Statistical Manual of mental disorders (DSM-IV) requires a woman to have at least 5 out of 11 mood and physical symptoms to be diagnosed as having PMDD. One of the five symptoms must be a mood symptom, which includes depressed mood, anxiety, mood lability, or irritability.

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Other symptoms include fatigue, sleep changes, appetite changes, decreased interest, concentration difficulty, feeling overwhelmed or out of control, and physical symptoms such as breast tenderness, bloating, or headaches (DSM-IV). The DSM-IV also states that the symptoms must not merely be an exacerbation of another disorder. These symptoms should interfere with the normal activities of a woman, including social, occupational interpersonal and even the sexual functioning, are not related to any organic and functional disease (DSM-IV). The premenstrual syndrome is particularly common in the younger age groups and therefore represents a significant public health problem in young girls (Balaha et al., 2010).

PMDD is associated with reduction in health related quality of life and women with PMDD have greater work productivity impairment than women without PMDD (Lovibond and Lovibond, 1995). A smaller subset meet criteria for PMS and less than 10% of them are diagnosed as having PMDD (Mishell et al., 2015).

Adewuya et al. (2008), in a study of Nigerian university students reported that the prevalence of PMDD was 6.1% and the correlates included older age and painful menstruation. Women with PMDD report significant impairment in personal relationships, compromised work levels and increased absence from work, school, or college (Vigod et al., 2010).

The prevalence rates reported in both prospective and retrospective studies were between 4.6 and 6.7% (Steiner et al., 2013). Hiroko et al. (2015) reported that most (84.3%) of the Japanese students studied had at least one or more symptoms of premenstrual distress. Premenstrual distress interfered with normal school activity in 51.2%. Most participants (57.1%) did not perform any self-care strategies for premenstrual distress. Nursing students who engage in a wide range of clinical duties during their learning in clinical settings share similar stressors as professional nurses' experience. In addition, nursing students also have stress related to their educational studies and personal/social experience (Pryjmachuk and Richards, 2007). The stress nursing students experience may interfere with their endocrine function, precipitate menstrual cycle disorders and promote the occurrence of PMD (Chung et al., 2005).

We considered that PMS and PMDD is relatively under-investigated area of psychiatry in Nigeria; hence, this study was planned. This study aimed to investigate the prevalence, correlates, common symptoms and treatment strategies of PMS and PMDD among nursing students in a Nigerian teaching hospital.

MATERIALS AND METHODS

Study design and population

A descriptive cross-sectional study was utilized in conducting this study among nursing students of Usmanu Danfodiyo University Teaching Hospital (UDUTH) Sokoto State, Nigeria from March to June 2016. Usmanu Danfodiyo University Teaching Hospital is located in Wamakko LGA, Sokoto State, Nigeria. It is a tertiary health institution with about 700 bed capacity, serving as referral center to several hospitals within the North-Western Nigeria. It was commissioned in 1989 to provide preventive, curative and rehabilitative services for people living within and around the state. It serves as training centre for several medical and paramedical courses at both undergraduate and postgraduate levels. The nursing school is located within the hospital. The hospital has 285 medical doctors (consultants, residents, medical officers and residents), 599 nursing staff, 38 pharmacists, 142 laboratory staff, 9 physiotherapists and 4 imaging scientists.

All the nursing students of the teaching hospital, 18 years and above, willing to give written informed consent, were invited to participate in the study. Those that were pregnant were excluded from the study.

Sample size and sampling procedures

One hundred and thirty-five students that met the inclusion criteria completed the Pro-forma questionnaire and Premenstrual Syndrome Screening Questionnaire (PMSSQ). Diagnosis of PMS and PMDD were made using Diagnostic and Statistical Manual 4th revised edition (DSM IV). Using the prevalence of 36.1% previously reported in a study in Nigeria (Issa et al., 2010), the optimum sample estimated for this study was 354. Since the total population of the participants in this study was less than 354, the whole population of students was studied.

Data collection procedures

Instruments

Pro-forma questionnaire: The questionnaire consisted of 21 questions that included a number of demographic and reproductive variables. Question on treatment approach was also included with combined close and open responses.

Premenstrual symptoms screening questionnaire: It is the screening tool developed by Steiner et al. (2003) which reflects and "translates" categorical DSM-IV-TR criteria (DSM-IV, 2000) into a rating scale with degrees of severity. It includes 14 items assessing premenstrual symptoms of mood, anxiety, sleep, appetite, and physical symptoms. It also includes functional impairment items of five different domains. Pre-test was done before the actual data collection started on 10 female students.

Data collection

All the questionnaires were self-administered. Data collection facilitators were trained by the principal investigator for two days, especially on how to create conducive environment for the respondents during data collection and how to give clarity, if there is any need. Following an orientation, respondents filled the questionnaire in private by arranging their seat far apart from one another.

Data analysis

Data were analyzed using the Statistical Package for the Social Sciences (SPSS version 20). The different socio-demographic and reproductive variables were presented, compared and analyzed using x^2. Odd ratio with confidence interval were used to determine

the predictors of PMDD. A p value of < 0.05 was considered significant.

RESULTS

Socio-demographic characteristics

A total of 135 individuals were interviewed and all of them returned their questionnaires giving a response rate of 100%. The age of respondents ranges between 18 to 38 years with the mean age of 23.3±4.1 years. Majority of the respondents (64.4%) were single, 80.7% were in basic nursing program while 19.3% were in post-basic class. Only 8.1% were using contraceptives.

The age at menarche ranged between 9 and 18 years with mean of 14.1±1.7 years. This study revealed that majority (90.4%) had menstrual cycle length of more than 28 days. Other sociodemographic and reproductive characteristics of the respondents were shown in Table 1.

Prevalence of PMS and PMDD among the basic and post basic nursing students

Table 2 showed that the number of respondents who reported PMS (at least one symptom 1-7 days prior to menstruation in the last 12 months) was 103(76.3%). Among these, 57(42.2%) of them fulfilled the diagnostic criteria for PMDD.

Frequency of premenstrual symptoms

Table 3 showed that the most common five symptoms felt by the respondents were fatigue/reduce (71.6%), difficulty in concentration (57.0%), anxiety/tension (55.2%), decreased interest in school (54.9%) and breast tenderness (54.5%). The most common five psycho-behavioral premenstrual symptoms reported by the respondents were fatigue (71.6%), difficulty in concentration (57.0%), anxiety/tension (55.2%), decreased interest in school (54.9%) and feeling tearful (45.5%). In addition, 41% of the respondents reported isolating themselves.

Associated factors of PMDD and predictors of PMDD

This study revealed that menstrual cycle flow interval was significantly associated with PMDD (x^2=4.301, p=.038). More (69.2%) of those that have longer days (>28 days) of menstrual cycle interval have PMDD compared to 39.3% of those that have shorter duration (less than 28 days) of menstrual cycle interval (OR= 0.9 95% CI 0.8–0.9). Having painful menstruation was significantly associated with PMDD (OR= 1.9, 95% CI 1.4-1.9). Tables 4 and 5 showed details of the chi-square and odd ratio for various determinants of PMDD.

Self-management strategies of PMDD

Table 6 showed the various self-treatment strategies suggested by the participants. Only 9.6% suggested appropriate drug (Specific Serotonin Reuptake Inhibitors, SSRI's) for the management of PMDD. Majority (71.6%) suggested the use of analgesic drugs.

DISCUSSION

To our knowledge, this is the first study to investigate the prevalence of PMS/PMDD among nursing students in Nigeria. Previous studies in Nigeria have been carried out among medical students and non-medical university students.

PMS and PMDD were diagnosed among 76.3 and 42.2% of the nursing students in this study respectively. This parallels finding from the study of Delara et al. (2013) on the prevalence and associated factors of PMDD among Iranian adolescents. It was reported in their study that 99.5% met the criteria for PMS diagnosis and 59% had PMDD. Another study in Iran among university students, also reported that 36.3% of subjects had Premenstrual Dysphoric Disorder (PMDD) and 85.6% of subjects had PMS. Compared to our study, a lower prevalence (36.1%) of PMDD was reported in a study among Nigerian university students (Issa et al., 2010). The rate of PMS being higher than PMDD among any given population, can be because PMS by definition requires only one or more affective or somatic symptoms .The justification for such difference depends on varied definitions; methods of data collection, sampling technique and the type of study population. Another reason for the high prevalence in our study might be due to problems associated with retrospective study of this nature with tendency to amplify the recall of symptoms' severity and frequency by these women (Pearlstein and Steiner, 2008). High prevalence rate of PMDD among participants of the current study could also be attributed to academic stress among nursing students or can be justifiable by the fact that the vast majority of participants are single and young. Higher levels of stress and higher "daily hassles" scores have been identified as risk factors for PMDD by population-based studies (Perkonigg et al., 2004).

In the current study, the overall most frequently reported symptom was easy fatigue/ lack of energy (71.6%). Similar findings was reported among college students in India (Bakhshani et al*.,* 2009; Nourjah, 2008). In contrast to our study, fatigue/lack of energy was the third most common symptom reported in other studies (Tabassum et al*.,* 2005; Nisar et al*.,* 2008 and Pearlstein et al*.,* 2005). Some studies reported the most frequent symptom to be abdominal bloating (Balaha et al., 2010; Khella, 1992). In contrast, Derman et al. (2004) reported that the most common symptom was depression. This

Table 1. Socio-demographic and reproductive characteristics of the respondents.

Variable	Frequency (%)
Age(years)	
18-22	78(57.8)
23-27	35(25.9)
28-32	17(12.6)
>32	5(3.7)
Marital status	
Single	87(64.4)
Married	48(35.6)
Program of study	
Basic nursing	109(80.7)
Post basic nursing	26(19.3)
Use of contraceptives	
Yes	11(8.1)
No	124(91.9)
Types of contraceptives	
Nil contraceptives	124(91.9)
Oral	2(1.5)
Injectable	7(5.2)
Others	2(1.4)
Age of onset of menstruation(years)	
≤14	79(58.5)
>14	56(41.5)
Days of menstruation	
≤5	96(71.1)
>5	39(28.9)
Days of menstrual cycle length	
≤28	122(90.4)
>28	13(9.6)

difference may be due to different cultural and socio-demographic variables. We strongly believed that the stress associated with nursing training could have contributed to the high prevalence of fatigue/lack of energy among the participants in our study.

We also found that 54.9% of students with PMDD reported decreased interest in school activities; concentration in class (57.0%) and sleeping more than usual (47.8%). This is comparable to what was reported among female medical students in Saudi Arabia where 37% of students with PMDD reported greater impairment of daily activities; concentration in class (48.3%), attending college (46%), going out of the home (43.8%), daily home chores (42%) and homework tasks (36%) (Balaha et al., 2010). Academic absence and low achievement was significantly more frequent among college students with PMDD (Montero et al., 1999 and Tenkir et al., 2003).

Like earlier studies, we found significant association between longer duration of menstrual cycle interval, painful menstruation and PMDD. Odd ratio, 95% CI also indicates that these two factors predict the diagnosis of PMDD among the participants in our study. This replicates finding of previous studies (Steiner et al., 2003; Issa et al., 2010; Nourjah 2008). No statistically significant association was found between age of the

Table 2. Prevalence and distribution of PMS and PMDD in different sub groups.

Program of study	PMS cases	PMS non cases
Basic Nursing students	80(73.4)	29(26.6)
Post Basic Nursing students	23(88.5)	3(11.5)
	PMDD cases	**PMDD non cases**
Basic Nursing students	45(41.3)	64(58.7)
Post Basic Nursing students	12(46.2)	14(53.8)

Table 3. Prevalence (%) of each symptom of PMS/PMDD.

Symptoms	Frequency (%)
Depression	51(38.1)
Anxiety/tension	74(55.2)
Tearful	61(45.5)
Anger/irritable	58(43.6)
Decrease interest in school activities	73(54.9)
Difficulty in concentration	77(57.0)
Easy fatigue	96(71.6)
Specific food craving	41(30.6)
Poor sleep/sleeping more than usual	64(47.8)
Feeling out of control	24(18.01)
Breast tenderness	73(54.5)
Symptoms interfere with relationships	56(41.5)

participants, age at onset of menstruation, duration of days of menstruation and PMDD in our study. This is consistent with previous findings (Steiner et al., 2003; Issa et al., 2010). Contrary to the findings in our study, Balaha et al. (2010) reported that PMDD had significant association with older age group.

A few of our participants suggested correct treatment strategy using SSRI's. This was corroborated by what was reported by Haideh and Ashram (2014) in Jordan. In their study, participants mainly reported use of analgesics (54.7%), hot fluid intake (53.5%) while 1.9% reported use of SSRI's. Our study suggested that most of the students use over the counter analgesics as self-treatment strategy, which reflect significant unmet medical need for these nursing students. This is a form of drug abuse which should be discouraged. Improving clinical identification of these students by mental health physicians and increasing awareness of the participants will have a lot of short and long term benefits.

Limitations

1) Inability of measuring symptoms directly and application of retrospective and self-reported data which can lead to some memory errors in the recorded data can be mentioned as the limitations of the current study.

2) The number of participants used were smaller than the optimum sample size estimated.

CONCLUSION AND RECOMMENDATIONS

PMDD is a common problem among nursing students in UDUTH, Sokoto State, Nigeria. Decrease in school activities, lack of energy and difficulty in concentration were prominent among the psycho-behavioral symptoms. Most of the students could not suggest appropriate treatment for the disorder.

1) The findings from this study might be useful for planning of health care for young women with PMDD. Therefore, holding workshops, adding a chapter to some courses (like family planning) to raise students' general information about physiology of menstruation and the relationship between hormonal changes are highly recommended. Given that in the present era, many women are involved in social, occupational, educational, familial issues and other responsibilities, if one may not find a solution for these individuals, the community will suffer from its many complications.
2) Self-management using SSRI's should be discouraged among the students.
3) Further research in this area seems essential.

Table 4. Socio-demographic and reproductive characteristics associated with PMDD.

Variable	PMDD cases {f (%)}	Non PMDD cases {f (%)}	Statistics	
			X^2	p-value
Age				
≤22	35(44.9)	43(55.1)	0.532	0.466
>22	22(38.6)	35(61.4)		
Marital status				
Single	38(43.7)	49(56.3)	0.213	0.645
Married	19(39.6)	29(60.4)		
Program of study				
Basic	45(41.3)	64(58.7)	0.204	0.651
Post basic	12(46.2)	14(53.8)		
Age at onset of menstruation				
≤14	29(36.7)	50(63.3)	2.373	0.123
>14	28(50.0)	28(50.0)		
Days of menstruation				
≤5	42(43.8)	54(56.2)	0.318	0.573
>5	15(38.5)	24(61.5)		
Days of menstrual cycle length				
≤28	48(39.3)	74(60.7)	4.301	0.038
>28	9(69.2)	4(30.8)		
Having painful menstruation				
Yes	39(48.1)	42(51.9)	4.402	0.029
No	17(32.1)	36(67.9)		

Table 5. Predictors of PMDD.

Variable	OR	95% CI	p value
Age	1.3	0.7-2.6	0.466
Age at onset of menstruation	0.5	0.3-1.2	0.123
Days of menstruation	1.2	0.6-2.7	0.573
Having painful menstruation	1.9	1.4-1.9	0.029
Menstruation cycle interval	0.9	0.5-0.9	0.038

OR- odd ratio; CI- confidence interval.

Table 6. Suggested treatment strategies for PMS/PMDD among the respondents.

Suggested treatment strategies	Frequency (%)
SSRI's	13(9.6)
Analgesics drugs	96(71.6)
Anti-inflammatory drugs	77(57.0)
Others	58(43.6)

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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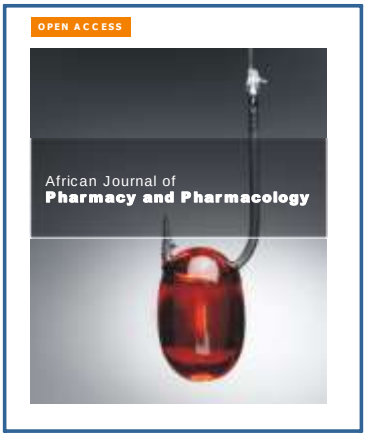

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