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ORIGINAL ARTICLE

PREMENSTRUAL SYMPTOMS SCREENING AND SELF-MEDICATION AMONG WOMEN IN RIYADH, SAUDI ARABIA

Elham Alshammari ✉, Khlood Aldossary

Department of Pharmacy Practice, College of Pharmacy, Princess Nourah bint Abdulrahman University, Riyadh, Saudi Arabia

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Summary

Most women experience some premenstrual symptoms regularly. Because of this, PMS/ PMDD has emerged as a 20th century phenomenon, mostly since women now have better control over reproduction. The symptoms associated with these conditions may be minimal, moderate, or severe depending on the ratings of the symptoms recorded daily. Women also continue to report lower levels of productivity in the 5 to 10 days after the start of menses. As part of exploring these conditions, the study sought to examine the screening of premenstrual symptoms and self-medication acts among women in Riyadh, Saudi Arabia. The findings were as follows. There were 56 participants in the study, with their ages ranging between 18 and 54. Most of the participants were also either working or students. Regarding diagnosis, nearly half of the sample (n=27, 48.2 %) were diagnosed as normal, while 4 out of 10 study participants (n=23, 41.1 %) had PMS. Additionally, 10.7 % were diagnosed as having both PMDD and PMS. On self-medication, the findings revealed that 1 out of every 2 study participants (n=28, 50 %) self-medicated to ease PMS/PMDD. Among the 28 persons, only 17 (60.17 %) had PMS/PMDD. These findings suggest that nearly half of persons who did not have PMS/PMDD self-medicated themselves thinking that they had PMS/PMDD. The findings of this study provide government and other policymakers with the data required to inform debate and to increase access to public health. Having established a sensible belief that PMS may substantially affect women in Saudi Arabia, further studies might estimate the magnitude of the problem.

Key words: premenstrual syndromes (PMS); premenstrual dysphoric disorder (PMDD); disease burden; women

Introduction

In order to maintain wellbeing and prevent, diagnose, and treat illness, it is important to document health throughout a woman's lifespan (1-5). In the recent past, premenstrual syndrome (PMS) has surfaced as a well-recognized phenomenon for which useful treatments are available. PMS is a definite clinical disorder that arises because of an erratic central nervous system reaction to the hormonal changes occurring in the course of the female

✉ Princess Nourah bint Abdulrahman University, College of Pharmacy, Department of Pharmacy Practice, Riyadh, Saudi Arabia
ejalshammari@pnu.edu.sa

reproductive cycle (6). Over 90 % of women show they get some premenstrual symptoms, such as bloating, moodiness, and headaches (7). The disorder has turned out to be an issue facing the 20th century and beyond, mostly because women now have a better capacity to manage their reproduction. PMS may have an effect on women during any phase of their reproductive cycle. However, a common belief is that PMS mostly affects older women. This belief may have arisen from the possibility that many people easily attribute mood swings during teenage hood to the hormonal changes and heartbreaks experienced during adolescence rather than as an effect of menstrual cyclicity. For some women, PMS symptoms can be so severe that they miss work or school, but milder symptoms may not bother others (6, 7).

A similar but more serious health problem is the premenstrual dysphoric disorder (PMDD). Many researchers attribute this condition for causing serious irritability, depression, or anxiety in a week or two before a woman's period begins (7). These symptoms, however, usually disappear two or three days after the period starts. Epidemiological studies reporting the prevalence of PMS base their evaluation on the criteria for PMDD stipulated in the Diagnostic and Statistical Manual of Mental Disorders, 4th ed. (DSM-IV). Based on this criterion, a woman diagnosed with PMDD must show a minimum of five emotional and physical symptoms in two successive menstrual cycles. Most studies estimate PMDD prevalence to be between 3 % and 9 % (8).

Risk factors include a timing aspect (dominated by neurotransmitters), a menstruation aspect (entailing physiological alterations coming before menses), and a vulnerability aspect (encompassing personality, susceptibility to depression, and attitude towards menstruation). One study using a sample from a French population-based survey categorized risk factors into three groups: hormonal, psychosocial, and physiological. Life stressors and exogenous hormonal exposure were also found to have the most substantial impact on women diagnosed with PMS. Generally, PMS symptoms seem to have a varying impact on women but tend to generate greater irregularity in the syndrome than recognized earlier (8).

The symptoms of PMS, PMDD, and major depression do overlap and are at times under-identified or under-emphasized. Using a sample of 118 female nursing students or staff ranging in age between 18 and 40 years, PMS symptoms were reported in 67 % of the population, PMDD in 10 %, and depressive symptoms in 28 % of the study sample. The findings also showed that 46.4% of those with depressive symptoms also had major depression. In this regard, major depression among the study participants was mostly associated with PMS symptoms severity and the occurrence of PMDD. These findings imply gynecologists need to evaluate subjects for depression and refer them to professionals specialized in mental health as early as possible during routine clinical practice (9).

PMDD is often associated with an increased burden of illness which develops from the severity of symptoms. The burden of illness may also arise from the chronicity of the condition and the impairment in work, activities, and relationships. Most women with PMDD have a higher chance of endorsing hours missed from work, decreased productivity, limitations in their roles, and reduced effectiveness. Besides, women diagnosed with PMS reported substantially poorer quality of life, decreased work productivity, increased rate of absenteeism, compromised relationships with others, and more visits to health providers. There is also an economic burden associated with PMDD, which mostly emanates from the self-reported decrease in productivity rather than direct costs of health care (10).

The economic burden of PMS and PMDD has been examined in previous scholarly work. In one case, the economic burden affiliated with PMDD was quantified by assessing women's use of health care services, related expenditures, loss of work, limitation of roles, and reduced productivity. The authors indiscriminately selected women aged between 21 and 45 years from an organization specializing in health maintenance in northern California. The study sample provided prospective symptom ratings every day and survey data on their use of health care and productivity for two menstrual cycles. Depending on the ratings of daily symptoms recorded, the women were classified as having minimal, moderate, or severe premenstrual symptoms or PMDD. The outcome of the study showed that women with PMDD reported higher degrees of luteal phase productivity impairment compared to those with minimal symptoms. Women diagnosed with PMDD also indicate reduced productivity levels within 5 to 10 days after the menses begin. The chances that a woman could use health care services increase as the severity of the symptoms increases. Based on these findings, the burden associated with PMDD occurs basically in reported productivity decrements (11).

The impact of premenstrual syndrome and premenstrual dysphoric disorder on a woman's quality of life has also been examined extensively. It is evident that premenstrual symptoms are distressing for up to 20 % of women in their reproductive ages. These symptoms are also associated with the impairment of interpersonal or workplace functions for about 3-8 % of the women. Research has estimated that women affected with PMS and PMDD by extension experience severe symptoms for close to 3,000 days while they are still reproductive. Until recently, no recognizable treatment for acute premenstrual syndrome was existent (12). Most women experiencing the condition either did not seek help or pursued treatment unsuccessfully from at least three clinicians for a period of over 5 years.

The harm and inferior quality of life resulting from PMDD is like that of dysthymic disorder and major depressive disorder. Despite the significant impact, PMS/ PMDD is still less recognized in significant epidemiological studies published in recognition of the burden associated with the condition. Research studies show that the burden of PMS/PMDD and the disability adjusted life years (DALY) lost because of the repeated-cyclic disorder is the same as that experienced in major recognized disorders. Proper acknowledgment of the disorder and its outcomes should contribute towards the treatment of more women diagnosed with PMS/PMDD. Efficacious treatments are now available capable of reducing personal suffering and the impact this can have on the family, society, and the economy (13).

Following the above introduction and review of literature, the current research aims to:

1. Screen whether PMS/PMDD are present among women in PNU campus, Riyadh, Saudi Arabia in order to effectively avoid, support or be familiar with the symptoms.

2. Find out whether these women are self-medicating or not during their PMS.

Materials and methods

To meet the objectives of the study, the study followed a qualitative approach. The premenstrual symptoms screening tool (PSST) (14) was used. The link to the survey was sent to study participants starting December 2020, using the WhatsApp and email mediums. Participation in the study was completely voluntary, and study participants were only reminded once to take part in the study to increase the response rate. The study sample included women in their reproductive years over 18 years old and who had regular menstrual cycles living or studying at PNU campus, Riyadh, Saudi Arabia who will be invited to complete the PSST voluntarily.

Statistical analysis

The data obtained were analyzed using the Statistical Package for Social Scientists SPSS software version 25, Chicago, IL, USA. Statistical significance set as $p<0.05$.

Results

Demographic Characteristics and other specific sample details

There were 56 participants in the study. The age of those participants ranged between 18 and 54. Most of the participants were distributed among 3 age groups: 18-24 (n = 22, 39.3 %), 25-34 (n = 19, 33.9 %) and 35-44 (n = 11, 19.6 %). Table 1 represents the complete age distribution of the participants. A majority of the participants were either working (n = 30, 53.6 %) or a student (n = 25, 44.6 %). Further, ¾ or over 75 % of the participants had a regular menstrual cycle. Table 1 shows a detailed illustration of these findings.

Diagnosis summary

Nearly half of the sample (n = 27, 48.2 %) were diagnosed as normal while 4 out of every 10 persons (n = 23, 41.1 %) had PMS. 10.7 % were diagnosed as having both PMDD and PMS. These findings are shown in Table 2.

Table 1. Demographic characteristics of the sample.

Variable		Frequency (Percentage)
Age	18-25	30 (17.9 %)
	26-35	42 (25 %)
	36-45	42 (25 %)
	46-55	41 (24.4 %)
	56-65	13 (7.7 %)
Occupation	Working	30 (53.6 %)
	Student	25 (44.6 %)
	Housewife	1 (1.8 %)
Have a regular menstrual cycle	Yes	43 (76.8 %)
	No	10 (17.9 %)
	Not sure	3 (5.4 %)

Table 2. Diagnosis summary.

	Frequency	Percent	Valid Percent	Cumulative Percent
PMS	23	41.1	41.1	41.1
PMDD and PMS	6	10.7	10.7	51.8
Normal	27	48.2	48.2	100.0
Total	56	100.0	100.0	

The effect of age, occupation and regularity menstrual cycle on the type of diagnosis

To identify the effect of age, occupation, and the regularity of the menstrual cycle on the type of diagnosis, three Fisher's exact test were conducted. Earlier, the plan was to conduct Chi-square tests. However, the violation of certain assumptions paved the way for the Fisher's test.

Age

According to the Fishers test, age had a significant effect on the diagnosis (See Table 3), $p = 0.002$. As shown in Table 3, young persons are much likely to diagnosed with PMS or both the PMDD and PMS. 91.31 % of the persons who were diagnosed with PMS belonged to the 18-24 (n = 10, 43.48 %) and 25-34 (n = 11, 47.83 %) age groups. Further, persons who were diagnosed with both PMDD and PMS were in the 18-24 (n = 6, 100 %) age group. Normal persons within the other age groups didn't have a distinctive pattern (See Figure 1). All the normal participants were distributed fairly and evenly across the age groups.

Table 3. Fisher's exact test: age group vs. diagnosis.

Age group	Diagnosis			
	PMS	PMDD and PMS	Normal	Total
18-24	10	6	6	22
	43.48	100	22.22	39.29
25-34	11	0	8	19
	47.83	0	29.63	33.93
35-44	2	0	9	11
	8.7	0	33.33	19.64
45-54	0	0	4	4
	0	0	14.81	7.14
Total	23	6	27	56
	100	100	100	100

```
         Pearson chi2(6) = 20.6803   Pr = 0.002
likehood-ratio chi2(6) = 23.8834   Pr = 0.001
          Cramér's V =  0.4297
               gamma =  0.4780  ASE = 0.149
     Kendall's tau-b =  0.3163  ASE = 0.103
      Fisher's exact =                 0.002
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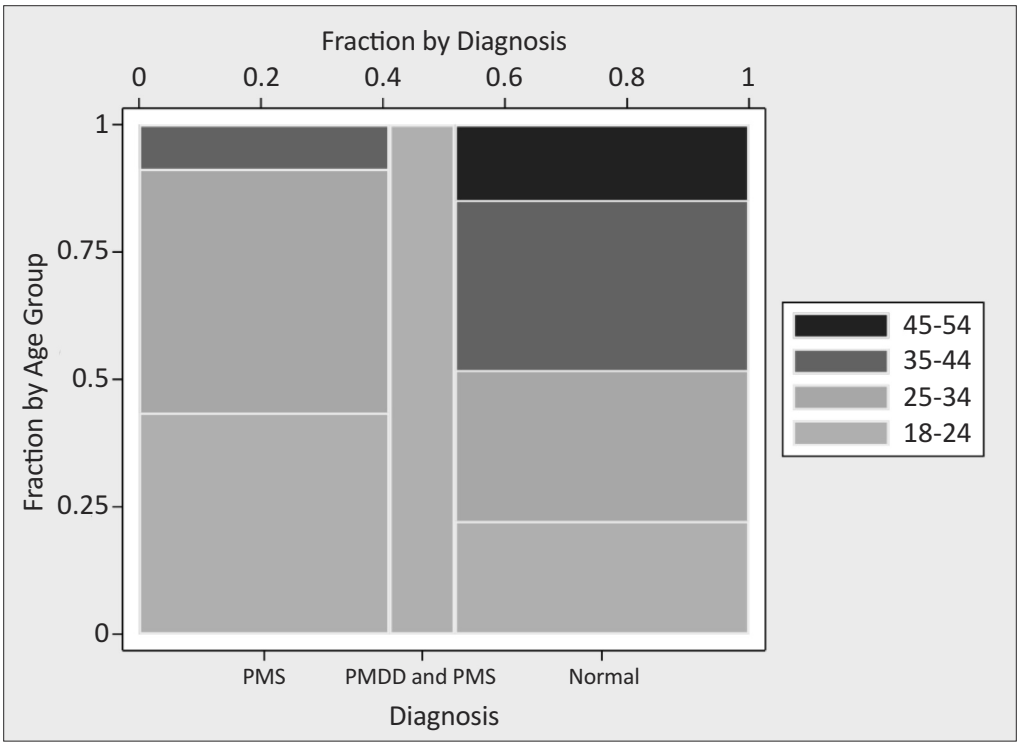

Figure 1. Spine plot: age vs. diagnosis.

Occupation

Occupation also had a significant effect on the diagnosis, $p = 0.002$. The findings showed that young persons are much more likely to be diagnosed with PMS along with a combination of PMDD and PMS. The cross-tabulation shown in table 4 showed that a majority of the persons who were diagnosed with PMS (n = 12, 52.17 %) and PMDD, PMS (n = 6, 100 %) were students (see Table 4 and Figure 2). The findings also showed that a majority of the normal persons were working (n = 20, 74.07 %). Hence, working persons were observed to be at a lower risk of PMDD or PMS.

Table 4. Fisher's exact test: occupation vs. diagnosis.

Occupation	Diagnosis			
	PMS	PMDD and PMS	Normal	Total
Working	10 43.48	0 0	20 74.07	30 53.57
Student	12 52.17	6 100	7 25.93	25 44.64
Housewife	1 4.35	0 0	0 0	1 1.79
Total	23 100	6 100	27 100	56 100

```
          Pearson chi2(4) = 13.7346   Pr = 0.008
likehood-ratio chi2(4) = 16.3773   Pr = 0.003
             Cramér's V =  0.3502
                  gamma = -0.5029  ASE = 0.178
        Kendall's tau-b = -0.3054  ASE = 0.122
         Fisher's exact =                0.002
```

Having a regular menstrual cycle

The findings also showed that having a regular menstrual cycle had no significant effect on the diagnosis, $p = 0.202$. This indicates the fact that although certain people think they don't have regular menstrual cycles, there is a possibility that they could be diagnosed with PMDD or PMS (see Table 5).

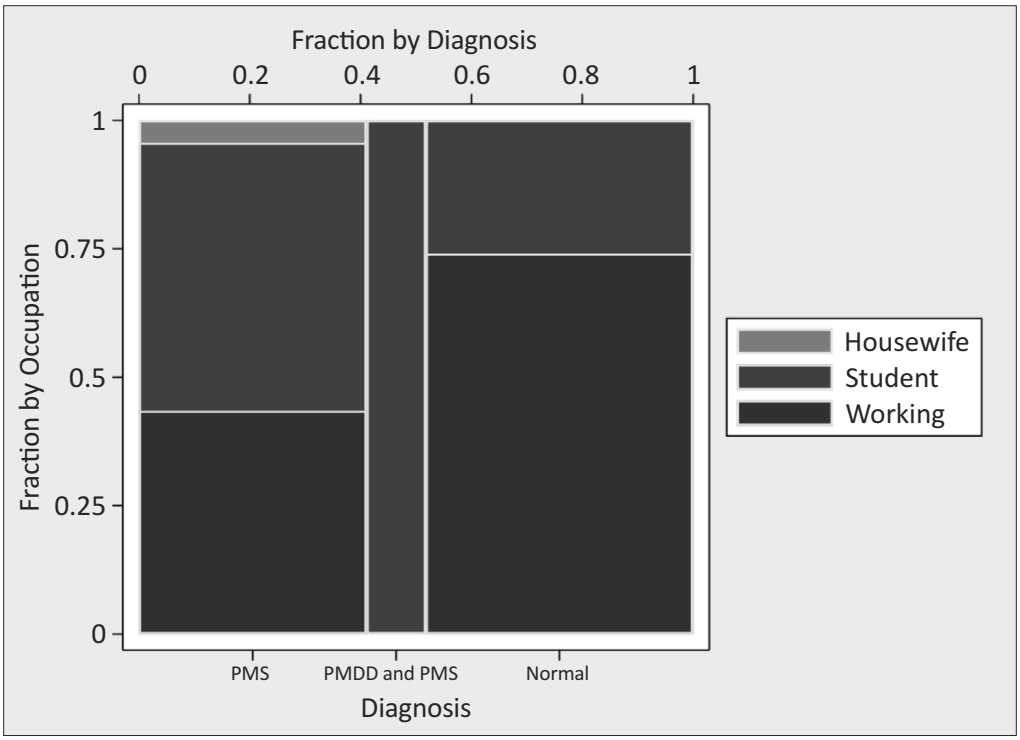

Figure 2. Spine plot: occupation vs. diagnosis.

Table 5. Fisher's exact test: regular menstrual cycle vs. diagnosis.

Have regular menstrual cycle?	Diagnosis			
	PMS	PMDD and PMS	Normal	Total
No	2 8.7	3 50	5 18.52	10 17.86
Not sure	1 4.35	0 0	2 7.41	3 5.36
Yes	20 86.96	3 50	20 74.07	43 76.79
Total	23 100	6 100	27 100	56 100

```
          Pearson chi2(4) =  6.0325   Pr = 0.197
likehood-ratio chi2(4) =  5.5053   Pr = 0.239
             Cramér's V =  0.2321
                  gamma = -0.2446  ASE = 0.227
        Kendall's tau-b = -0.1222  ASE = 0.114
         Fisher's exact =                 0.202
```

Self-medication

The findings showed that every 1 out of 2 persons (n = 28, 50 %) self-medicated to ease PMS/PMDD. Of the 28 persons, only 17 (60.71 %) had PMS/PMDD. This means nearly 40 % (39.29 % to be exact, n = 11) of persons who did not have PMS/PMDD self-medicated themselves assuming that they had PMS/PMDD. These findings suggest that there is certainly a need for a self-evaluation method to diagnose PMS/PMDD (see Table 6).

Preferred preparation method and medications

The respondents were evenly distributed among three preparation methods: herbal (n = 11, 19.64 %), pharmaceutical (n = 16, 28.57 %) and both herbal and pharmaceutical methods (n = 16, 28.57 %). Among the medications taken to ease PMS/PMDD, paracetamol, tea, cinnamon and Ibuprofen were mostly highlighted. These findings are highlighted in Table 7.

Table 6. Crosstabulation diagnosis vs. self-medication.

Diagnosis	Self-medicated?			
	I don't have any symptoms	No	Yes	Total
PMS	4	4	15	23
	17.39	17.39	65.22	100
	40	22.22	53.57	41.07
PMDD and PMS	0	4	2	6
	0	66.67	33.33	100
	0	22.22	7.34	10.71
Normal	6	10	11	27
	22.22	37.04	40.74	100
	60	55.56	39.29	48.21
Total	10	18	28	56
	17.86	32.14	50	100
	100	100	100	100

Table 7. Preferred preparation method.

Do you prefer using herbal or pharmaceutical preparation?	Freq.	Percent	Cum.
Herbal	11	19.64	19.64
I don't have symptoms that require treatment	4	7.14	26.79
None	9	16.07	42.86
Pharmaceutical	16	28.57	71.43
Take both	16	28.57	100
Total	56	100	

Discussion

From the study findings, most women experience PMS/PMDD. The results further showed that at least half of the women self-medicated to ease the effects of PMS/PMDD. These findings are consistent with previous studies that have examined the burden of disease among women diagnosed with PMS/PMDD (10-13). The findings of this study provide leaders and other policymakers with the data required to inform debate and to increase access to public health. Considering that a majority of women develop PMDD while in the later phases of life and others experience these symptoms with a lower rate of severity, the resulting weight of disease in Saudi Arabia is probably much higher. The findings also show that self-medication practices were mostly associated with higher premenstrual severity. Having established a sensible belief that PMS may substantially affect women in Saudi Arabia, further studies might estimate the magnitude of the problem.

Conclusion

The study sought to screen whether PMS/PMDD are present among women in PNU campus, Riyadh, Saudi Arabia, in order to avoid, support, or be familiar with the symptoms. The study also examined whether these women are self-medicating during their PMS. From the findings, PMS is common among women in Saudi Arabia. Besides, at least half of these women self-medicate to ease the effects of PMS/PMDD. Additional studies are needed to evaluate the effect of the condition on women in Saudi Arabia.

Conflicts of interest

Authors have declared that no competing interests exists.

Adherence to ethical standards

Institutional review board IRB log number with KACST, KSA: 20-0430.

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