The Impact of Premenstrual Disorders on Health-related Quality of Life (HRQOL)

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ABSTRACT

Objective: The purpose of the present study was to examine the impact of premenstrual symptoms on health related quality of life (HRQOL) in a sample of Iranian women.

Method: In this cross-sectional study, a sample of women aged 15–45 years, who lived in Tehran were randomly recruited according to demographic questionnaire. For diagnosing the premenstrual dysphoric disorder and premenstrual syndrome, Premenstrual Symptoms Screening Tool (PSST) was used in this study. The Short Form Health Survey (SF-36), and the Premenstrual Symptoms Impact Survey (PMSIS) were administered to evaluate health-related quality of life.

Results: Among 430 women, 44% had PMS, 16% met the diagnostic criteria for Premenstrual Dysphoric Disorder (PMDD) and 40% were in General Population (GP) group. The SF-36 scores showed that in all dimensions except for physical functioning there were statistically significant mean differences among the three groups. Also, women with premenstrual dysphoric disorder and PMS group had significantly different social function, validity, and mental health. Comparing the Premenstrual Symptoms Impact Survey scores between the three groups mean, scores of feeling frustration, fatigue and mood swings for the premenstrual dysphoric disorder were significantly higher than the two other groups.

Conclusion: Premenstrual symptoms have significant impact on health-related quality of life assessed by SF-36 and PMSIS, specially on mental and emotional domains.

1. Objective

Remenstrual dysphoric disorder refers to physiological, psychological and behavioural changes repeatedly occurring in the luteal phase of the female reproductive cycle and remitting shortly after the onset of menses, and is characterized by irritability, emotional lability, headache, anxiety, depression and somatic symptoms such as edema, weight gain, breast pain, syncope, and paresthesias. These symptoms causing distress and disturbing everyday functions and interpersonal relationships and are associated with significant social and professional impairment (Gonda et al, 2008). The pres-ence of physical or behavioral symptoms in the pre-menstruum, without the required affective symptoms, likely meets criteria for premenstrual syndrome and not for premenstrual dysphoric disorder while premenstrual syndrome shares the feature of symptom expression during the premenstrual phase of the menstrual cycle, it is generally considered to be less severe than premenstrual dysphoric disorder (DSM-5).

During the menstrual period, up to 80 percent of all women experience some alteration in mood, sleep, or somatic symptoms during the premenstrual period, and about 40 percent of these women have at least mild to moderate premenstrual symptoms prompting them to

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seek medical advise. Also, 1/3 to 1/8 percent of women have symptoms that meet the full diagnostic criteria for PMDD (Sadock & Sadock 2007; DSM-5).

Diagnostic and Statistical Manual of Mental Disorders, fifth edition (DSM-V) -proposed revision place PMDD under the Mood Disorder section rather in the Appendix, maintaining most diagnostic criteria in DSM-IV and recent studies have shown more attention to premenstrual dysphoric disorder.

According to the criteria of DSM-5 for PMDD, impairement in one or more aspects of daily functions provides a diagnostic tool for determining the severity of the problem, in other words symptoms must have effect on a sphere of women's life, such as work, studies, usual activities or relationships, but many women who do not meet the PMDD criteria also seek treatment for premenstrual symptoms that disrupt their life.

In this regard, Dennerstein et al (2010) found that up to 35% of women with reproductive age in Europe and Latin America were moderately or severely affected in activities of women's daily life (ADL) by cyclical premenstrual symptoms. This study show that daily activities are also highly correlated with the severity of symptoms and women`s function, social life and interpersonal relations are also impaired in premenstruum.

Studies have also shown the existence of premenstrual symptoms, regardless of the severity and number of symptoms was associated with a significant decrease in quality of life (Dean et al. , 2008).

In another study (Pearlstein et al, 2000) found that women with PMDD had Social Adjustment Scale scores in the follicular phase similar to those of community norms, but in the luteal phase, the scores were similar to women with major depression, indicating a cyclical effect on quality of life associated with the cyclical nature of premenstrual symptoms.

In contrast with the number of studies on premenstrual symptoms and their impact on Western populations, to our knowledge only a few studies on limited samples have evaluated the impact of premenstrual symptoms on women's quality of life who live in Iran.

Two investigations evaluated the health-related quality of life (HRQOL) in a sample of Iranian female who suffered from PMS or PMDD and found that the quality of life was significantly lower in the affected group. Both studies were conducted on samples of adolescents and used the SF-36 to measure health-related quality of life (Delara et al, 2012; Bakhshani, 2009).

Considering the high prevalence of premenstrual dysphoric disorder (15. 9 to 4.9%) and PMS (33 to 48 percent) in Iranian women (Talaei et al, 2009; Shahpoorian etal, 2007; Siahbazi et al, 2011), it is necessary to investigate the impact of premenstrural symptoms among larger samples with different age groups and using a disease-specific tool along with a generic measure to assess health-related quality of life.

Therefore, the objective of the present study was to assess the impact of premenstrual symptoms on health-related quality of life and daily activities of women.

2. Method

The study sample and design

This study was a cross-sectional survey. On the basis of the Census, Statistical Center of Iran in 2011, a representative sample of women aged 15 – 45 years, who lived in Tehran and were not pregnant at the time of the interview, were randomly recruited according to demographic quotas, primarily for age and secondarily for marital Status, then the Short Form Health Survey (SF-36), Premenstrual Symptoms Screening Tool (PSST) questionnaire and the Premenstrual Symptoms Impact Survey (PMSIS) was administered.

Measures

Using the Short Form Health Survey (F-36), quality of life was measured. The SF- 36 is a generic instrument consisting of eight subscales: physical functioning, physical role, body pain, general health, vitality and social functions, emotional role, and mental health. Scores in each subscale ranged from zero to 100, zero representing the worst HRQOL and 100 representing the best possible score. Previous evaluations of the original as well as the Persian version of the SF-36 indicated good reliability and construct validity (Montazeri et al., 2005). Internal consistency coefficient of eight scales was between 0.70 to 0.85, and test-retest coefficient with an interval of one week has been reported between 0.43 to 0.79. In this study, Cronbach's alpha coefficient of the total scale was 0.89 and eight dimensions were as follows: physical activities 0.86, physical role 0.72, body pain 0.76, general health 0.63, vitality 0.75, social activities 0.60, emotional role 0.68, and mental health 0.81.

The presence and severity of premenstrual symptoms were assessed using a slightly modified version of the PSST. The PSST consists of 19 items, 14 premenstrual symptoms, and 5 functional items, in line with DSM-V criteria. Participants were asked to rate the extent to which they experience each symptom during the late luteal phase and stopping within a few days of bleeding and the extent to which the symptoms interfere with each functional domain. Internal consistency were evaluated by using Cronbach's alpha. The value of this index for the symptoms was 0.90, and the impact of symptoms on life was 0.91 and the total questions was 0.93 (Siahbazi et al, 2011). In this study, Cronbach's alpha coefficients for the symptoms was 0.87, and in the life impact of symptoms was 0.85, and for total questions was 0.90. The Premenstrual Symptoms Impact Survey (PMSIS), is a six-item instrument that was designed to evaluate the impact of premenstrual symptoms on a woman's health-related quality of life. PMSIS is a reliable and valid tool for evaluating the HRQOL impact due to premenstrual disorders. All reliability coefficients were above conventional thresholds (0.7 for Cronbach's alpha, 0.4 for inter-item correlations, 0.7 for intraclass correlation). PMSIS can be used as a self-evaluation tool for women suffering from premenstrual disorders (Wallenstein et al., 2008).

Also, a questionnaire used for collecting data on demographic and menstrual characteristics of the study sample. Demographic part included questions about socio-demographic information such as age, marital status, employment. The other part included questions about menstrual characteristics such as the severity of menstrual bleeding, the length of menstrual bleeding, menstrual cycle duration and age of menarche.

3. Results

After completing the questionnaire, on the basis of scores in PSST, the sample was divided into three

groups: patients with premenstrual dysphoric disorder, premenstrual syndrome, and general population; then statistical analysis was performed for these three groups (Table 1).

As shown in table 2, the means of menarche, duration of menstrual bleeding, and length of menstrual cycle in all three groups were not significantly different (P<0.000). Overall, mean age of menarche was 13. 20 (SD = ±1.49) years, the mean duration of menstrual bleeding was 6. 56 (SD = ± 1.58) days, and the mean length of menstrual cycle was 26. 49 (SD = ± 5.34) days.

Other demographic characteristics are presented in Tables 3 and 4. In PMS group, 3% of the participants reported mental illness, (16%) physical illness, and (18%) using drug at the time of interview. These rates in the other groups were as follows: In PMDD group, (14%) reported mental illness, (21%) physical illness, and (24%) using drug; in GP, (1%) reported mental illness, (12%) physical illness, and (14%) using drug.

The comparisons of the SF-36 scores among women with and without PMDD and PMS are shown in Table 5. Results of between-groups analysis of variance (ANOVA) show that in all dimensions except for physical functioning, there were statistically significant mean differences among the three groups (P<0.001). T test showed that the scores of general population were significantly higher in all measures (P<0.0001) except for physical function (P< 0.059). Also, the score of women with PMDD were significantly lower in social function-

Table 1. Frequency and percentage of samples in the three groups.

	Frequency	Percent
PMS	190	44
PMDD	71	16
General Population	169	40

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Table 2. The mean and standard deviations of menstrual characteristics in three groups.

	PMS		PMDD		GP		df	F	P
	Mean	SD	Mean	SD	Mean	SD			
Menarche	13.7	1.48	13.14	1.57	13.27	1.46	2	1.85	0.158
Duration of menstrual bleeding	6.57	1.56	6.42	1.65	6.60	1.57	2	0.317	0729
Length of menstrual cycle	26.52	5.57	27.57	4/93	26.06	5.20	2	1.89	0.151

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Table 3. Demographic and menstrual characteristics of the study sample (n=430).

Age Groups (Year)	PMS N. (%)	PMDD N. (%)	GP N. (%)
15-19	20 (10.5)	11 (15.5)	18 (11)
20-24	41 (22)	11 (15.5)	26 (15.5)
25-29	38 (20)	20 (28)	41 (24)
30-34	38 (20)	9 (13)	36 (21)
35-39	24 (12.5)	10 (14)	27 (16)
40-44	29 (15)	10 (14)	21 (12.5)
Marital Status			
Single	78 (41)	31 (44)	68 (40)
Married	104 (55)	39 (55)	97 (57)
Divorced	8 (4)	1 (1)	4 (3)
Level of Education			
High school	27 (14)	13 (18.5)	21 (12)
Diploma	44 (23)	19 (27)	50 (30)
BA	87 (45)	24 (34)	65 (39)
MA	32 (18)	15 (21.5)	33 (20)
Employment			
Student	41 (22)	19 (27)	37 (22)
Employed	53 (28)	18 (25)	57 (34)
Housekeeper	96 (50)	34 (48)	75 (44)

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ing, vitality and mental health (P< 0.0001) rather than PMS group. In the following, the distribution of the SF-36 scores in the three groups are presented (Fig.1).

We used ANOVA to compare the three groups on the PMSIS subscales (Table 6). As can be seen, there was a significant difference between the three groups.. The result of T test showed that mean scores of feeling frustration, fatigue and mood swings for the premenstrual dysphoric disorder was significantly higher than pre-

menstrual syndrome (P<0.001). There were no significant differences in tension, keeping from socializing and limited ability to concentrate in both groups (P<0.001).

The mean scores in premenstrual syndrome and premenstrual dysphoric disorder in all subscales were significantly higher than the general population (P<0.001).

As shown in Fig 2, all of the items were similarly affected by premenstrual symptoms, but the three groups

Table 4. Health status.

	PMS N. (%)		PMDD N. (%)		GP N. (%)	
	Yes	No	Yes	No	Yes	No
Mental illness	5 (3)	185 (97)	10 (14)	61 (86)	1 (1)	168 (99)
Physical illness	30 (16)	160 (84)	15 (21)	56 (79)	21 (12)	148 (88)
Drug use	35 (18)	155 (82)	17 (24)	54 (76)	24 (14)	145 (86)

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Table 5. Means, standard deviations, univariate F-tests and between groups comparison for the 3 groups on SF-36 subscales.

	PMS Mean	SD	PMDD Mean	SD	NC Mean	SD	F	P	Post hoc
Physical functioning	75.52	22.39	79.08	21.46	80.71	18.67	2.85	0.059	N S
Social functioning	60.39	20.62	48.76	24.47	75.14	19.52	45.71	0.001	NC>PMS>PMDD*
Role physical	63.94	33.77	57.04	40.12	73.81	31.55	7.16	0.000**	NC>PMS,PMDD*
Role emotional	49.64	37.52	40.84	38.29	63.90	38.90	11.11	0.000**	NC>PMS,PMDD**
Mental health	59.20	18.59	47.49	21.41	67.55	18.38	28.81	0.000**	NC>PMS>PMDD*
Vitality	55.57	18.34	41.76	21.81	62.18	18.75	28.59	0.000**	NC>PMS>PMDD*
Bodily pain	62.27	21.77	54.97	26.62	71.47	22.26	14.97	0.000**	NC>PMS,PMDD**
General health	63.44	15.87	59.43	19.54	68.57	17.19	8.27	0.000**	NC>PMS,PMDD**

**P<0.001, * P> 0.05

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differed in severity of impact and mood swings and fatigue were the most affected in three groups.

4. Conclusion

The results of this study showed that except for physical function in other aspects of quality of life, PMS and PMDD groups and non-clinical populations were significantly different. Based on these findings, women with PMDD reported a poor health-related quality of life as measured by the SF-36. They specially reported poorer conditions on mental health, vitality and social activities.

Also, studying the effects of symptoms by PMSIS showed that PMDD group have higher scores in feel frustration, mood swings, and fatigue. Findings in both scale showed that premenstrual symptoms had greater impact on mental and emotional health-related quality of life domains than on physical health-related quality
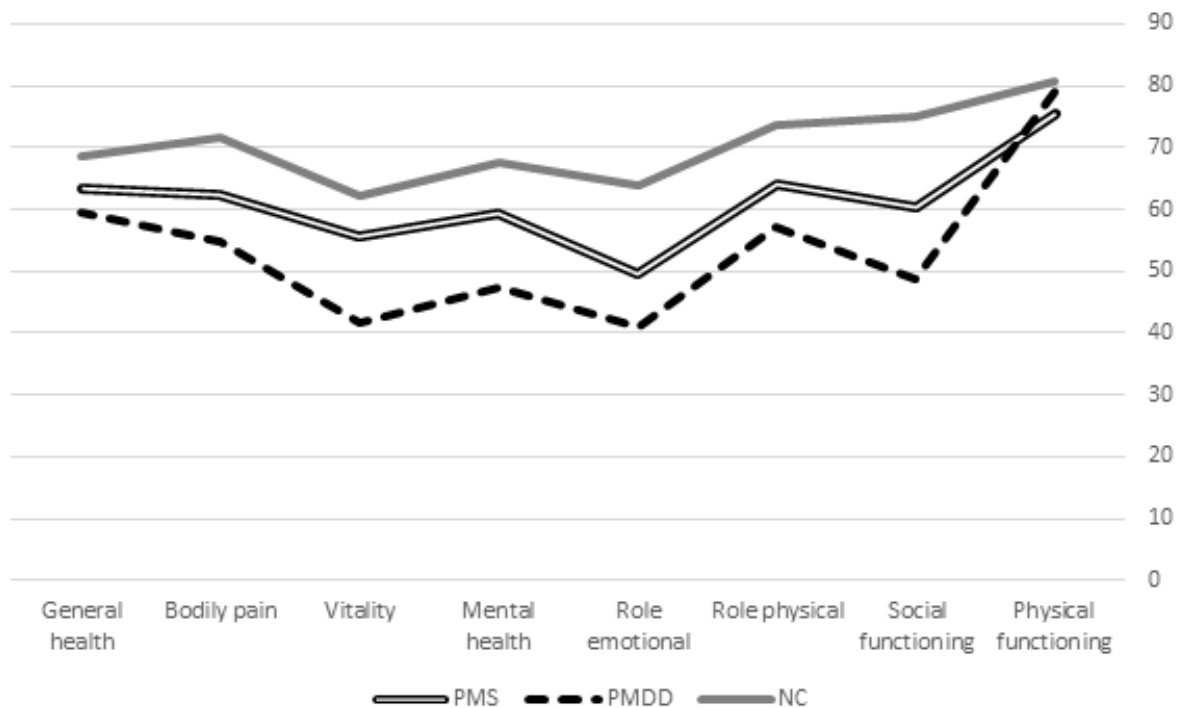

Figure 1. Means of scores in SF-36 subscales for 3 groups.

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Table 6. The mean and standard deviation and variance analysis of three groups on PMSIS subscales.

	PMS Mean	PMS SD	PMDD Mean	PMDD SD	NC Mean	NC SD	F	P	Post hoc
Feeling frustration	2.48	0.96	3.01	1.08	1.91	0.99	33.70	0.000**	PMDD> PMS >NC**
Mood swings	3.13	0.97	3.77	0.94	2.35	1.10	54.69	0.000**	PMDD> PMS >NC**
Limited ability to concentrate	2.53	0.87	2.80	1.15	1.94	0.92	26.91	0.000**	PMDD, PMS >NC**
Tension	2.85	1.16	2.85	1.13	2.37	1.12	12.58	0.000**	PMDD, PMS >NC**
Fatigue	3.01	0.98	3.35	1	2.55	1.05	18.15	0.000**	PMDD> PMS >NC*
Keeping from socializing	2.34	0.90	2.54	1.13	1.83	0.79	21.47	0.000**	PMDD, PMS >NC**

**P<0.001, * P> 0.05

of life domains. This indicating the necessity of further attention of psychologists and other mental health professionals to this disorder.

Similarly, Dean et al (2006) found that the presence of PMS (with variations in the number of symptoms and their severity) was associated with significant reduction in health-related quality of life (measured with the SF-36 short form), particularly on the mental subscale. A study using the SF-12v2 (the shortened version of the SF-36) also found that women either at risk for PMS or PMDD were significantly more likely to report limitations than women with no indication of PMS in all

health-related quality of life areas except for two physical function items and one mental health item and the general health item (Yang et al, 2010).

In Iran, the findings of study by Delara et al (2012) confirm that adolescents with premenstrual disorders suffer from poor health-related quality of life. It was found that there were significant differences between students with and without PMDD in all measures except for physical activity. These differences were more evident on emotional role, physical role, social activities and body pain.
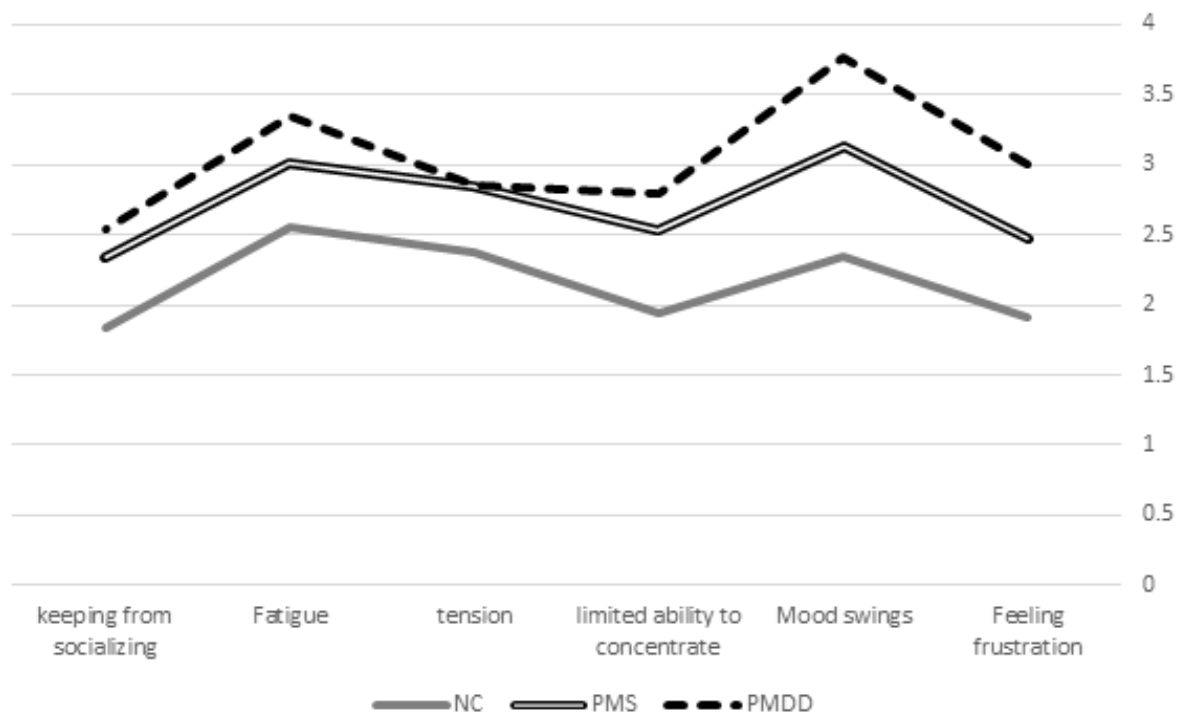

Figure 2. Means of scores in PMSIS subscales for 3 groups.

The finding from this study also revealed that women with PMS and PMDD were different in feel frustration, mood swings, and fatigue. This is similar to the differential diagnosis criteria of DSM-5 for premenstrual syndrome and premenstrual dysphoric disorder. Wallenstein et al (2008), also concluded that the PMSIS can be used to distinguish different clinical groups and is able to discriminate between those participants who are at risk for PMDD or PMS and those who are not.

In this study, retrospective questionnaire was used for diagnosing PMDD and PMS that can affect the reported symptoms, clinical interview along with retrospective questionnaire or using prospective and concurrent daily checklists that lead to more accurate diagnosis.

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