

The Symptomatology and Prevalence of Symptoms of Premenstrual Syndrome in Manisa, Turkey

Hakan ADIGÜZEL, E. Oryal TAŞKIN, Ayşen Esen DANACI

Abstract

Objective: The aim of this study was to investigate the prevalence of premenstrual syndrome (PMS) symptoms, the frequency and severity of the symptoms, and their association with sociodemographic variables in fertile women between the ages of 15 and 49 years.

Method: The study included 541 women living in the area of the 7th Primary Health Care Center of Manisa, Turkey. Face-to-face interviews were conducted and a sociodemographic data form, a DSM-IV diagnostic criteria form, and the premenstrual evaluation form (PEF) were administered. In the analysis of the data, K-means cluster analysis was performed and cluster analysis with 3 categories according to the severity was used. In the evaluation of the 18 subscales possible maximum variation quotient is obtained by dividing the maximum possible PEF score to the scores the subjects got. In the group comparison analyses, chi-square test for the categorical variables, and t-test for continuous variables were used.

Results: Among the study group, 6.1% had severe PMS symptoms and 72.2% of these women had some dysfunction as defined by DSM-IV. The most common symptoms were feeling irritable and restless (72%), anxiety (67.3%), feeling fullness, discomfort or pain in the abdomen (66.6%), lack of energy or easily fatigued (66.6%), and fatigue in the legs (65.5%).

Conclusion: The prevalence of the risk of PMS was 6.1%. The most common and severe PMS symptoms were feeling irritable and restless.

Key Words: Premenstrual syndrome, prevalence, premenstrual dysphoric disorder

INTRODUCTION

Premenstrual syndrome (PMS) is defined as the recurrence of psychological, behavioral, and physical symptoms which consistently occur in the late luteal phase and remit in the follicular phase of the menstrual cycle (Petersen, 1987). This syndrome is called premenstrual dysphoric disorder (PMDD) in DSM-IV under the cluster of not otherwise specified depressive disorders (American Psychiatric Association, 1994). PMDD is briefly defined as mood and behavior changes, and physical symptoms seen during the luteal phase, which resolve completely with the cessation of menstrual flow (Pearlstein and Stone, 1998). For the diagnosis of PMDD, the patient must experience 5 or more of the DSM-IV criteria, functionality should be affected, and

the symptoms should be present at least for 2 consecutive menstrual cycles. In this regard, PMDD can be defined as a more severe form of PMS (Yonkers, 1997a). Two different diagnoses and lack of agreement in the definition of PMDD resulted in difficulties in the diagnosis of premenstrual symptoms.

It is known that PMS symptoms are highly prevalent. When mild symptoms are also included, the prevalence rate rises to 90% (Andersch et al., 1986; Chang and Hutchinson, 1991; Wilson and Key, 1989; Yonkers, 1997a). The prevalence of severe and moderate PMS symptoms ranges from 2% to 88% (Andersch et al., 1986; Angst et al., 2001; Halbreich et al., 2003; Wilson and Key, 1989). In studies conducted with large samples the prevalence of PMDD ranges from 1% to 8% (Cohen et al., 2002; Gehlert and Hartlage, 1997; Hal-

breich et al., 2003; Perkonigg et al., 2004; Wittchen et al., 2002).

It is known that more than 150 symptoms can be seen during the premenstrual period; however, the most important symptoms are mood and behavioral changes (Condon 1993; Yonkers and Davis, 2000). The most prevalent mood symptoms are depressive mood, irritability, anxiety, and instability in the personality traits and emotionality. The most prevalent physical symptoms are breasts tenderness, decreased energy, edema, increased appetite and weight gain, headache, and stomachache. Social withdrawal, increase in sexual activity, and hostility are among the most frequent behavioral symptoms (Danacı et al., 2001; Gehlert and Chang, 1999; Huerta, 1993; Kolarov and Sirakov, 1996; Mao and Chang, 1985; Maskall and Law, 1997; Plouffe et al., 1993; Severino and Hurt, 1989; Steiner and Wilkins, 1996; Wilson and Keyes, 1989).

PMS symptoms can start at any time following menarche. Although the age of onset was reported as 26 years, PMS is a disorder that begins during adolescence, but symptoms are not severe (Freeman et al., 1993; Yonkers 1997a). PMS symptoms are more severe in women aged between 25 and 35 years in comparison to other age groups and symptom severity decreases with age (Yonkers 1997b; Yonkers 1997a). Findings related to PMS symptoms and oral contraceptives, age, and number of pregnancies are controversial (Özmenler et al., 1997; Gehlert and Hartlage 1997; Huerta, 1993; Khella, 1992; Yonkers, 1997a; Halbreich 1996; Freeman and Halberich, 1998).

In population-based studies conducted in Turkey the prevalence of PMS and/or PMDD was reported as 5.9%-76%, whereas the prevalence of PMDD was 4%-8% (Gökkurt 1999; Müderris et al., 1999; Üstün et al., 2003). However, there have been very few studies conducted on this subject in Turkey. Therefore, the present study aimed to investigate the prevalence of premenstrual syndrome (PMS) symptoms, the frequency and the severity of the symptoms, and their association with sociodemographic variables in fertile women between the ages of 15 and 49 years in Manisa, Turkey.

METHOD

Sample

The research was conducted with women living in the Manisa city center. There are 9 primary health centers in the city center; the study was conducted with women

living in the area of 7th Primary Health Care Center of Manisa. We chose this center because it serves both rural and urban populations due to its location, and in addition, the health personnel were willing to participate and receive training. Based on the census data at the health center, there were 7651 women living in the area. The following formula was used to compose the sample that would represent the women of the area: $n = (t 0.05)^2 p (1-p) D/d^2$, where

n = number of individual that would be included in to the sample

$(t 0.05)^2 = (\alpha = 0.05)$ square of the t statistics

p = predicted prevalence

d^2 = pattern effect (2)

D = margin of error.

The predicted prevalence for this study was (p) 7% and the margin of error was (d) 3%. When these values were placed in the formula, the sample size was 556:

$$S = (t 0.05)^2 p (1-p) D/d^2 = (1.96)^2 \times 0.07(0.93) \times 2 / (0.03)^2 = 556.$$

With a randomized for the study, 556 women aged between 15 and 49 years, based on the census data, were included. When a chosen subject was not reached after 2 attempts or met the exclusion criteria, another subject was chosen. The exclusion criteria were as follows: 1. Pregnancy; 2. History of ovary or total hysterectomy; 3. Postmenopausal; 4. Having a physical or psychological illness that would interfere with answering the study questions. As a result, 541 women were included in the study.

One important facet of this study was the participation of health personnel who had close relationships with the study group. The majority of the women in the Manisa do not go to physicians for PMS complaints, do not think of PMS as an illness, and are reluctant to talk about their symptoms with others. The 8 midwives in the study underwent a 6-hour DSM-IV PMS criteria, especially loss of functionality, training course provided in 3 separate sessions.

Following the training, the midwives conducted their first 5 interviews under the supervision of a physician from the research team. Notes were taken about some of the interviews and these were discussed in a subsequent meeting. The health care center was regularly visited by the research team in order to control any difficulties or problems related with the study. Two team meetings with

Table 1. Sociodemographic characteristics of the sample.		
Descriptive	Number	%
Occupation		
Housewife	474	87.6
Working	67	12.4
Education		
Illiterate	22	4.1
Literate	10	1.8
Primary school	339	62.7
Secondary school	40	7.4
High school	113	20.8
University	17	3.1
Marital Status		
Married	479	88.6
Single	51	9.4
Widow	11	2.0
Income level		
High	32	5.9
Medium	357	66.1
Low	152	28
Physical Illness		
Yes	37	6.8
No	504	93.2
Medication use		
Yes	39	7.2
No	502	92.8
History of pelvic surgery		
Yes	28	5.2
No	513	94.8
Postnatal psychiatric disorder		
Yes	40	7.4
No	501	92.6
History of psychiatric disorder		
Yes	54	10.0
No	487	90.0
Current psychiatric disorder		
Yes	12	2.2
No	529	97.8
Psychiatric disorder in first-degree relatives		
Yes	32	5.9
No	503	9.3
Unknown	6	1.1

the interviews were conducted during the study.

MATERIALS

Sociodemographic Questionnaire

The questionnaire consisted of 12 questions about profession, age, education, marital status, economical status, physical illness, medication, history of pelvic surgery, postpartum psychiatric illness, psychiatric illness in

first-degree relatives, birth control, and characteristics of the menstrual cycle and menstrual irregularities.

DSM-IV diagnostic criteria

The form collects data related to DSM-IV PMDD criteria, including the following symptoms that start in the luteal phase, which remit in the follicular phase, and are evident for 2 consecutive menstruations: markedly depressed mood; hopelessness; self-deprecating thoughts; marked anxiety; tension; marked affective lability; persistent and marked anger or irritability; decreased interest in usual activities; subjective sense of difficulty concentrating; subjective sense of being out of control; lethargy; easily fatigued; marked change in appetite; hypersomnia or insomnia; other physical symptoms, such as breast tenderness, headache, and bloating.

Premenstrual Assessment Form (PAF)

The PAF (Halbreich et al., 1982) consists of 95 self-rating items. The Turkish reliability and validity study was conducted by Dereboy et al. (1994) with nursing students. The items are rated on a 6-point scale of severity ranging from one point for no change to 6 points for extreme change. PAF includes 18 subscales. The ratio of the row score of a subscale to the highest score in that subtest constitutes the possible maximum quotient. PAF subscales are: 1. Depressive mood; 2. Endogenous depressive characteristics; 3. Liability; 4. Atypical depressive characteristics; 5. Hysteroid characteristics; 6. Hostility/anger; 7. Social isolation; 8. Anxiety; 9. Increase in positive feelings; 10. Impulsivity; 11. Organic mental characteristics; 12. Water retention; 13. Physical distress; 14. Autonomic changes;

15. Fatigue; 16. Disruption in social functionality; 17. Various mood/behavioral changes; 18. Various physical changes.

Statistical Evaluation

Data were analyzed with SPSS for Windows v.10.0 package program. Student's t-test was used in the detection of mean values (age, menstrual cycle), and chi-square test was used in all the analyses. K-means cluster analysis was used in detecting the group at risk for PMS, and three-way cluster analysis was used. Women were divided in to 3 groups according the severity of premenstrual symptoms (mild, moderate, and severe). The severe group was accepted to be the risk group for PMS. In the evaluation of the 18 PAF subscales, the scores of diagnosis and undiagnosed group were subtracted and in

Table II. Cluster analysis of the sample according to PDF.

	Number	%	Mean score	Std. deviation
1st Cluster: Mild	323	59.70	5.61	3.36
2nd Cluster: Moderate	185	34.20	9.72	2.65
3rd Cluster: Severe (With PMS diagnosis)	33	6.10	12.06	2.65
Total	541	100	7.41	3.83

addition, the possible maximum quotient was calculated for each subscale.

FINDINGS

The sociodemographic characteristics of the 541 women are presented in Table I. The mean age of the sample was 30.941 years (SD: 7.531 years; range: 15-49 years), 5.25% of the women had a history of pelvic surgery ($n = 28$), 7.4% ($n = 40$) reported postpartum psychiatric illness, 22.2% ($n = 12$) of the women reported a current psychiatric disorder, and 5.9% ($n = 32$) reported a psychiatric disorder in a first-degree relative (Table I). The mean frequency of menstruation of women in the sample was once every 15-60 days (28.2 ± 5.4 days), menstrual irregularity was detected in 39.5% ($n = 224$) of the women, and 82.2% ($n = 499$) of the women used birth control.

The sample was divided in to 3 groups with K-means cluster analysis, based on the severity of the symptoms (Table II). According to this and PAF cluster analysis, 6.1% ($n = 33$) of the sample had severe symptoms and, therefore, constituted the at risk for PMS group. Only mild and moderate symptoms were detected in 40.3% ($n = 218$) of the sample.

When the relationship between PMS risk and socio-demographic variables was evaluated, the mean age of the women with PMS risk was lower than women without PMS risk. The mean age of women in the severe PMS group was 26.9 ± 7.8 years and mean age of women in the no risk group or low risk group was 31.2 ± 7.4 years. The difference between these 2 groups was statistically significant ($t = 3.191$, $P = 0.002$, Student's t test). Other variables that displayed a significant difference are presented in Table III. There was no relationship between the characteristics of the menstrual cycle, birth control, and PMS risk.

When evaluated in terms of loss of functionality, 29.8% ($n = 161$) of the women experienced loss of functionality. Loss of functionality was experienced in 72.7% ($n = 24$) of the women with PMS risk and 27% ($n =$

137) of the women without PMS risk; the difference was statistically significant ($\chi^2 = 31.03$, $P = 0.0001$).

Among the study women, 32.9% ($n = 178$) thought that PMS is a condition that requires treatment. This percentage was 72.7% ($n = 24$) in the PMS risk group.

PAF includes 18 subscales. The most important changes in the possible maximum change percentage were in the following subscales: subscale 8 (anxiety) (65%), subscale 15 (fatigue) (63.3%), subscale 7 (social isolation) (62%), subscale 3 (lability) (59.4%), and subscale 10 (impulsivity) (57.9%).

The 30 most frequent symptoms according to PAF and the mean severity scores are presented in Table 6. The most common symptoms were feeling irritable and restless (72%), anxiety (67.3%), fullness, discomfort or pain in the abdomen (66.6%), lack of energy or fatigue (66.6%), and fatigue in the legs (65.5%). The most severe symptoms were feeling irritable and restless, fatigue in the legs, chills and/or increased sensitivity to changes in temperature, fullness, discomfort or pain in the abdomen, pain or cramps in the abdomen, and feeling distress.

DISCUSSION

PMS is a common condition in fertile women that affects mental status, behavior, and functionality, and occurs alongside other psychiatric disorders. This study aimed to investigate the prevalence of premenstrual syndrome (PMS) symptoms, the frequency and the severity of the symptoms, and detect the related risk factors. As some PMS symptoms can be seen in all women, the criteria for PMS risk was accepted as perceiving the symptoms as severe, and it was found that 6.1% of the sample were considered to be at risk for PMS. Only mild and moderate symptoms were detected in 40.3% ($n = 218$) of the sample.

In the related literature the prevalence of PMS ranges between 2% and 88%. These results are derived from studies that evaluated only mild and moderate symp-

Table III. The relationship between PMS and sociodemographics.

	PMS		No PMS		Statistical Analysis	
	n	%	n	%	χ^2	P
Occupation						
Housewife	24	5.1	450	94.9	$\chi^2 = 7.17$	0.017 *
Working	9	13.4	58	86.6		
Marital status***						
Married	25	5.2	454	94.8	$\chi^2 = 5.99$	0.050 **
Single	7	13.7	44	86.3		
Widow	1	9.1	10	90.9		
Past history of psychiatric disorder						
Yes	7	13.0	47	87.0	$\chi^2 = 4.93$	0.036 *
No	26	5.3	461	94.7		
Postpartum psychiatric disorder						
Yes	6	15.0	34	85.0	$\chi^2 = 5.97$	0.028 *
No	27	5.4	474	94.6		
Psychiatric disorder in first-degree relatives						
Yes	5	15.6	27	84.4	$\chi^2 = 13.59$	0.001 **
No	26	5.2	477	94.8		
Current psychiatric disorder						
Yes	5	41.7	7	58.3	$\chi^2 = 27.10$	0.000 *
No	28	5.3	501	94.7		

*Fisher's exact chi square test.

**Pearson's chi square test.

***The statistical difference in the analysis that evaluated the effect of marital status is between single and married women.

toms (Özmenler et al., 1997; Gökkurt 1999; Wilson and Keye, 1989; Girolamo et al., 1989; Hurt and Schnurr, 1992). The wide range of prevalence rates is the result of different study methods and different samples. In studies similar to ours that included only severe symptoms or symptoms that lead to loss of functionality for the diagnosis of PMS, the prevalence rates range from 3% to 7.5% (Halbreich et al., 1982; Yonkers, 1997b). In studies conducted in Turkey that used similar methods, the prevalence rates were between 3.3% and 5.9% (Özmenler et al., 1997; Gökkurt 1999).

As a psychiatric interview was not included in our study protocol and DSM-IV does not require retrospective evaluations for PMDD diagnosis, it was not possible to detect the prevalence of PMDD. However, it was found that in women with severe PMS symptoms DSM-IV symptoms were more frequent and loss of functionality was significantly higher. Higher levels of functional loss in cases of severe symptoms have been previously reported (Wilson and Keye, 1989). The loss of functionality rate was 72.7% in our high-risk group.

A high number of symptoms occurring with varying severity and frequency in the premenstrual period were detected. The most common symptoms were feeling ir-

ritable and restless, anxiety, fullness, discomfort or pain in the abdomen, lack of energy or easily fatigued, and fatigue in the legs. The most severe symptoms were feeling irritable and restless, fatigue in the legs, chills and/or increased sensitivity to changes in temperature, fullness, discomfort or pain in the abdomen, feeling distress.

Feeling irritable and restless were the most severe and frequent symptoms. As other mood symptoms followed this symptom in terms of frequency, it was concluded that physical symptoms were perceived to be more severe. The most frequent DSM-IV symptoms in the high-risk group were anxiety, tension, sudden sadness, crying and anger, irritability, numbness, lack of energy, and headache. The frequencies of mood symptoms were higher in this group. Previous studies also found that mood and physical symptoms are the most frequent PMS symptoms (Yonkers and Davis, 2000; Kolarov and Sirakov, 1996; Maskall and Law, 1997; Severino and Hurt, 1989; Gökkurt, 1999; Plouffe et al., 1993; Rivera-Tovar, 1990; Gehlert and Chang, 1999; Wilson and Keye, 1989; Huerta, 1993; Mao and Chang, 1985; Steiner and Wilkins, 1996). Differing from other studies, edema, blurry vision, oily skin and acne, food cravings, and changes in the appetite were found to be less

Table IV. The distribution of premenstrual symptoms according to frequency and severity scores based on PDF.

Symptoms	Frequency (%)	Severity score means
Feeling irritable and restless	72.0	2.52
Anxiety	67.3	2.24
abdominal fullness, discomfort or pain	66.6	2.29
Lack of energy or easily fatigued	66.6	2.13
Fatigue in the legs	65.5	2.34
Pain or cramps in the abdomen	65.1	2.27
Feeling weak	64.0	2.14
Chills and/or increased sensitivity to changes in temperature	62.4	2.31
Backache, joint and muscle pain, or joint stiffness	57.4	2.16
Feeling unhappy and sad	57.4	2.07
Feeling out of control or overwhelmed	57.0	2.19
Thinking about unpleasant events	56.8	2.23
Feeling ill	56.8	2.04
Mental changes in the same day	53.9	2.02
Confusion	53.5	1.90
Tearfulness or crying easily	53.3	2.03
Pain, tenderness, or swelling of the breasts breasts	53.1	2.02
Being pessimistic	52.4	2.02
Wanting to be alone	51.7	1.93
Less pleasure from small things	50.9	1.89
Social avoidance	50.2	1.93
Forgetfulness	49.1	1.88
Doing less housework	49.1	1.84
Heightened sensitivity or unable to tolerate rejection	48.9	1.99
Frequent urination or increase in amount of urine	48.5	1.96
Headaches or migraine	48.3	1.98
Feeling worse in the mornings	48.3	1.83
Not wanting to talk or move	47.8	1.88
Sudden uncontrollable behaviors	47.6	1.85
Dermatological problems, such as acne or boil	47.6	1.79

frequent (Üstün et al., 2003; Gökkurt, 1999; Müderris et al., 1999; Freeman and Halberich, 1998, Plouffe et al., 1993; Dereboy et al., 1994).

When the relationship between sociodemographics and PMS was considered, PMS symptoms were more severe in younger, single, and working women. The mean age of the women with severe PMS symptoms was 26.9

years. Other studies in the literature report more severe PMS symptoms in women aged 25-35 years (Freeman et al., 1993; Yonkers, 1997a).

Although PMS symptoms are reported to generally increase with age (Freeman et al., 1993; Freeman and Halberich, 1998, Özmenler et al., 1997), other studies failed to find a correlation between PMS and age (Gehlert

and Hartlage, 1997). On the other hand, differing from the literature findings, in the present study the number of single and working women was higher in the group with severe symptoms. A relationship between marital status or working status and PMS was not reported in previous studies conducted in Turkey (Özmenler et al., 1997; Müderriş et al., 1999).

There was no significant relationship between PMS diagnosis, and characteristics of the menstrual cycle and birth control in the present study. Previous studies in the literature also report different results on the relationship between number of pregnancies, or children, birth control methods and characteristics of the menstrual cycle and PMS symptoms (Özmenler et al., 1997; Gehlert and Hartlage, 1997; Huerta, 1993; Khella, 1992; Yonkers, 1997a; Halbreich, 1996; Freeman and Halberich, 1998; Graze et al., 1990). Still, it was concluded that PMS complaints are lower in women with less frequent menstruation (Yonkers, 1997b).

The present study revealed a relationship between past or current psychiatric disorders and PMS symptoms. The number of women with postpartum psychiatric disorders, current psychiatric disorders, past psychiatric disorders, and a first-degree relative with a psychiatric diagnosis was higher in the PMS group. There are many studies in the literature that found a relationship between psychopathology and PMS (Harrison et al., 1989; Chau et al., 1998; Yonkers, 1997b). The lifetime prevalence of psychiatric disorder, especially depression, is reported to be very high (Gehlert and Hartlage, 1997).

Among the study women, 67.1% (n = 363) reported

believing that PMS is not a condition that requires treatment. The finding that 72.7% of the women diagnosed with PMS reported that PMS is a condition that requires treatment shows that these women experience important levels of distress due to the symptoms.

CONCLUSION

The prevalence of severe PMS symptoms was 6.1%. The most frequent and severe PMS symptoms were feeling nervous and irritability. Other frequent and severe symptoms were feeling anxious, bloating, irritability and pain, lack of energy and easily fatigued, fatigue in the legs, pain and cramps, and chills and/or more sensitivity to temperature changes. The most frequent symptoms according to DSM-IV are anxiety, tension, sudden sadness, crying, anger, numbness, lack of energy, and headache.

It was found that there was no relationship between the characteristics of the menstrual cycle and birth control, and PMS diagnosis. PMS symptoms are more severe in younger, single, and working women. In addition, it was concluded that PMS is related to other psychiatric disorders.

The most important limitation of this study is that the sample was derived from only one health center in Manisa, Turkey. The study sample was limited to one health clinic due to a lack of time and disinclination of health care personnel to participate. Another important limitation was the insufficiencies in exact and differential PMS diagnoses.

REFERENCES

- American Psychiatric Association (1994) Diagnostic and statistical manual of mental disorders. 4th ed. Washington (DC) 7 American Psychiatric Association.
- Andersch B, Wenderstam, C., Hahn, L., et al., (1986) Prevalence of premenstrual symptoms in a Swedish urban population. *J Psychosom Obstet & Gynaecol*, 5: 39.
- Angst J, Sellaro R, Stolar M et al., (2001) The epidemiology of perimenstrual psychological symptoms. *Acta Psychiatr Scand*, 104: 110-116.
- Chang G, Hutchinson KA (1991) Lifetime psychiatric illness and premenstrual syndromes. *Conn Med*, 55(12): 683-686.
- Chau JP, Phil M, Chang AM (1998) Relationship between premenstrual tension syndrome and anxiety in Chinese adolescents. *J Adolesc Health*, 22: 247-249.
- Cohen LS, Soares CN, Otto MW et al., (2002) Prevalence and predictors of premenstrual dysphoric disorder (PMDD) in older premenopausal women the Harvard study of moods and cycles. *J Affect Disord*, 70: 125-132.
- Condon JT (1993) The Premenstrual syndrome : A twin study. *Br J Psychiatry*, 162: 481-486.
- Danacı AE, Taşkın EO, Koltan SO et al., (2001) Premenstrüel disforik bozuklukta semptomatolojinin adet döngüsüyle ilişkisi *Anadolu Psikiyatri Dergisi*, 2(1): 15-20.
- Dereboy Ç, Dereboy İF, Yiğitöl F (1994) Premenstrüel değerlendirme formunun psikometrik verileri: Cluster analitik bir çalışma. *Turkish Psychiatry Journal*, 5: 83-90.
- Freeman EW, Halberich U (1998) Premenstrual syndrome. *Psychopharmacol Bull*, 34 (3): 291-295.
- Freeman EW, Rickels K, Sondheimer SJ (1993): Premenstrual symptoms and dysmenorrhea in relation to emotional distress factors in adolescents. *J Psychosom Obstet Gynaecol*, 14 (1): 41-50.
- Gehlert S, Chang C (1999) Symptom patterns of premenstrual dysphoric disorder as defined in the diagnostic and statistical manual of mental disorders-IV. *J Womens Health*, 8 (1): 75-84.
- Gehlert S, Hartlage S (1997) A design for studying the DSM-IV research criteria of premenstrual dysphoric disorder. *Psychosom-obstet-gynaecol*. 18 (1): 36-44.

- Girolamo G, Marhitelli G, Corbani R (1989) Premenstrual symptoms and psychiatric morbidity in two Italian health care settings. *Psychother Psycosom*, 52 (4): 187-196.
- Graze KK, Nee J, Endicott J (1990) Premenstrual depression predicts future major depressive disorder, *Acta Psychiatr Scand*, 81: 201-209.
- Gökkurt S (1999) Park eğitim sağlık ocağı bölgesinde 15-49 yaş grubu kadınlarda premenstrüel sendrom Prevalansı. *Türkiye’de Psikiyatri*, 2: 123-132.
- Halbreich U, Endicott J, Schacht S et al., (1982) The diversity of premenstrual changes as reflected in the Premenstrual Assessment Form. *Acta Psychiatr Scand*, 65: 47-65.
- Halbreich U (1996) Reflections on the cause of premenstrual syndrome. *Psychiatr Ann*, 26 (9): 581-584.
- Halbreich U, Borenstein J, Pearlstein T et al., (2003) The prevalence, impairment, impact and burden of premenstrual dysphoric disorder (PMS/PMDD). *Psychoneuroendocrinology*, 28: 1-23.
- Harrison WM, Endicott J, Nee J (1989) Characteristics of women seeking treatment for premenstrual syndrome. *Psychosomatics*, 30: 405-410.
- Huerta MR (1993) Association of physical and emotional symptoms with the menstrual cycle and life-style. *J Reprod-Med*, 38 (6): 448-454.
- Hurt SW, Schnurr P (1992) Late luteal phase dysphoric disorder in 670 women evaluated for premenstrual complaints. *Am J Psychiatry*, 149 (4): 525-530.
- Khella AK (1992) Epidemiologic study of premenstrual symptoms. *Egypt Public Healt Assoc*, 67 (1-2): 109-118.
- Kolarov G, Sirakov M (1996) The premenstrual syndrome in adolescents. *Akush Ginekolo*, 35 (4): 10-11.
- Mao K, Chang A (1985) The premenstrual syndrome in Chinese. *Obstet Gynaecol*, 25 (2): 118-120.
- Maskall DD, Law RW (1997) Seasonality of symptoms in women with late luteal phase dysphoric disorder. *Am J Psychiatry*, 154 (10): 1436-1441.
- Müderriş İİ, Gönül AS, Sofuoğlu S et al., (1999) Genç kadınlarda premenstrüel disforik bozukluk prevalansı. *Klinik Psikiyatri*, 2: 197-201.
- Özmenler KN, Özşahin A, Karlıdere T (1997): Adet öncesi dönemde belirti dağılımının gruplar arası karşılaştırılması. *Bahar Sempozyumları 2 Özet Kitabı*, Antalya, s. 17-22.
- Pearlstein TB, Stone AB (1998) Premenstrual syndrome. *Psychiatr Clin North Am*, 21 (3): 577-90.
- Perkonig A, Yonkers KA, Pfister H et al., (2004) 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*, 65 (10): 1314-22.
- Petersen JL (1987) *Obstetric and Gynecology*. Stoudemire A, Fogel BS(ed), Principles of medical psychiatry, Grune-Stratton. 619-622.
- Plouffe L, Stewart K, Craft KS (1993): Diagnostic and treatment results from a southeastern academic center-based premenstrual syndrome clinic: the first year. *Am J Obstet Gynecol*, 2: 295-299.
- Rivera-Tovar AD (1990) Late luteal phase dysphoric disorder in young women. *Am J Psychiatry*, 147(12): 403-411.
- Severino SK, Hurt S (1989) Spectral analysis of cyclic symptoms in late luteal phase dysphoric disorder. *Am J Psychiatry*, 146 (9): 1155-1160.
- Steiner M, Wilkins A (1996) Diagnosis and assessment of premenstrual dysphoria. *Psychiatric Annals*, 26 (9): 571-575.
- Yonkers KA (1997a) Antidepressants in the treatment of premenstrual dysphoric disorder. *J Clin Psychiatry*, 58: 4-10.
- Yonkers KA (1997b) Anxiety symptoms and anxiety disorders: How are they related to premenstrual disorders. *J Clin Psychiatry*, 58 (Suppl 3): 62-67.
- Yonkers KA, Davis LL (2000) Premenstrual dysphoric disorder. BJ Sadock, VA Sadock (eds); *Comprehensive Textbook of Psychiatry*’de, 7. baskı, Philadelphia, Lippincott Williams and Wilkins, s. 1952-1958.
- Üstün N, Karamustafaloğlu O, Karadağ F et al., (2003) Premenstrüel disforik bozukluğun epidemiyolojisi ve semptom profili. 39. Ulusal Psikiyatri Kongresi Özet Kitabı, Antalya, s. 706-708.
- Wilson CA, Keyes WR (1989) A survey of adolescent dysmenorrhea and premenstrual symptom frequency. *Adolesc Health Care*, 10 (4): 317-322.
- Wittchen HU, Becker E, Lieb R et al., (2002) Prevalence, incidence and stability of premenstrual dysphoric disorder in the community. *Psychol Med*, 32 (1): 119-132.