

Personality and Psychosocial Factors Affecting Premenstrual Syndrome

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ABSTRACT

- Introduction:** Physical and psychological symptoms of premenstrual syndrome (PMS) affect some women experiencing regular menstrual cycles. Symptoms include irritability, depression, anxiety, headache, and breast tenderness/soreness and are presumed to be significantly higher in the late luteal phase than in the follicular phase.
- Aim of the Study:** Is to highlight the personality traits in a sample of women diagnosed with PMS and the degree of perfectionism, and social support system and how those factors are related to psychological symptoms of PMS.
- Subjects and Methods:** Twenty-two female patients suffering from PMS with a mean age of 30.45 ± 4.97 years and 20 healthy control female volunteers with a mean age of 29.05 ± 5.23 years matching the patient group regarding age were included in the study. Both groups were subjected to the following: Diagnosis of PMS using semi-structured clinical interview of the DSM-IV-TR, rating the severity of PMS symptoms based on Daily Symptom Reports (DSR), assessment of personality using the Tridimensional Personality Questionnaire (TPQ), the degree of perfectionism using the Multidimensional Perfectionism Scale (MPS) and social support using the Multidimensional Scale of Perceived Social Support (MSPSS).
- Results:** PMS patient showed significantly higher scores of Harm Avoidance (HA), a subscale of TPQ, higher scores of perfectionism using MPS and lower scores of social support using MSPSS in PMS patients than in control group. Significant correlation was detected between scores of DSR scale and HA subscale of TPQ. Moreover, significant negative correlation was detected between scores of DSR and MSPSS score.
- Conclusion:** PMS patients possess pathological personality traits that had a negative impact on the severity of symptom expression that is to mean, high levels of neuroticism and perfectionism. Moreover, they lack social support, an additional factor that worsen the severity of symptoms of PMS.

key words: Premenstrual syndrome, personality traits, perfectionism.

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INTRODUCTION

Up to 75% of women of reproductive age experience some physical or psychological symptoms attributed to the premenstrual phase of the menstrual cycle¹. This phenomenon is often classified by the generic term premenstrual syndrome or PMS and refers to a combination of symptoms that appear during the week before menstruation and resolve within a week of onset of menses. For most women symptoms are mild and manageable. However, 3–8% of women report premenstrual irritability, tension, dysphoria and mood lability that seriously interfere with daily living and relationships. These women meet diagnostic criteria for Premenstrual Dysphoric Disorder (PMDD), the most severe form of PMS². These symptoms occur specifically during the luteal phase of the menstrual cycle and resolve by the end of menstruation. The exact etiology of PMS remains unknown, although several theories have been proposed implicating ovarian hormones and neurotransmitters. Levels of reproductive hormones have failed to distinguish between

women who reported severe PMS symptoms and women with mild or no symptoms and therapeutic regimes based on the hormonal-etiology assumption have often failed to relieve symptoms. Moreover, there is evidence to suggest that PMS is not a culture-free phenomenon and the degree to which women in different cultures and in different social categories within one society experience mood and distress fluctuations throughout the menstrual cycle, varies significantly. During the past two decades, several bio-psycho- social approaches to the understanding of PMS have been proposed. Others have reasoned that the interpretation is mediated also by the psychological traits and the social context of the individual woman³.

Several studies had long suggested that PMS is associated with personality problems. Whether or not personality variables are implicated is also an important but controversial issue. There have been a number of studies of premenstrual

symptoms and certain personality traits, such as anxiety and neuroticism, but the relationship is still far from clear. Moreover, in a survey of 249 general practitioners, only about half thought that women reporting premenstrual symptoms could be distinguished by particular personality traits⁴.

Perfectionism (e.g., Interpreting mistakes as failures and having very high standards), have strong associations with psychopathology and distress. It is defined as the over-evaluation of, the striving for and achievement of, personally demanding standards. Families in which members are criticized may be weak in support for their members. Perfectionism is triggered when a failure is encountered and when people believe that they are not meeting their own unrealistic standards. Psychological intervention studies for premenstrual symptoms have addressed aspects that could be considered as relating to perfectionism (triggered when a failure is encountered and when people believe that they are not meeting their own unrealistic standards)⁵.

Previous research suggests that the impact may be exacerbated in the context of low levels of social support^{6,8}. Social support in relation to menstrual cycle symptoms has received little attention. Women with premenstrual depression (PMD) sought more social support premenstrually than women without PMD⁹. Therefore, women who perceive themselves to have lower support levels may be more likely to report more premenstrual symptoms.

The purpose of the present study was to highlight the dimensional personality traits in a sample of women diagnosed with PMS as well as assessment of the degree of perfectionism and social support system and how those factors are related to psychological symptoms of PMS.

SUBJECTS AND METHODS

This study was conducted in the period from the 1st of July 2008 to the 30th of June 2009. It included 22 female patients under the age of 45 years with a mean age of 30.45±4.97. They attended the outpatient clinic seeking treatment for PMS. In addition, a control group consisted of 20 healthy female volunteers, matching patients in regard to age (29.05±5.23) were included.

Inclusion criteria:

- Subjects with no previous history of psychiatric diseases.
- Subjects free of chronic and acute physical illness.
- Medication-free subjects at the time of assessment.

Exclusion Criteria:

- Patients with symptoms occurring across the cycle, indicating a concurrent depression or anxiety disorder with premenstrual magnification.
- Patients with medical conditions such as endometriosis, polycystic ovary disease, thyroid disorders, anemia, hyperprolactinemia and other endocrine disorders that mimic symptoms of PMS.

- Patients on oral contraceptives.

After both groups signed written informed consent, they were subjected to the following:

1. **Diagnosis of PMS using semistructured clinical interview of the DSM-IV-TR¹⁰.**
2. **Rating the severity of PMS symptom based on daily symptom reports (DSR)¹¹.**

The DSR listed 17 common symptoms of premenstrual distress: irritability, mood swing, nervous tension, anxiety, depression, feeling out of control, poor coordination, confusion, insomnia, crying, fatigue, food cravings, breast tenderness, swelling, cramps, aches and headache. Subjects were instructed to rate the symptoms at the end of each day using a 5-point scale with the following descriptors: 0= not present at all; 1= minimal, only slightly apparent to you; 2= moderate, aware of symptom but does not affect daily routine; 3=a lot, continuously bothered by symptom and/or symptom interferes with daily activity; 4= severe, symptom is overwhelming and/or unable to carry out daily activity. The subjects started the daily ratings whenever they received the DSR, with a cycle consisting of a complete menstrual cycle (from day 1 of menses to the next day 1 of menses). The DSR scores were calculated in each cycle by summing the ratings of cycle days 510- for the postmenstrual score (day 1 was the first day of menses) and the ratings of the 6 days before the next menses for the premenstrual score.

In addition to meeting the above PMS criteria, which were the basis for the sample selection, 64% of the sample had five or more of the 11 specified symptoms for the diagnosis of PMDD, as described in the DSM-IV-TR¹⁰.

We got 38 consent forms from women; 35 agreed to participate, while 3 declined. Of the 35 women who agreed to participate, 32 returned the questionnaire. Of the 32 women, 30 also returned a daily symptom diary, of whom 29 were not taking hormonal forms of contraception. From these 29 women, 22 had rated two adjacent luteal and follicular phases in their diaries.

3. The Tridimensional Personality Questionnaire (TPQ)¹².

TPQ is a 100-item self-administered true-false instrument that consists of three high-grade dimensions, i.e., Novelty seeking (NS), Harm avoidance (HA) and Reward dependence (RD), each with four subscales. According to Cloninger's preliminary analyses, items 61 and 71 were dropped from the scoring because of their low factor loading and hence the total scores of the TPQ ranged from 0 to 98. The dimensions describe basic patterns of adaptive response to specific classes of environmental stimuli and are hypothesized to be genetically independent. HA is broadly similar but not identical to other measures of neuroticism that have been previously associated with PMS. NS is similar to but not simply the traditional dimension of social introversion-extraversion or sensation seeking. Both groups completed

the TPQ at their first diagnostic visit, which was scheduled in the follicular phase of the menstrual cycle (days 5-10). The follicular phase is arguably the optimal time for assessment of trait personality factors because premenstrual symptoms are low or in remission during this period of the cycle and less likely to influence the personality assessment.

4. The Multidimensional Perfectionism Scale (MPS)¹³.

This covers six subscales (concern over mistakes, personal standards, parental expectation, parental criticism, doubts about actions and organization). The organization subscale score was omitted due to low correlations with the other five subscales. Items were measured on a 5-point scale from 1 “strongly disagree” to 5 “strongly agree”.

5. The Multidimensional Scale of Perceived Social Support MSPSS¹⁴.

MSPSS contains three subscales—family, friends and significant other support. The MSPSS provides assessment of three sources of support: family (FA), friends (FR) and significant other (SO). It has 12 items: 4 for FA, 4 for FR and 4 for SO. Items were measured on a 5-point scale from 1 “strongly disagree” to 5 “strongly agree”. The MSPSS examines perceived social support. Participants rate actual and ideal amounts of emotional (how much they can trust and lean on that particular person) and practical support (how much practical help and social time they spend with that particular person).

RESULTS

Patients suffering from PMS did not differ significantly from the control group as regard age ($t=0.89$, $p=0.379$), numbers of years of education ($t=0.13$, $p=0.897$), marital history ($\chi^2=2.11$, $p=0.550$), employment status ($\chi^2=0.475$, $p=0.491$) and number of children ($t=0.91$, $p=0.368$). The mean duration of illness of studied patients was 6.5 ± 2.464 (Table 1).

Table 1: Demographic variables of studied groups of patients and control group.

	Patients group (N=22)		Control group (N=20)		Test of significance	
	N	%	N	%	χ^2	p
Marital S.	2	9.1	3	15	2.11	0.550
Single	4	18.2	2	10		
Divorced	1	4.5	3	15		
Widow	15	68.2	12	60		
Married						
Employment	10	45.45	7	35	0.475	0.491
Employed	12	54.55	13	65		
unemployed						
	Mean	SD	Mean	SD	t	p
Age	30.45	4.97	29.05	5.23	0.89	0.379
N ys edu	10.41	3.39	10.55	3.59	0.13	0.897
Dur illness	6.5	2.464	-	-	-	-
N children	3.55	1.77	3.00	2.08	0.91	0.368

MaritalS. = marital status, N.ys.edu: number of years of education, Dur illness: duration of illness, N children= number of children

Female patients suffering from PMS had significantly higher scores as assessed by DSR scale than control group ($t=10.08$, $p=0.0001$). The most frequent premenstrual psychological symptoms are mood swings (72.2%), irritability and crying, anxiety (54.4%), feeling out of control (45.5%), nervous tension (40.9%) and depression (36.4%) (Table 2).

Table 2: Assessment of premenstrual symptoms by Daily Symptom Reports (DSR).

	Patients group		Control group	
	N=22	%	N=20	%
Irritability	15	68.2	5	25
Mood swings	16	72.7	3	15
Nervous tension	9	40.9	0	0
Anxiety	12	54.5	2	10
Depression	8	36.4	1	5
Feeling out of control	10	45.5	0	0
Poor coordination	5	22.7	0	0
Confusion	7	31.2	2	10
Insomnia	8	36.4	4	20
Crying	15	68.2	0	0
Fatigue	8	36.4	2	10
Food craving	9	40.9	1	5
Breast tenderness	18	81.8	5	25
Swelling	9	40.9	6	30
Cramps	7	31.2	1	5
Aches	8	36.4	2	10
Headache	13	59.1	5	25
Total Premenstrual symptom severity	Mean	SD	Mean	SD
	100.6	27.6	36.8	10.5
t	10.08			
p	0.0001*			

*Significant at $p \leq 0.05$

PMS patient showed significantly higher scores of HA ($t=10.30$, $p=0.001$) and all its subscales than control group (HA1: $t=8.38$, HA2: $t=5.47$, HA3: $t=4.55$, HA4: $t=3.98$; $p \leq 0.0001$ for all subscales). No significant difference was detected regarding NS and RD items of TPQ or their subscales (NS4 was significantly higher in PMS patients than the control: ($t=3.13$, $p \leq 0.004$) and RD1 was significantly higher in PMS patients than the control but the difference is nonsignificant: ($t=2.02$, $p \leq 0.051$) (Table 3).

Table 3: TPQ of studied groups.

	Patients group (N=22)		Control group (N=20)		t	p
	Mean	SD	Mean	SD		
Harm avoidance	20.68	2.32	12.50	2.78	10.30	0.0001*
HA1	5.50	1.44	2.20	1.11	8.38	0.0001*
HA2	5.23	1.15	3.50	0.889	5.47	0.0001*
HA3	4.82	1.14	3.15	1.23	4.55	0.0001*
HA4	5.14	1.55	3.40	1.27	3.98	0.0001*
Novelty seeking (NS)	10.95	1.65	10.15	1.76	1.53	0.135
NS1	3.50	0.859	3.05	0.999	1.56	0.128
NS2	1.955	0.844	1.950	0.945	0.02	0.987
NS3	3.591	0.734	3.10	1.55	1.34	0.193
NS4	2.909	0.750	2.050	0.999	3.13	0.004
Reward dependence (RD)	17.18	1.62	16.10	1.83	2.02	0.051
RD1	3.818	0.795	3.25	1.02	2	0.53
RD2	4.14	1.04	4.2	0.894	0.28	0.832
RD3	6.18	1.2	5.70	1.22	1.28	0.208
RD4	3.09	1.02	2.950	0.999	0.45	0.654

*Significant at $p \leq 0.05$, TPQ: tridimensional personality questionnaire

Perfectionism was found to be significantly higher in PMS patients than in control ($t = 5.51$, $p = 0.0001$) as assessed by MPS scale and subscales (CM: $t = 2.55$, $p = 0.015$; PS: $t = 2.68$, $p = 0.011$; PE: $t = 2.85$, $p = 0.007$; PC: $t = 2.41$, $p = 0.021$). However, doubts over Actions subscale showed no significant difference between patients and control ($t = 1.76$, $p = 0.085$) (Table 4).

Table 4: MPS of studied groups.

	Patients group (N=22)		Control group (N=20)		t	P
	Mean	SD	Mean	SD		
CM	29	11.4	20.3	10.9	2.55	0.015*
PS	20.68	7.32	14.70	7.15	2.68	0.011*
PE	16.14	5.76	11.25	5.35	2.85	0.007*
PC	12	4.78	8	3.81	2.41	0.021*
D	12.73	4.88	10.00	5.11	1.76	0.085
Total MPS score	90.6	16	65	14.1	5.51	0.0001*

*Significant at $p \leq 0.05$, MPS: Multidimensional Perfectionism Scale, CM: Concern over mistakes, PS: Personal standards, PE: Parental expectations, PC: Parental criticism, D: Doubts about actions.

Social support was significantly lower in PMS patients than in control group ($t = 8.90$, 0.0001) with all its subscales (FA: $t = 4.74$, $p = 0.001$; FR: $t = 5.54$, $p = 0.001$; SO: $t = 3.71$, $p = 0.001$) (Table 5).

Table 5: The MSPSS of studied groups.

	Patients group (N=22)		Control group (N=20)		t	p
	Mean	SD	Mean	SD		
FA	8.73	4.21	15.20	4.61	4.74	0.001*
FR	8.55	4.15	15.90	4.42	5.54	0.001*
SO	10.91	3.74	15	3.40	3.71	0.001*
Total MSPSS score	28.09	6.12	46.10	6.91	8.90	0.0001*

*Significant at $p \leq 0.05$, MSPSS: Multidimensional Scale of Perceived Social Support, FA: Family, FR: Friends, SO: Significant others.

Significant correlation was detected between scores of DSR scale and harm avoidance subscale of TPQ ($r = 0.891$), scores of MPS ($r = 0.913$). Significant negative correlation was detected between scores of DSR and MSPSS score ($r = -0.655$) (Table 6).

Table 6: Correlation between PMS assessed by DSR and scores of TPQ, MPS and MSPSS.

	Mean	r	p
TPQ	10.95	-0.143	0.526
NS	17.18	0.064	0.766
RD	20.68	0.891	0.003*
MPS	90.6	0.913	0.001*
MSPSS	28.09	-0.655	0.001*

*Significant at $p \leq 0.05$, PMS: premenstrual symptoms, DSR: daily symptom report, TPQ: tridimensional personality questionnaire, MPS: multidimensional personality questionnaire, MSPSS: Multidimensional Scale of Perceived Social Support, NS: novelty seeking, RD: reward dependence, HA: harm avoidance.

Statistical analysis:

The raw data were fed to the computer program Minitab software release 13.1, copyright © 2000. Chi-Square test (χ^2) was used for comparison between two groups as regards qualitative data. Two sample t-test was used for comparison between two means of two different groups. For correlation between clinical variables, Pearson correlation test was used. Results were considered significant at $p \leq 0.05$.

DISCUSSION

Using daily diaries, women suffering from PMS in this study reported significant psychological premenstrual symptoms. The most frequent premenstrual psychological symptoms are mood swings, irritability and crying, anxiety, feeling out of control, nervous tension and depression. Studies revealed that anger and irritability are the most severe complaints and start slightly earlier than other symptoms¹⁵. It is not uncommon for symptoms to linger into the next menstrual cycle¹⁶ but by definition, there must be a symptom-free

interval before ovulation. Typically, women have the same set of symptoms from one cycle to the next¹. Dysphoric symptoms are among the most prevalent and bothersome premenstrual symptoms and are often the reason for treatment seeking. Currently it is repeatedly cited that 3–9% of women report having dysphoric PMS severe enough to seek and warrant treatment¹⁷. Irritability has been identified as the most common premenstrual symptom in US and European samples^{15,18}. Some cultures emphasize somatic rather than emotional premenstrual symptoms¹⁶. Symptom severity peaks on or just before the first day of menses¹⁹.

The TPQ was designed to measure three dimensions of personality, each theoretically associated with the function of a particular neurotransmitter²⁰. Novelty-seeking (NS) is described as the tendency to be excitable, exploratory, enthusiastic and impulsive. Harm avoidance (HA) is the tendency to be cautious, tense and apprehensive when confronted with new or dangerous situations. Reward dependence (RD) is a tendency to be ware, sensitive and dependent. HA scale was designed to assess behavioral inhibition²¹. It has also been shown to be positively correlated with both depression and neuroticism²⁰. In this study HA dimension as assessed by TPQ was higher in PMS patients and subscale scores fit similar patterns; however, RD and NS were within normal range. HA scores were significantly correlated with DSR scores i.e. the higher the HA score the more the PMS symptoms. HA is broadly similar to other measures of neuroticism²² that have been previously associated with PMS^{4,23,26}. Our findings are consistent with previously published TPQ studies, which found high harm avoidance to be correlated with PMS. Another finding of the present study was the significant correlation between elevations in specific TPQ factors and PMS symptoms. These differential relationships provide support for the presence of subgroups in the PMS population, as previously identified²⁷. Once again, previous research found high harm avoidance to be associated with depressive symptoms^{28–31}. NS and RD has been independent of dysphoric mood^{28,29}. Premenstrual food cravings were found to be independent of mood and postulated a link with depression inasmuch as both phenomena may be related to serotonin activity in the brain^{32–34}. We would hypothesize that PMS and personality, as assessed by the TPQ, are independent of each other but that personality influences the symptomatic expression of PMS. Therefore, the presence of PMS in a person with high HA is likely to manifest itself more in terms of depressed mood and somatic complaints, whereas in a person with high NS, PMS is more likely to manifest itself in terms of food cravings.

Correlates of increasing premenstrual symptomatology included increasing age, increasing severity of menstrual pain, personality traits of neuroticism and agreeableness and increasing body mass index³⁵. HA score was found to be significantly higher in women with major depressive disorder (MDD) and premenstrual dysphoric disorder (PMDD) than in controls. concluding that the similarities between PMDD and major depressive disorder during luteal phase suggest a similar psychopathology³⁶.

Women with PMDD had significantly more obsessional personality traits and obsessional symptoms which are known to reflect underlying temperamental and biological vulnerability³⁷. Neuroticism was assessed using the NEO Personality Inventory Revised. Neuroticism accounted for a significant amount of variation in premenstrual negative affect³⁸. Women with PMS had significantly higher total scores of PDQ-R, a questionnaire of personality disorder, than the asymptomatic controls during both the follicular and luteal phases, whereas there was no significant difference between women with PMS and symptomatic controls during either. These findings suggest that personality disorder in women with PMS may have both state and trait-related components³⁹. Personality traits were assessed using the Millon Clinical Multiaxial Inventory (MCMI) during follicular and luteal menstrual-cycle phases. Compared with controls, PMS subjects had less compulsive but more passive aggressive and borderline/cycloid traits and more depression and hypomania. Depression and hypomania in PMS subjects suggests a relationship with affective disorders⁴⁰.

In this study, PMS women showed higher scores on perfectionism scale as assessed by MPS than control group as well as significant association with scores of DRS, i.e. the more the perfectionism, the more the premenstrual symptoms. Studies revealed that perfectionism was positively associated with premenstrual distress. Perfectionist thinking is likely to be triggered when a failure is encountered and when people become aware that they are not meeting their own (unrealistically) high standards^{5,41}. PMS subjects were also classified into high symptom and low symptom women according to the severity of symptoms⁴². 'Low symptom' women perceived themselves as generally laid back but demonstrated a need for organization and control in the family environment. They accepted less than perfect relationships, compared themselves favorably to others and perceived themselves as having strong support networks. There was a negative perception of the onset of menarche but this was coupled with strong maternal support. 'High symptom' women showed patterns of perfectionism, an emphasis on self-sacrifice and unfavorable comparison of self with others. They reported feeling alone, overwhelmed by tasks and experienced relationships as characterized by unresolved tensions. Menarche was viewed as a positive experience but accompanied by low maternal support. A major issue for high symptom women was that they struggled to tolerate imperfections, both in their own performance or in their relationships with others.

Here PMS women reported significant lower scores of social support than control group. There was significant negative association between social support scores and DSR scores, i.e the less the social support the more the premenstrual symptoms. Perception of actual support showed an inverse relationship with premenstrual symptoms. A positive relationship with a support figures may be of importance in the development of a positive view of self as a woman and may enable a more favorable evaluation of the experience of menstruation. This in turn may facilitate a more robust

attitude toward any minor associated symptomatic changes. Attachment patterns in adulthood may also influence the ability to use significant others as sources of support⁴³. More insecure attachment has also been linked to higher levels of experience of unexplained psychological symptoms⁴⁴. It may be that for cycle related symptoms, the relationship of a woman with others is of greater significance than previously considered. When social support was examined as potential moderators of the effects of perfectionism on premenstrual symptoms, similar but not identical patterns emerge. A woman has to have high levels of support for perfectionism to no longer influence physical symptom reports. In cases where a woman shows high perfectionism, it is less likely that her symptoms are exacerbated if help is not available. This could be because her high standards may still be fulfilled by the additional input. If social support is unavailable, failure to meet standards may exacerbate symptoms through the impact of extra effort⁵. A health promotion program of social support and a positive reframing component for women with PMS across four menstrual cycles was provided. Results indicated that, although perimenstrual activation did not increase significantly, impairment did decrease⁴⁵. Religious or spiritual support may be especially important to families in which the woman suffers from premenstrual symptomatology⁴⁶. There was a positive relationship between self-disclosure and stress monitoring with severity of PMS and an inverse relationship between social support and structuring and severity of PMS⁴⁷. Men used multiple coping techniques to deal with their spouse's symptoms with offering support and expressing anger as the most frequently reported. Recurrent negative family impact themes emerged: Increased conflict, decreased family cohesion and disrupted communication among family members⁴⁸. Studies to know the different factors influencing different psychiatric disorders and their relations with different offences are recommended.

CONCLUSION

The results of the present study do provide strong support for serious personality psychopathology in patients seeking medical treatment for PMS in the form of neuroticism and perfectionism. It provides evidence of the link between serotonergic dysregulation, personality vulnerability and mood changes related to the female reproductive cycle. Another finding was the significant correlation between elevations in specific TPQ factors and PMS symptoms. These differential relationships provide support for the presence of subgroups in the PMS population. Furthermore, this study suggests the importance of a supportive family system on the disease course of PMS patients.

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