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## Correlates of premenstrual dysphoria in help-seeking women

Alison P. Christensen, Tian P.S. Oei \*

*Department of Psychology, University of Queensland, Queensland 4072, Australia*

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### Abstract

Comparisons were made between the premenstrual changes reported by nontreatment-seekers (NTS) ( $n = 32$ ) and those of treatment-seekers (TS) ( $n = 52$ ). The Premenstrual Assessment Form Luteal Phase and Follicular Phase versions were completed and the Beck Depression Inventory, the Automatic Thoughts Questionnaire and the State-Trait Anxiety Inventory were completed at both the luteal and follicular phases. Prospective daily ratings were made for two treatment cycles on the Daily Ratings Form and TS were screened for a mood-disorder history. Using the commonly cited 30% decrease in dysphoric levels from the pre- to postmenstrual phases as the criterion of prospective confirmation, women with prospectively confirmed dysphoria (PMD+) were not significantly more symptomatic than those without prospective dysphoric confirmation (PMD-). However, TS were more symptomatic than NTS on measures of depression, anxiety and frequency of negative automatic thoughts but not on mood behaviour and physical changes reflected in the PAF scales. No demographic differences were found between TS and NTS. Results did not support the issue of requiring 'confirmation' of self-reports within a help-seeking group or the use of the 30% criterion in particular. Findings further suggest that the 95-item PAF may be inadequate in differentiating TS from others.

### 1. Introduction

Mood change is the most commonly reported symptom in women seeking help for menstrually related symptoms. This phenomenon has drawn attention from the mental health field and is reflected in the development of proposed diagnostic criteria for a condition known as Late Luteal Phase Dysphoric Disorder (LLPDD) (DSM-III-R; American Psychiatric Association, 1987). The term 'premenstrual dysphoria' (PMD) has also become prominent in the literature (En-

dicott and Halbreich, 1988; Rosen et al., 1988) and it is characterized by variations in a cluster of negative mood states, including depression, anxiety, anger, irritability and tension (Gallant et al., 1992; Hamilton and Gallant, 1988). Generally, PMD is experienced during the premenstrual phase and dissipates shortly after the onset of menstruation (Halbreich et al., 1988).

Historically, methodological problems have obstructed research in this area. For instance, the use of retrospective ratings of premenstrual symptoms were common but have been found to be inflated and to rarely concur with prospective ratings (Abplanalp et al., 1979; Geldstein et al., 1986; Rubinow et al., 1985). Another problem has

\* Corresponding author.

been that dysphoric changes have been traditionally grouped with physical and behavioural changes (Halbreich et al., 1988). Increasingly, however, researchers have addressed these problems by obtaining prospective daily ratings and specifying the types of premenstrual changes being studied.

An earlier study by Christensen and Oei (1989) suggested that nonhelp-seeking women who prospectively report PMD (PMD+) can be differentiated from women without prospectively confirmed PMD (PMD-) by higher levels of state and trait anxiety and more frequent negative automatic thoughts. A later study (Christensen and Oei, 1992) suggested, however, that, when PMD+ and PMD- women were compared on premenstrual mood, behavioural and physical changes measured by the Premenstrual Assessment Form (PAF) (Halbreich et al., 1982), they differed only on anxiety levels, with the PMD+ women reporting higher levels. Results further suggested that awareness of a study's premenstrual focus does not influence self-report. One shortcoming of these studies, however, is that mood, behaviour and physical changes reflected in the PAF as well as measures of anxiety, depression and negative automatic thoughts were rated retrospectively. In addition, no psychiatric history was obtained in these studies although there is evidence of a relationship between premenstrual dysphoric changes and mood disorders (Gise Lebovits et al., 1990; McMillan et al., 1989; Warner et al., 1991).

The first aim of this study was to extend earlier findings by comparing prospective pre- and postmenstrual self-reports of premenstrually dysphoric help-seekers (TS) with nonhelp-seekers. It was predicted that in the premenstrual phase TS would report higher levels of anxiety and depression and more frequent negative automatic thoughts as well as more mood, behavioural and physical changes. The second aim was to examine the extent to which PMD+ and PMD- treatment-seeking women could be differentiated on the above measures or on mood-disorder history. It was expected that: (a) PMD+ women would be more premenstrually symptomatic than PMD- women on measures of depression, anxi-

Table 1  
Demographic details of NTS and TS

Demographics	Groups	
	NTS ( <i>n</i> = 32)	TS ( <i>n</i> = 52)
Age		
Mean	33.6	37.4
SD	5.6	5.3
Pregnancies		
Mean	1.31	2.4
SD	0.78	0.9
Frequency (%)		
Completed secondary education	21 (66%)	42 (81%)
Completed tertiary education	11 (34%)	10 (19%)
Married/defacto	20 (63%)	37 (71%)
Single/separated/divorced/widowed	12 (37%)	15 (29%)
Paid employment	20 (63%)	28 (54%)
Unpaid employment	12 (37%)	24 (46%)

ety, automatic thoughts as well as mood, behavioural and physical changes; and (b) PMD+ women would have a higher prevalence of mood disorder. The third aim related to a comparison of PMD+ and PMD- women on the Daily Ratings Form (DRF) (Endicott et al., 1986) dimensions. Earlier results (Christensen et al., 1989) suggested that undergraduate women with confirmed PMD had higher levels of physical discomfort and less energy than women with unconfirmed dysphoria. It was predicted that the same relationship would apply in TS women.

## 2. Methods

### 2.1. Participants

Participants were 84 females and the demographic details are shown in Table 1 (including age, number of pregnancies and educational, marital and employment status). 32 participants were undergraduates and nontreatment-seekers (NTS) who volunteered for the study as a course requirement and received credit for their participation. These students (mean age 33.6 years) responded to a notice which appeared in the

Psychology Department seeking volunteers for a study about premenstrual changes, such as low mood, anxiety, irritability and loss of control. The other 52 participants (mean age 37.4 years) were treatment-seekers and were drawn from a total of 120 women across metropolitan Brisbane who responded to media reports offering treatment to women with premenstrual changes of low mood, anxiety, irritability or loss of control at the Psychology Clinic, University of Queensland, and met the following entry criteria which applied to both TS and NTS: aged 25–45 years; were not pregnant; has not had a hysterectomy; were not postmenstrual; were not using oral contraceptives or hormone therapies currently or within the past three cycles; were not using antidepressants, antipsychotics or antianxiety agents; and had menstruated during the past three cycles. For the TS, an additional two criteria applied: (1) did not have a personality disorder; and (2) were not concurrently receiving professional assistance for their menstrually related problems or any psychological problems. The same entry criteria have been described fully in previous studies (Christensen and Oei, 1989; Christensen et al., 1989; Christensen and Oei, 1992).

## 2.2. Measures

The DRF dysphoric mood dimension was the independent measure used to classify women with confirmed or unconfirmed PMD (PMD + and PMD –, respectively), dependent on whether or not their DRF premenstrual dysphoric dimension score dropped by  $\geq 30\%$  from the pre- to postmenstrual phase (see Christensen et al., 1989, and Endicott et al., 1986, for scoring details) for two consecutive phases. This criterion for dysphoric confirmation is consistent with the National Institute of Mental Health (NIMH, 1983) and LLPDD criteria. The dependent measures were the Beck Depression Inventory (BDI) (Beck et al., 1961), the Automatic Thoughts Questionnaire (ATQ-30) (Hollon and Kendall, 1980), the State-Trait Anxiety Inventory (Spielberger et al., 1970), the PAF Current Cycle Follicular Phase version (PAF-FP) and the PAF Current Cycle Luteal Phase version (PAF-LP). Copies of these instru-

ments were obtained from U. Halbreich (pers. commun., June 1988). Women completed these instruments in their pre- and postmenstrual phases. Measures of change in mood, behaviour and physical condition were derived from the PAF instruments using the unipolar scoring system (Halbreich et al., 1982). These measures of changes were labelled PAF Mood (PAF-M), PAF Behaviour (PAF-B) and PAF Physical (PAF-P). The unipolar summary scales reflecting PAF-mood changes were: (1) Low Mood or Loss of Pleasure, (2) 'Endogenous' Depressive Features, (4) 'Atypical' Depressive Features, (5) 'Hysteroid' Features, (6) Hostility/Anger and (8) Anxiety. The PAF-B change scales were: (7) Social Withdrawal, (11) 'Organic' Mental Features and (16) Impaired Social Functioning. The PAF-P change scales were: (12) Signs of Water Retention, (13) General Physical Discomfort, (14) Autonomic Physical Changes and (15) Fatigue.

Reliability coefficients for the three groupings were calculated based on a sample of 52 women, seeking treatment for premenstrual dysphoric changes. The  $\alpha$  coefficient for the PAF-M was 0.91 whilst that for the PAF-B and PAF-P were 0.89 and 0.85, respectively. The  $\alpha$  coefficient for the typological mood scales used in the studies was 0.84. These  $\alpha$  coefficients suggest that the above groupings are internally consistent.

With the TS sample, the Structured Clinical Interview for DSM-III-R Non-Patient version (SCID-NP) (Spitzer et al., 1987) mood disorders and anxiety modules were completed as was the SCID DSM-III-R Personality Questionnaire (Spitzer et al., 1987). Consistent with an earlier study (Christensen et al., 1989), the DRF summary scales of dysphoric mood, physical discomfort and low energy were used.

## 3. Procedure

127 women were initially screened by telephone, 56 of these appearing appropriate candidates and being subsequently interviewed individually at the Psychology Clinic, University of Queensland. At the interview, demographic information, the SCID-NP and the SCID DSM-III-

R Personality Questionnaire were completed. An information sheet was given, a consent form relating to subsequent treatment was signed and women were asked to pay a \$20 refundable deposit to encourage them to return follow-up measures. The data of four women were excluded as the SCID-11 (Spitzer et al., 1987) suggested the presence of a personality disorder in each case. Thus, there were 52 women in the TS group.

At the intake interview, women were given two booklets of self-report measures to complete and return. Instructions were that one booklet was to be completed in the premenstrual phase. Women were asked to determine when they usually experienced their premenstrual phase, using the completion guidelines outlined in the PAF-LP version. In the LP version, women rate the severity of change from their usual state, when they are having their most severe premenstrual changes, or the 1st day of menstrual bleeding, when they do not have noticeable changes. In determining changes, women refer only to the 2 preceding days. The second booklet was for completion during the postmenstrual phase, viz., the 7–10 days after menses began according to guidelines on the PAF-FP version. Severity levels experienced during the previous 24 h were rated. Booklets contained the BDI, ATQ, STAI-X and either the PAF-LP or PAF-FP versions. In addition, women were asked to complete the DRF for 8 weeks, commencing the day of interview, with the intention of capturing two consecutive menstrual cycles. This latter issue was an attempt to address a methodological recommendation, suggesting that records over two cycles are more stable than over one (the LLPDD criteria in DSM-III-R).

On four occasions, 1 week apart, the undergraduate women attended a session. At the first session, demographic information was obtained and each week they were asked to denote the particular phase of their menstrual cycle currently being experienced (using the guidelines on the PAF-LP and -FP versions). If students indicated that they were in either the pre- or postmenstrual phase at any one of the four sessions, they were instructed to complete either the PAF-LP or PAF-FP versions as appropriate. At the same time, they completed the BDI, ATQ and

STAI-X. Full data sets were obtained both in the pre- and postmenstrual phases for 32 students. At the first session, students were asked to complete the DRF commencing that same day over the next 8 weeks (two menstrual cycles). Credit for student participation did not extend to cover the time required for completion of the SCID-NP, thus, psychiatric screening was not undertaken for this group.

In the TS group, the PMD + group ( $n = 28$ ) had a mean age of 37.2 years ( $SD = 4.84$ ), with a range of 27–45 years. In the PMD – group ( $n = 24$ ), the mean age was 37.6 years ( $SD = 5.66$ ), with a range of 25–45 years. Within the student sample (NTS), the PMD + group ( $n = 14$ ) had a mean age of 34 years ( $SD = 4.53$ ), with a range of 26–43 years, whilst the PMD – group ( $n = 18$ ) had a mean age of 33.2 years ( $SD = 6.65$ ), with a range of 25–45 years.

#### 4. Results

Turning first to the demographic details shown in Table 1,  $\chi^2$  analyses were conducted on each of these variables except age. Results show that none of these had a significant relationship for either the TS or the NTS. Thus, the groups did not differ on parity, educational, marital or employment status.

The mean and SD values of each dependent measure, within each group at the pre- and postmenstrual phases, are shown in Tables 2 and 3, respectively.

##### 4.1. Across phases

A three-way ANOVA (Confirmation  $\times$  Group  $\times$  Phase), with repeated measures on phase, was conducted. Factors were: confirmation (PMD + and PMD –), group (TS and NTS) and phase (pre- or postmenstrual). Results revealed an overall significant main effect for group ( $F_{3,74} = 4.92$ ,  $P < 0.000$ ) and phase ( $F_{7,74} = 14.86$ ,  $P < 0.000$ ) but not for confirmation.

The variables which differed significantly between the TS and NTS were the BDI ( $F_{1,80} = 25.34$ ,  $P < 0.000$ ), ATQ ( $F_{1,80} = 12.00$ ,  $P < 0.001$ ),

A-State ( $F_{1,80} = 16.18, P < 0.000$ ) and the A-Trait ( $F_{1,80} = 9.16, P < 0.003$ ), with TS having higher levels premenstrually. So far as phase is concerned, there was a significant reduction pre- to postmenstrually on all variables: BDI, ATQ, A-State, A-Trait, PAF-M, PAF-B and PAF-P ( $P < 0.000$ ).

The two-way interactions between the confirmation factor and the group factor were not significant and neither were the interactions between confirmation and phase. Except for the A-State and A-Trait variables, all two-way interactions between-group and phase were significant ( $P < 0.001$ ) on the other variables. These are de-

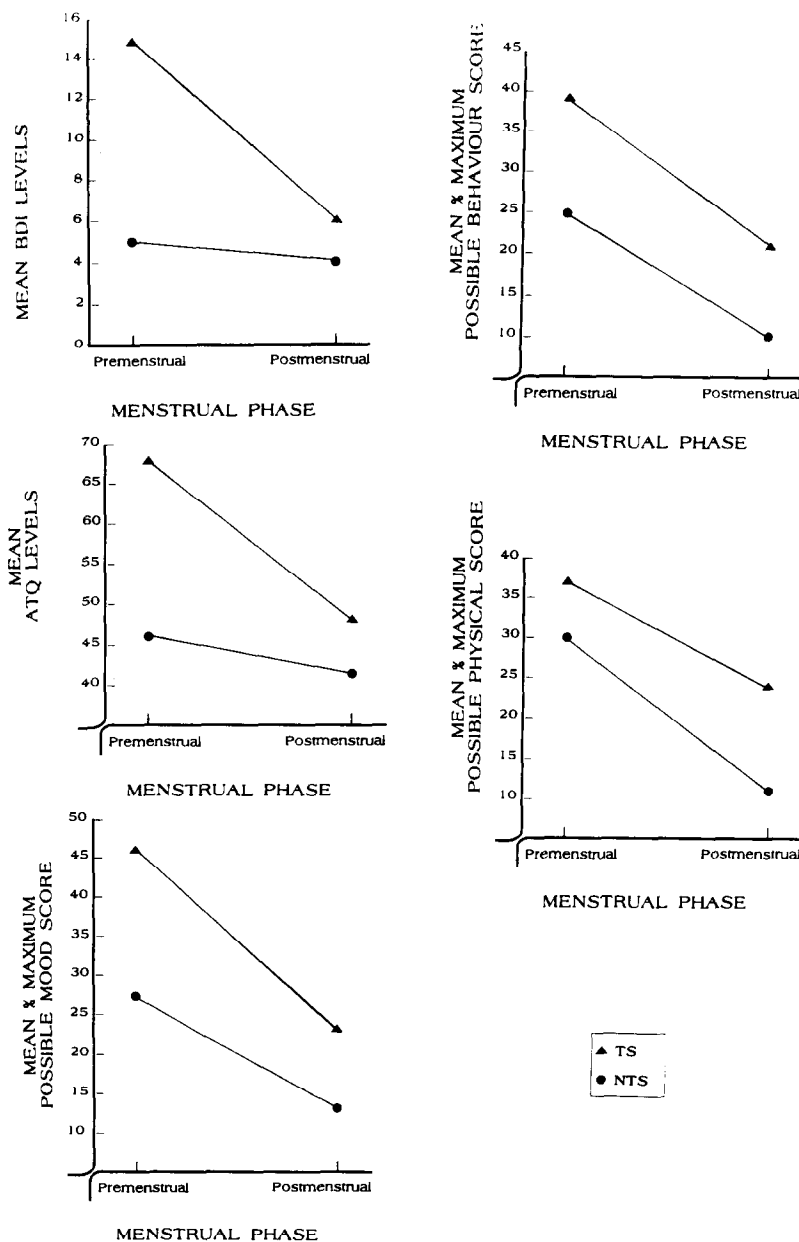


Fig. 1. Mean cognitive, mood, behavior and physical scores within each group across pre- and postmenstrual phases.

Table 2  
Baseline mean and SD values of NTS and TS at premenstrual phase

		Group			
		NTS ( <i>n</i> = 32)		TS ( <i>n</i> = 52)	
		Mean	SD	Mean	SD
BDI	PMD +	4.78	1.88	16.5	9.32
	PMD –	4.72	3.52	13.75	8.86
ATO	PMD +	48.85	15.84	69.85	25.82
	PMD –	43.66	11.65	65.5	29.02
A-STATE	PMD +	39.93	13.14	50.75	15.43
	PMD –	33.44	9.01	49.91	14.68
A-TRAIT	PMD +	41.14	8.56	47.5	12.08
	PMD –	36.4	10.39	48.37	11.2
PAF-M	PMD +	34.53	21.95	48.06	17.19
	PMD –	20.09	15.56	42.97	18.66
PAF-B	PMD +	31.7	25.91	44.12	23.82
	PMD –	17.66	16.82	34.54	21.52
PAF-P	PMD +	33.78	19.48	39.65	17.28
	PMD –	25.59	17.09	35.01	17.44

pictured in Fig. 1 which suggest that, although TS and NTS had overall significantly higher levels on each of these variables pre- than postmenstrually, the TS had sharper drops across phases, particularly on the BDI and ATQ. The three-way interaction (Confirmation × Group × Phase) was not significant.

Table 3  
Baseline mean and SD values of NTS and TS at postmenstrual phase

		Group			
		NTS ( <i>n</i> = 32)		TS ( <i>n</i> = 52)	
		Mean	SD	Mean	SD
BDI	PMD +	3.78	3.88	4.85	6.48
	PMD –	4.11	4.45	7.25	6.47
ATO	PMD +	43.14	18.85	46.46	15.95
	PMD –	40.44	10.15	48.66	18.08
A-STATE	PMD +	28.07	6.01	33.57	13.19
	PMD –	33.05	11.81	37.7	10.56
A-TRAIT	PMD +	39.28	10.29	38.25	10.76
	PMD –	34.88	10.8	43.5	9.43
PAF-M	PMD +	9.84	16.15	29.01	19.65
	PMD –	15.97	16.2	16.88	15.6
PAF-B	PMD +	9.3	18.42	26.28	24.07
	PMD –	11.05	11.54	14.75	18.41
PAF-P	PMD +	9.69	15.75	26.67	13.77
	PMD –	12.57	13.05	22.00	14.21

Table 4  
Type and frequency of SCID mood disorder diagnoses within TS group (*n* = 52)

Mood	PMD + ( <i>n</i> = 28)	PMD – ( <i>n</i> = 24)
Disorders		
Bipolar		
Disorder (current)	1	0
Dysthymia (current)	2	3
Major depression (current)	2	2
Major depression (lifetime)	6	5
	11 (39%)	10 (42%)

#### 4.2. SCID diagnoses

The SCID-NP was completed with the TS only. The frequency and type of DSM-III-R Axis 1 mood-disorder diagnoses are shown in Table 4. These indicate that the PMD + group had a 30% frequency of mood-disorder history whilst the PMD – group had a 42% frequency. Major Depression (Lifetime) was the most frequent diagnosis. Analyses revealed no significant differences between PMD + and PMD – groups on the frequencies of these diagnoses.

#### 4.3. Reliability of SCID diagnoses

The mean levels of inter-rater agreement were: overall reliability 99.37% (range 88.8–100%) and 99.68% for nonoccurrence reliability (range 94.4–100%). Only two anxiety disorder diagnoses were made within the PMD + group. These were panic disorder without agoraphobia (lifetime) and agoraphobia without panic disorder.

#### 4.4. DRF dimensions

Turning to the DRF dimensions, an earlier study by Christensen et al. (1989) examined their variability across the menstrual cycle with a student sample. To assess the generality of these findings with a TS sample, a two-way ANOVA, with repeated measures on phase, was conducted to compare levels of dysphoric mood, low energy and physical discomfort, at the pre- and postmenstrual phases, between the PMD + and PMD – groups. Factors were confirmation (PMD + and PMD –) and phase (pre- and postmenstrual).

No main effect was found for confirmation on any of the DRF dimensions (dysphoric mood, low energy and physical discomfort). There was, however, a significant time effect for each of the variables: dysphoric mood ( $F_{1,50} = 105.00, P < 0.000$ ), low energy ( $F_{1,50} = 28.86, P < 0.000$ ) and physical discomfort ( $F_{1,50} = 66.96, P < 0.000$ ). Additionally, there was a significant interaction between time and confirmation for each variable: dysphoric mood ( $F_{1,50} = 50.81, P < 0.000$ ), low energy ( $F_{1,50} = 12.11, P < 0.001$ ) and physical discomfort ( $F_{1,50} = 7.27, P < 0.01$ ). Mean levels of each variable across both groups and phases are shown in Fig. 2. These figures indicate that overall PMD+ and PMD- groups had significantly higher premenstrual levels on each DRF dimen-

sion than at postmenses, however, the pre- to postmenstrual reduction was greater in the PMD+ group than in the PMD- group.

### 5. Discussion

Results suggest that, within TS, those who have a  $\geq 30\%$  drop in pre- to postmenstrual levels of dysphoria (PMD+ women), are not significantly more symptomatic than PMD- women. This raises questions about the validity of using the 30% criterion for prospective confirmation, an issue which will be taken up later. However, this finding extends our previous studies (Christensen and Oei, 1989, 1992) by showing

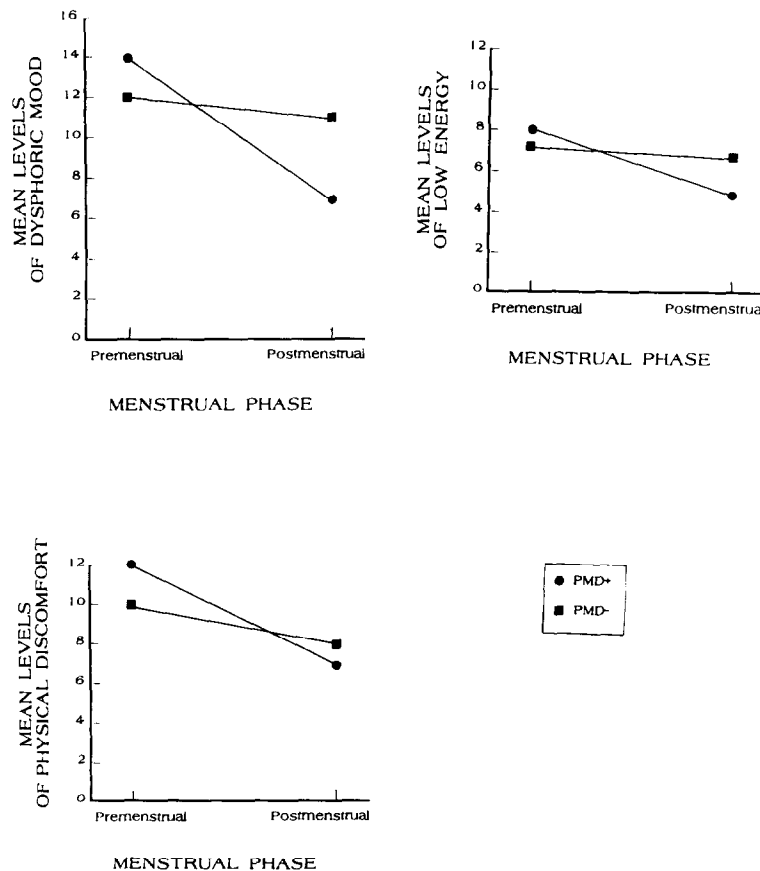


Fig. 2. Mean dysphoric mood, physical discomfort and low energy scores at each menstrual phase within treatment-seekers.

that, among TS, PMD + and PMD – women cannot be distinguished by BDI, ATQ or STAI-X measures even when these are rated pre- and postmenstrually.

So far as demographic variables are concerned, the results suggest that TS and nontreatment subjects do not significantly differ so far as parity, educational, marital or employment status, are concerned.

The findings of this study suggest that, compared with nontreatment subjects, TS are more symptomatic premenstrually but not postmenstrually on measures of depression, automatic thoughts and anxiety. Significant differences were not apparent on premenstrual measures of mood, behaviour and physical change. Postmenstrually, groups did not differ on levels of any variable, however, pre- to postmenstrually, there was an overall significant reduction in the levels of all variables. These results suggest that the PAF unipolar summary scales used in this study to measure mood, behaviour and physical change do not discriminate between TS and nontreatment subjects. The level of variance within the PAF scores may, however, have been a factor. Another explanation for the lack of difference is that the nontreatment subjects (undergraduate students) may have had a less vested interest in making accurate reports on the PAF than the TS.

So far as mood-disorder history is concerned, differences between PMD + and PMD – women were not significant. The results of this study suggest that the prevalence of mood disorder is ~ 40% among TS which is consistent with somereports (Gise et al., 1990; Harrison et al., 1989) and yet lower than other reports (Halbreich and Endicott, 1985b; Keye et al., 1986). Differences in methodology possibly account for this contrast. For example, women in the present study were recruited specifically for treatment of premenstrual changes, had clinical diagnoses made according to DSM-III-R criteria and maintained prospective daily ratings for two consecutive cycles. These practices have not been consistent features of research in this area.

Turning to the results of the DRF dimensions, these are consistent with those above and indi-

cate that, among TS, PMD + women do not experience significantly higher levels of dysphoria, physical discomfort or lower energy than PMD – women, either pre- or postmenstrually. When compared with the PMD – group, the PMD + group had a greater reduction across phases on each of the dimensions. These results vary from those of Study 1 (a) only to the extent that, in the latter study, PMD + women had significantly higher levels of DRF dysphoria premenstrually. This result, however, was derived from nontreatment subjects.

The finding which suggests that TS are indistinguishable as a group raises questions about the validity of using the 30% criterion for prospective confirmation. One relevant factor is the prevalence of mood disorder as there is evidence (reviewed earlier) that women with such a diagnosis may experience a premenstrual exacerbation of dysphoric type symptoms. The results of the present study, however, indicated that both PMD + and PMD – groups had approximately equal rates of affective disorder diagnoses, so this issue is not a current mitigating factor. Given this situation, separation of HS into more or less severe sufferers is perhaps of less clinical interest. The results of this study suggest that, when prospective pre- and postmenstrual records are obtained and a screening for Axis I disorders, particularly mood disorders, is conducted, it is not particularly meaningful to further differentiate HS into PMD + or PMD – groups.

Premenstrually, TS were more symptomatic than nontreatment subjects on the psychological correlates only. This study suggested that, if the criterion for prospective dysphoric confirmation is a 30% drop in the pre- to postmenstrual DRF dysphoric mood dimension, women within a TS sample cannot be distinguished on self-report measures of anxiety, depression, negative automatic thoughts or premenstrual measures of mood, behaviour and physical change. History of affective disorder was similarly unable to differentiate among TS women with prevalence rates being ~ 40% within both the PMD + and PMD – groups. TS did not differ for nontreatment subjects on demographic variables.



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