PREVALENCE AND PREDICTORS OF CYCLIC AND NONCYCLIC AFFECTIVE CHANGE

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The prevalence of cyclic and week-to-week affective change was prospectively assessed over two consecutive menstrual cycles in a nonclinical sample of 101 employed women. Although 40% perceived themselves to have premenstrual syndrome (PMS), none showed a recurrent pattern of marked premenstrual affective change. Marked affective change was as likely to occur in the postmenstrual as the premenstrual phase. Weekly marked change was as prevalent as cyclic change. Although social health (perceived quantity and quality of interpersonal relationships) and subjective stress consistently predicted both cyclic and weekly affective states, the contribution of social health was 10 times greater than that of stress. The role of social health requires further examination, as does the widespread misuse of the PMS label to account for occasional changes in affect.

Many women believe they have premenstrual syndrome (PMS) and media reports affirm that cyclic changes are a pervasive, disturbing influence on women’s lives. Widespread, and largely inaccurate, beliefs about premenstrual changes stem from early biomedical menstrual cycle research, the bulk of which was conceptually and methodologically flawed, but, nevertheless, powerful in shaping the public perception of PMS (for reviews see Koeske, 1985; McFar-
Consequently, the term "PMS" has often been misused, encompassing a wide range of experiences from mild cyclic fluctuations to serious psychiatric problems.

Early research failed to distinguish nonclinical premenstrual changes from clinically significant symptoms (Brooks-Gunn, 1986; Reid, 1991). For the majority of women, mild to moderate physical and emotional fluctuations are part of the normal menstrual-cycle experience and are not symptomatic of a disorder (Laessle, Tuschl, Schweiger, & Pirke, 1990; Metcalf, Livesey, Wells, & Braiden, 1990; Reid, 1991). Only a small minority of women (currently estimated at 5% or less; see Brooks-Gunn, 1986; Reid, 1991; Rivera-Tovar & Frank, 1990) experience a premenstrual disorder.

To alleviate confusion about PMS and to distinguish the disorder from normal cyclic fluctuations, premenstrual syndrome was relabelled late luteal phase dysphoric disorder (see Diagnostic and Statistical Manual of Mental Disorders [DSM-III-R]; American Psychiatric Association, 1987) and, more recently, premenstrual dysphoric disorder (PMDD, see DSM-IV; American Psychiatric Association, 1994). Although PMDD diagnosis remains controversial (see, e.g., Society for Menstrual Cycle Research Newsletter, Spring/Summer 1993), most researchers agree that stringent diagnostic criteria are needed to distinguish the cyclic disorder from nonclinical cyclic changes. Unfortunately, refinements in terminology and diagnostic criteria have not been widely reported by the media or widely adopted by the medical community. Many people continue to use the term "PMS" to label a broad range of female complaints.

Assessing Cyclic Change

As some cyclic physical changes are experienced by most women, they are of little assistance in diagnosing premenstrual affective disorder (Abraham & Mira, 1989; Schnurr, 1989) and may falsely inflate premenstrual complaint levels (Metcalf et al., 1990; Laessle et al., 1990). To diagnose PMDD, affective change must be of sufficient severity to seriously impair occupational or social activities (Rubinow & Schmidt, 1989; Spitzer, Severino, Williams, & Parry, 1989). Thus, PMDD is characterized by a recurrent pattern of marked emotional change that appears during the week prior to menstruation, diminishes after the onset of menstruation, and is of sufficient severity to impair functioning (Abraham & Mira, 1989; Rubinow, Roy-Byrne, Hoban, Gold, & Post, 1984; Spitzer et al., 1989). Marked change has been defined as a 30% or greater difference between premenstrual and postmenstrual affect and is generally calculated relative to a woman's own range of variability (Schnurr, 1989). When cyclic changes are prospectively assessed using such recurrence and severity criteria, very few women are PMDD diagnosable (Gallant, Popiel, Hoffman, Chakraborty, & Hamilton, 1992).
Cyclic and Noncyclic Affective Change

Perceived PMS

Women who attend PMS clinics and/or volunteer for PMS research, perceiving themselves to have a cyclic disorder, often show no recurrent cyclic pattern of symptoms. Some women with perceived PMS (PPMS) experience chronic affective problems, whereas others label any occasional emotional or physical change as PMS (Dennerstein, Morse, Gotts, Burrows, Brown, Smith, & Farrell, 1988; Schnurr, 1989; Slade, 1984). Indeed, some women with PPMS exhibit a reverse, postmenstrual pattern of cyclic symptoms (Mitchell, Woods, & Lentz, 1991) or a premenstrual increase in positive changes (Stewart, 1989). Although physical changes are more predictable than emotional changes, women with PPMS do not generally show consistent patterns of change in consecutive cycles (Abraham & Mira, 1989; Schnurr, 1989; Walker, 1994). Thus, many women appear willing to adopt the PMS label, regardless of their cyclic patterns of experience.

Stress and Cyclic Change

Anyone can occasionally experience marked affective change (Gallant, Hamilton, Popiel, Morokoff, & Chakraborty, 1991; McFarlane & Williams, 1994). When such changes occur in men or in nonmenstruating women they are generally attributed to psychosocial factors, such as stress. When women of reproductive age exhibit affective changes, these are often interpreted in relation to the menstrual cycle (Ussher, 1989; see also Bains & Slade, 1988; Koeske & Koeske, 1975). Thus, women’s affective changes are generally attributed to biological factors or, to a lesser extent, psychological factors. Social factors have been largely neglected in the study of cyclic change. Links between stress and PMS are often alluded to, but have not been well documented.

Several studies have demonstrated a relationship between stress and perimenstrual complaints (e.g., Beck, Gevirtz, & Mortola, 1990; Maddocks & Reid, 1992; Mills, 1991; Warner & Bancroft, 1990; Woods, 1985), however, the bulk of this research is plagued with methodological problems, such as the use of cross-sectional designs with retrospective assessment of cyclic symptoms, a failure to separate physical and affective experiences, and a failure to conceal the menstrual-cycle focus of the research (a factor known to influence women’s responses, see Parlee, 1974; Ruble, 1977). Most studies have failed to prospectively assess subjective stress (i.e., day-to-day stressors), instead using the widely criticized retrospective-life-events approach to stress measurement (see DeLongis, Folkman, & Lazarus, 1988).

Studies have also shown that social relationships may influence premenstrual experiences. Abraham and Mira (1989) noted that most women in their clinical PMS sample reported that the start of their premenstrual symptoms coincided with the onset of relationship problems. Several other studies reported an association between marital problems and premenstrual symptom complaints.
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(Coughlin, 1990; Seigal, 1986; Stout & Steege, 1985). These findings suggest that interpersonal relationships provide an ongoing social context that may influence stress and health throughout the menstrual cycle.

Most theoretical models of stress and health (e.g., Appley & Trumbell, 1986; Hobfoll, 1989; Lazarus & Folkman, 1984) posit a recursive process whereby appraisal of potential stressors, activation of coping strategies, and subsequent health outcomes are underpinned by one's available biological, psychological, and social resources. Personal resources are central to the stress, coping, and health process (Hobfoll, 1989), and these resources can include fluctuating states as well as more stable dispositional traits. Thus, states of physical, psychological, and social health are personal resources that influence the experience of stress and subsequent health outcomes. Health outcomes feed back into the ongoing process, determining the level of resources available for the appraisal of subsequent stressors. When resources are low (e.g., low levels of physical or social health), stress is likely to have a greater impact on health outcomes.

If cyclic affective changes are examined using this model, it could be predicted that, in psychologically healthy women, diminished social and/or physical health resources would allow stress to have a detrimental impact on emotional health outcomes at any time during the cycle. During the premenstrual phase, when physical changes are more prevalent, physical resources may be further reduced, producing greater subjective stress and poorer emotional health (i.e., greater negative affect).

Present Study

Previous research has shown little correspondence between perceived PMS and a diagnosable premenstrual disorder, but the relative frequency of marked cyclic affective changes in comparison to noncyclic changes has been largely ignored in menstrual-cycle research. Thus, the first aim of this study was to examine the prevalences of PMDD, occasional marked cyclic affective change, and noncyclic, week-to-week marked change, in a nonclinical sample.

There is a dearth of prospective research examining the influence of personal resources (social health, physical health) and subjective stress on cyclic affective states. Thus, the second aim of this study was to examine the contributions of physical health, social health, and subjective stress to women's affective states across cycle phases and calendar weeks.

A sample of healthy, fully functioning, employed women participated in this prospective study of daily stress and health experiences. Women were blind to the menstrual-cycle focus of the study; however, after keeping daily diaries for 10 weeks, each woman completed a supplementary women's health questionnaire that included items to determine self-diagnosed PMS status.

As perceived PMS is a widespread phenomenon, it was predicted that a moderately large proportion of women in the sample would endorse this label. Only a few cases with a diagnosable premenstrual dysphoric disorder were
expected, as current prevalence estimates are quite low. It was also expected that a moderate proportion of the women would occasionally show marked affective change during the premenstrual phase, whereas the frequency of premenstrual change would be no greater than chance. To test this prediction, the frequency of marked premenstrual change was compared to that of postmenstrual change, the overall frequency of cyclic change was compared to that of week-to-week change across 4 calendar weeks, and the chance frequency of cyclic change was examined in a subsample of nonmenstruating women who had been assigned pseudocycles.

The contribution of personal resources and stress levels to affective change was also examined. Cyclic and weekly levels of physical health, social health, subjective stress, and current life events were used to predict cyclic and weekly affect. As the premenstrual phase is often accompanied by physical changes, it was expected that lowered levels of premenstrual physical health would contribute to premenstrual negative affect. It was not clear, however, if physical health was a consistent predictor of affect (across weeks and cycle phases); nor was it clear how social health and subjective stress might contribute to changes in affect.

**METHOD**

**Participants**

One hundred and fifty-nine women were recruited from a large, representative sample of 343 female university employees, representing a range of academic and administrative positions, who took part in a separate, cross-sectional study of stress and health in the workplace (see Hardie, 1997). Of the 159 women who volunteered for the longitudinal study, 101 (63.5%) completed this study (i.e., 58 women dropped out or were omitted due to missing data). This response rate was consistent with similar prospective daily diary studies in which women were blind to the menstrual-cycle focus (e.g., Ainscough, 1990; Slade, 1984; Van den Akker & Steptoe, 1985).

The final sample of 101 women ranged in age from 20 to 64 years \(M = 38.6, SD = 10.8\). The majority (59%) lived with a partner; the remainder were single, widowed, or divorced. None reported any past or current emotional disorders or somatic disorders.

Eighty-three women were experiencing normal menstrual cycles. The remaining 18 women were not experiencing cycles (due to menopause, hysterectomy, or pregnancy) and were used as a nonmenstruating comparison group. This small group was representative of the proportion of nonmenstruating women in the workplace. Although heterogeneous in terms of age and hormonal status, the previous study (Hardie, 1997) had shown that nonmenstruating women did not differ from women experiencing cycles in weekly stress and health experiences.
Of the 83 women experiencing cycles, 33 (40%) perceived themselves to have PMS. This indicated a self-selection bias, as just 17% of women in the larger sample had reported PPMS in their health histories. The reason for such PPMS self-selection was unclear, as this was presented as a study of stress and health, with no mention of the menstrual-cycle focus.

The three groups, nonmenstruating women and menstruating women with and without perceived PMS, did not differ on the demographic characteristics of occupation level or parity, however, women with PPMS tended to be unpartnered.

Daily Diaries and Questionnaires

The Daily Stress & Health Diary (Hardie, 1994) is a 70-page booklet that contains a separate page for rating each day's experiences. Single items were used to rate Emotional Health (overall rating of all positive, neutral, and negative feelings experienced today), Physical Health (overall rating of all positive, neutral, and negative bodily states today), Social Health (overall rating of the quality and quantity of interactions with others today), and Subjective Stress (overall rating for feelings of pressure experienced today when demands outweighed capacity to cope).

Women were instructed to complete the diary at the same time each day, either first thing in the morning or last thing at night, so that ratings reflected the previous 24-hour period. An open-ended space was included to note any unusual events (both positive and negative) in the past 24 hours. All items, apart from events, were rated via 99-mm visual analogue scales (for Health States, very poor to excellent; for Stress, none at all to a great deal). Also included was a set of daily experiences (check if experienced today: exercise, sleep disturbance, laughter, food cravings, crying, sexual activity, menstrual bleeding), which allowed identification of each menstruation and calculation of cycle phases when diary data were analyzed. The Daily Diary approach has been widely used for prospective assessment of cyclic changes and diagnosis of PMS/PMDD (e.g., Abraham & Mira, 1989; Dennerstein et al., 1988; Gallant et al., 1991; Schnurr, 1989).

The postdiary questionnaire included sets of attitudinal items pertaining to women's health issues (menopause, menstruation, PMS; for details, see Hardie, 1994). Embedded among these items was the target item, "I think I have PMS." Items were rated on a 6-point (strongly disagree to strongly agree) scale. Responses of 4 or higher indicated perceived PMS. Also included were two PMS definitional items ("PMS is a disorder in which women experience debilitating physical and/or emotional symptoms prior to menstruation," "PMS is not a disorder, it's simply the name for normal physical and/or emotional changes which occur prior to menstruation"). These items were included to discern women's own meanings for perceived PMS.
Daily Stress & Health Diaries were sent to women who had volunteered for the study. After 10 weeks (a time period chosen to incorporate two consecutive menstrual cycles), postdiary questionnaires were sent to the participants for completion.

Women may have been at any phase of their cycles at Diary Day 1. Following Society for Menstrual Cycle Research (1986) guidelines, Cycle 1 was identified in terms of the first menses that allowed 7 days backward counting to calculate the Premenstrual phase of Cycle 1 and the subsequent Menstrual (all days of bleeding), Postmenstrual (7 days following menstruation), and Intermenstrual (all remaining days) phases of this cycle. Cycle 2 was calculated in the same way. Identification of the second menses allowed backward counting to calculate the Premenstrual phase of Cycle 2 and forward counting for subsequent phases.

Daily Emotional Health ratings were used to determine weekly and cyclic states of affect. The 30% criterion (see Rubinow & Schmidt, 1989; Schnurr, 1989) was used to denote marked cyclic and noncyclic affective changes. If a woman’s mean Premenstrual affective state was markedly poorer than her mean Postmenstrual affective state (i.e., if Postmenstrual minus Premenstrual divided by the range for that cycle was ≥.30) for two consecutive menstrual cycles, she was considered to be PMDD diagnosable.

Occasional Cyclic Changes (CC) were identified among women who did not meet PMDD criteria. If a woman exhibited marked premenstrual change in one of two cycles, she was classified as showing occasional Premenstrual Change (PMC). If she showed a reverse pattern of markedly poorer postmenstrual affect in one of the two cycles, she was classified as showing occasional Reverse Change (RC). Nonmenstruating women were assigned arbitrary pseudocycles, in which "cyclic" change was a chance phenomenon, and similarly classified.

Noncyclic week-to-week change was determined by calculating the degree of change between each woman’s best week (week with highest mean affect) and worst week (week with lowest mean affect) during a 4-week time frame (i.e., best minus worst divided by range for that month). Women were classified according to whether or not they showed Weekly Marked Change (WMC) in order to compare the frequency of cyclic and noncyclic marked affective changes.

**RESULTS**

Prevalence of PMDD

For the 83 women experiencing cycles, Premenstrual–Postmenstrual affective change scores ranged from −.66 to .58 in Cycle 1, and from −.61 to .55 in Cycle 2. Distributions of change scores were normal, with no evidence of skew...
Table 1
The Prevalence of Cyclic Changes Among Menstruating and Nonmenstruating Women over Two Consecutive Menstrual Cycles

<table>
<thead>
<tr>
<th>Cyclic Changes</th>
<th>Percentage of Menstruating Women (n = 83)</th>
<th>Percentage of Nonmenstruating Women (n = 18)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No CC both cycles</td>
<td>64</td>
<td>72</td>
</tr>
<tr>
<td>PMC in one cycle&lt;sup&gt;b&lt;/sup&gt;</td>
<td>19</td>
<td>11</td>
</tr>
<tr>
<td>RC in one cycle&lt;sup&gt;b&lt;/sup&gt;</td>
<td>18</td>
<td>17</td>
</tr>
</tbody>
</table>

<sup>a</sup> Nonmenstruating women were assigned arbitrary pseudocycles.

<sup>b</sup> One woman showed PMC in the first cycle, RC in the second cycle. She was included in both groups. All remaining women showed marked change in just one of the two cycles.

or kurtosis. Mean scores (Cycle 1 \( M = -.002, SD = .25 \); Cycle 2 \( M = -.003, SD = .23 \)) represented virtually no change in affect between phases.

Although 40% of these women believed that they had PMS, none showed marked premenstrual change in two consecutive cycles. Examination of the items tapping women’s meanings of PMS revealed no significant mean differences between those with PPMS and those without PPMS on the disorder definition (PPMS: \( M = 2.58, SD = 0.84 \); No PPMS: \( M = 2.38, SD = 1.03 \)) or the normal-changes definition (PPMS: \( M = 2.85, SD = 1.04 \); No PPMS: \( M = 2.54, SD = 1.05 \)). Overall, the women tended to agree with the definition of PMS as a disorder, and to disagree that PMS was a term used to describe normal changes.

Prevalence of Cyclic Change

The majority of the sample (64%) showed no marked Cyclic Change in either cycle. Only 19% showed marked premenstrual change in one cycle, whereas 18% occasionally showed the reverse pattern (see Table 1).

Interestingly, there was no association between CC pattern and perceived PMS (\( \chi^2_{df2} = 1.06, p = .59 \)). Women were equally likely to self-diagnose PMS regardless of the occurrence or direction of occasional CC. Of the women with PPMS, 58% showed no cyclic change in either cycle, 21% showed PMC in one cycle, and 21% showed the reverse pattern of marked postmenstrual change in one cycle. Proportions for No PPMS women were 68%, 18%, and 14%, respectively.

When nonmenstruating women were compared with those experiencing cycles, both groups showed similar rates of “cyclic” changes (see Table 1). The majority of women were classified as No CC. Occasional CC (PMC or RC) was shown by 36% of menstruating women, and 28% of nonmenstruating women showed occasional pseudocyclic change, indicating that both cyclic and
Table 2
Summary of Results of Two Multiple Regression Analyses Predicting Premenstrual Affect and Postmenstrual Affect from Stress, Social Health, Physical Health, and Life Events Among Women Experiencing Menstrual Cycles

<table>
<thead>
<tr>
<th>Experience Variable</th>
<th>Premenstrual Phase (Beta)</th>
<th>Postmenstrual Phase (Beta)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stress</td>
<td>-.19**</td>
<td>-.18*</td>
</tr>
<tr>
<td>Social Health</td>
<td>.72**</td>
<td>.73**</td>
</tr>
<tr>
<td>Physical Health</td>
<td>.05</td>
<td>.10</td>
</tr>
<tr>
<td>Positive Events</td>
<td>.10</td>
<td>.02</td>
</tr>
<tr>
<td>Negative Events</td>
<td>-.11*</td>
<td>.04</td>
</tr>
<tr>
<td>R</td>
<td>.91</td>
<td>.90</td>
</tr>
<tr>
<td>R²</td>
<td>.82</td>
<td>.81</td>
</tr>
<tr>
<td>R² adj</td>
<td>.81</td>
<td>.79</td>
</tr>
<tr>
<td>F_{5,83}</td>
<td>70.95**</td>
<td>64.25**</td>
</tr>
</tbody>
</table>

Note. Beta values are standardized regression coefficients. N = 83. *p < .05, **p < .001.

chance pseudocyclic changes occurred with a similar frequency, suggesting that occasional cyclic affective changes among menstruating women may be a random phenomenon, largely unrelated to the cycle.

When the occurrence of marked Weekly Change was compared to that of Cyclic Change, a similar rate of frequency was observed. Thirty-six percent of menstruating women occasionally showed marked Cyclic Change and 39% of the sample showed marked week-to-week change, suggesting that this degree of change was not uncommon and that affective lability was equally likely to occur on a cyclic or week-to-week basis.

Predicting Cyclic and Weekly Affect from Stress and Personal Resources

To examine the contribution of subjective stress, positive and negative life events, physical health, and social health to affective states, a series of multiple regression analyses were performed using weekly and cyclic stress and resource states as predictor variables, with weekly and cyclic states of affect as the criterion variables.

The results of the Premenstrual and the Postmenstrual analyses for Cycle 1 and Cycle 2 data were virtually identical. For the sake of brevity, only Cycle 1 results are reported here (see Table 2). Three variables were significant predictors of Premenstrual Affect. Social Health contributed 18%, Stress accounted for 3%, and Negative Events contributed 1% of unique variance. The combined set of predictors contributed a further 60% in shared variability. Altogether, 82% of the variability in Premenstrual Affect was predicted by
premenstrual social health and stress levels. Interestingly, Premenstrual Physical Health was not a significant predictor, as might be expected if premenstrual physical and affective changes were strongly linked.

For Postmenstrual Affect, two variables were significant predictors, with Social Health contributing 26%, and Stress contributing 2% of unique variance. The set of predictors in combination contributed a further 53% in shared variability. Altogether, 81% of the variability in Postmenstrual Affect was predicted by postmenstrual social and stress experiences. Again, Physical Health was not a significant predictor of affect. These results suggested that psychosocial factors played a more influential role in affective changes than did physiological menstrual-cycle fluctuations, particularly as physical states predicted neither premenstrual nor postmenstrual affective states.

As changes between the premenstruum and postmenstruum are the basis for diagnosis of a premenstrual disorder, identifying predictors of affect during these phases was of primary importance. A similar pattern of results was found for predictors of Menstrual and Intermenstrual affect, however. The set of predictors accounted for 80% of the variance in affect during the menstrual phase, and 86% of the variance during the intermenstrual phase. Social health and, to a lesser extent, stress, were consistently shown to be significant predictors. To illustrate women's experiences across the cycle, mean scores for each stress and health variable across the four cycle phases are presented in Table 3.

A parallel set of analyses was performed for each of 4 calendar weeks. The
Cyclic and Noncyclic Affective Change

Table 4
Summary of the Results of Four Multiple Regression Analyses Predicting Weekly Affect from Stress, Social Health, Physical Health, and Life Events Among Employed Women

<table>
<thead>
<tr>
<th>Predictor Variables</th>
<th>Week 1 (Beta)</th>
<th>Week 2 (Beta)</th>
<th>Week 3 (Beta)</th>
<th>Week 4 (Beta)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stress</td>
<td>-.22***</td>
<td>-.15**</td>
<td>-.20***</td>
<td>-.16***</td>
</tr>
<tr>
<td>Social</td>
<td>.64***</td>
<td>.70***</td>
<td>.70***</td>
<td>.74***</td>
</tr>
<tr>
<td>Physical</td>
<td>.12*</td>
<td>.10</td>
<td>.09</td>
<td>.10</td>
</tr>
<tr>
<td>+Events</td>
<td>-.03</td>
<td>.06</td>
<td>.02</td>
<td>.00</td>
</tr>
<tr>
<td>-Events</td>
<td>-.11*</td>
<td>-.11*</td>
<td>-.03</td>
<td>-.04</td>
</tr>
<tr>
<td>( R^2 )</td>
<td>.91</td>
<td>.89</td>
<td>.90</td>
<td>.92</td>
</tr>
<tr>
<td>( \text{adj } R^2 )</td>
<td>.82</td>
<td>.79</td>
<td>.81</td>
<td>.85</td>
</tr>
<tr>
<td>( F )</td>
<td>86.8***</td>
<td>73.4***</td>
<td>79.2***</td>
<td>106.6***</td>
</tr>
</tbody>
</table>

Note. Beta values are standardized regression coefficients. \( N = 101 \).
\( *p < .05, **p < .01, ***p < .001 \).

sets of weekly stress and resource states consistently accounted for around 80% of the variance in Weekly Affect (see Table 4). Social Health and Stress were, again, consistently found to be significant predictors of Affect. In Week 1, Social Health contributed 17% and Stress contributed 3% of the unique variance in Affect, whereas Physical Health and Negative Events each contributed 1%, and the set of predictors combined accounted for a further 60% of the variance. In Week 2, Social Health contributed 22%, Stress 2%, and Negative Events 1% of unique variance, with the set of predictors combined explaining a further 54% of the variance. In Week 3, Social Health explained 20%, Stress 3%, and the set of predictors an additional 58% of the variance in affect. In Week 4, Social Health accounted for 21% and Stress for 2% of unique variance, with the set of predictors explaining an additional 62% of the variance. Positive and Negative Events were not consistently shown to be significant predictors, but this may have reflected the wide range of week-to-week variability in the frequency of events. Apart from calendar Week 1, Physical Health was not a significant predictor of Affect.

Thus, the set of stress and resource states consistently predicted both cyclic and weekly levels of affect, accounting for approximately 80% of the variance in all analyses of weeks and cycle phases. Social health and stress were consistently found to be significant predictors of affect.

DISCUSSION

For this nonclinical sample of employed women, the majority of menstruating women showed no marked cyclic changes in affect. Although 40% of the women perceived themselves to have PMS, none showed a recurrent pattern of marked
premenstrual affective change. Indeed, there was no association between cyclic change patterns and the perception of having PMS. Most women with PPMS showed no cyclic changes, and those who occasionally showed affective decrements were as likely to experience these in the postmenstrual as the premenstrual phase.

On current PMDD prevalence estimates, an estimated 3 to 4 of the 83 menstruating women in this sample should have been diagnosable. Perhaps the true prevalence of recurrent, clinically significant premenstrual negative affect is even lower than the current 5% estimate. As the sample was recruited for a study of stress and health with no mention of the menstrual-cycle focus, it is possible that women with the cyclic disorder chose not to participate. This seems unlikely, however, because 40% of the sample perceived themselves to have a cyclic disorder. Their ratings for the PMS definitional items suggested that they were endorsing a disorder, and not normal cyclic changes. It also may be that having only employed women in the sample created a selection bias that resulted in the exclusion of more severely dysphoric women from the study.

More than a third of the women experiencing menstrual cycles occasionally experienced cyclic affective change. The prevalence of occasional premenstrual change was similar to that of postmenstrual change, however, and these rates were similar to the chance frequency of pseudocyclic changes shown by nonmenstruating women. Likewise, the frequency of occasional cyclic changes was similar to that of noncyclic week-to-week changes. These findings raise several issues. The bulk of menstrual research has focused on premenstrual affective decrements, largely ignoring the women who experience premenstrual increments in affect or marked emotional decrements at other phases of the cycle. A more complete understanding of female cyclicity requires prospective examination of positive and negative changes across all cycle phases and, in view of intercycle variability, across several cycles. Although some recent studies have examined positive cyclic experiences (e.g., Chrisler, Johnston, Champagne, & Preston, 1994; Nichols, 1995), these studies have been based on retrospective reports of cyclic changes, and most prospective studies have concentrated only on negative changes during the premenstruum.

The systematic influence of menstrual cyclicity must be separated from occasional random changes of a noncyclic nature. If nonmenstruating women with no systematic hormonal variations are as likely as menstruating women to exhibit “premenstrual” change, some doubt must be cast on a menstrual-cycle explanation for such affective change. Likewise, if “cyclic” change occurs with a similar frequency and intensity in both menstruating and nonmenstruating women, it is difficult to accept such change as symptomatic of a cyclic disorder. These findings also call into question the utility of the 30% change criterion. This degree of change may be of clinical significance in the diagnosis of PMDD if it recurs regularly, is consistently associated with functional impairment, and is not related to current life experiences. For this sample, however, marked change covaried with social circumstances and subjective stress.
When women occasionally experienced marked affective changes, social health and subjective stress levels were consistently associated with affective states. It was particularly noteworthy that social health provided a 10-fold greater contribution than that of stress to the variability in affect. Associations between stress and the emotional and physical dimensions of health have received an enormous amount of attention in the research literature. Clearly, the association between social relationships and physical and emotional health requires similar attention. Although directional relationships cannot be established with these data, the results provide a compelling case for further study of the social dimension of health, a factor that has been relatively neglected in health research in general, and menstrual-cycle research in particular.

The operationalization of social health in the present study may have been overinclusive, encompassing the perceived need for, and availability of social support, as well as both pleasant and problem-laden aspects of interpersonal relationships. These aspects of social health must be disentangled in future studies. It must also be noted that in the present study, daily stress and health states were measured with single items of unknown reliability and validity. Future studies would benefit from the development of more sophisticated, psychometrically sound measurement instruments.

Interestingly, cyclic physical states were not related to cyclic affective states. These findings raise further doubt about the ubiquitous nature of premenstrual affective changes, showing that affective states do not fluctuate with cyclic physical changes, and that occasional episodes of negative affect during the premenstruum may simply be a chance occurrence. Of course, cyclic physical and emotional changes may not share a common etiology. This would help to explain the lack of support found for the many biological theories of PMS (for reviews see Parry & Rausch, 1988; Schagen van Leeuwen et al., 1993). Most studies have included any combination of physical and emotional symptoms in PMS diagnostic criteria, and then sought a single physiological explanation for heterogeneous symptoms. It may be more useful to examine physical and emotional changes as separate phenomena.

Finally, a comment must be made regarding the seemingly widespread endorsement of self-diagnosed PMS. Others have noted that the majority of women with perceived PMS do not have this disorder (Dennerstein et al., 1988; Gise, Lebovits, Paddison, & Strain, 1989; Schnurr, 1989), a finding confirmed in the present study. It is quite likely that women’s interpretations of their health experiences have been influenced by the preponderance of inaccurate medical and media information about PMS (see Chrisler & Levy, 1990; Ruble & Brooks-Gunn, 1979). With the recent psychiatric classification of PMS/PMDD, however, the erroneous self-endorsement of PMS has serious implications. Although women’s complaints must be taken seriously, there is little to be gained by falsely attributing occasional or chronic noncyclic problems to the menstrual cycle. Women who mislabel any emotional discomfort as PMS, perceiving this to be a biological phenomenon, may fail to recognize and act on the social factors that influence their emotional well-being.
REFERENCES


Cyclic and Noncyclic Affective Change


