
Premenstrual Mood Changes and Maternal Mental Health in Pregnancy and the Postpartum Period



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To investigate the relationship between premenstrual mood changes and maternal mental health in the perinatal period, a prospective questionnaire survey of 1,329 women was carried out. Women with a premenstrual mood changes (irritability) before pregnancy showed significantly higher Zung's Self-rating Depression Scale (SDS) scores than those without it, throughout pregnancy and the postpartum period (6 time points: early, middle, and late pregnancy, 5 days, 1 month, and 6 months after childbirth). In addition, women with premenstrual irritability had greater anxiety about pregnancy and delivery, were more reluctant to accept mother roles, and felt their babies (fetuses or neonates) were more vulnerable. These findings suggest that premenstrual mood change is correlated with unstable mental health throughout the perinatal period. © 1997 John Wiley & Sons, Inc.

Ramcharan, Love, Fick, & Goldfien (1992) reported that about 4.5% of women in a community suffer regularly from severe negative mood changes in the few days prior to menstruation. Despite the possibility of endocrinological disturbance being related to the premenstrual mood changes (Schagen van Leeuwen, et al., 1993), this condition has been included as a psychiatric disorder in a formal nosological classification (American Psychiatric Association, 1994; Spitzer, Severino, Williams, & Parry, 1989). Women with premenstrual mood change are more likely to have a high lifetime prevalence of affective disorders (Coppin, 1965; Wetzel, Reich, McClure, & Wald, 1975; DeJong, Rubinow, Roy-Byrne, Hoban, Grover, & Post, 1985; Endicott & Halbreich, 1988; Graze, Nee, & Endicott, 1990). Recently, Endicott, Nee, Cohen, & Halbreich (1993) reported that of the five symptom clusters they extracted from a factor analysis of 20 premenstrual change items, those women reporting physical discomfort and dysphoric mood scores tended to be more likely to have experienced Research Diagnostic Criteria (RDC; Spitzer, Endicott, & Robins, 1978) major and minor depressive disorders. These findings have drawn the attention of clinical psychologists and psychiatrists to the management of premenstrual negative mood change.

Another period when most women feel strained is the pregnancy and puerperium. In pregnancy and the postpartum period, many women undergo great stress due to physiological, endocrinological, and psychosocial changes (acceptance of mother role, unemployment, etc.). Evidence has accumulated to suggest that the rate of onset of affective disorders is high during pregnancy, as well as in the puerperium (Kitamura, Shima, Sugawara, & Toda, 1993; Kitamura, Sugawara, Sugawara, Toda, & Shima, 1996; Kumar & Robson, 1984). Despite the importance of these two periods, a specific relationship between premenstrual mood change and perinatal affective disorders has rarely been sought. In a retrospective study (Pearlstein, Frank, Rivera-Tovar, Thoft, & Jacob, 1990), 29% of 51 women who were diagnosed as suffering from DSM-III-R (American Psychiatric Association, 1987) proposed late luteal phase dysphoric disorder (LLPDD) had also experienced postpartum depression. Therefore, more studies on the possible link of these two conditions which are specific to female gender may be warranted in order to understand better the aetiology of and possibly treatment for these mood changes.

Some researchers have studied the relationship between premenstrual mood change and rearing patterns and female role-taking (Shainess, 1961; Spencer-Gardner, Dennerstein, & Burrows, 1983). However, there has been no research about the effects of premenstrual mood changes on the perinatal development of maternal consciousness.

To approach these issues, we compiled a longitudinal assessment of maternal depression at six points in pregnancy and the post-partum period, for women who were also asked if they had experienced any premenstrual mood changes before pregnancy. This study had two purposes: to compare the severity of depression longitudinally in a premenstrual mood changing group and a non-changing group; and to compare maternal consciousness, feelings for one's baby, and the psychological attitude towards pregnancy or delivery in the same two groups.

METHOD

Subjects and Procedure

A total of 1,329 women who were in attendance at an antenatal clinic in the obstetrics department of a general hospital in Kawasaki, an industrial city in central Japan, participated in a questionnaire survey, after pregnancy had been confirmed by the presence of a foetal heart-beat on ultrasonography. Women who were at more than 12 weeks gestation were excluded, but no other exclusion criteria were applied. From these 1,329 women, 1,322 (99.5%) usable questionnaires on premenstrual complaints were returned. Their age was between 17 and 42, with a mean ($\pm SD$) of 27.9 (± 4.6) years.

Questionnaires were distributed six times during the pregnancy and after delivery—in early pregnancy (when the subjects were recruited), middle pregnancy (approximately 22 weeks gestation), late pregnancy (approximately 34 weeks gestation) and 5 days, 1 month, and 6 months after delivery. Until one month after delivery, questionnaires were administered in the hospital. For the six months after delivery, questionnaires were sent and received back through the mail.

Premenstrual Mood Change

The questionnaire given in early pregnancy included a single item referring to premenstrual mood change: "Do you feel irritable and unpleasant in the premenstrual period?" This item was rated on a 4-point scale: never (0), sometimes (1), often (2), and almost all of the time (3).

Depression

On six occasions, Zung's (1965) Self-rating Depression Scale (SDS) was used to measure the severity of depression. The total number of SDS items is 20, which are rated on a 4-point scale from never (0), to sometimes (1), often (2), and almost all of the time (3). The maximum total score is 60; higher scores indicate greater depression. The validity of the Japanese version of the SDS was studied by Kitamura, Shima, Sugawara, & Toda (1994), using a subpopulation of 120 women extracted from the present subjects.

Maternal Consciousness and Feelings Towards the Baby

The questionnaire given in middle pregnancy and 5 days after delivery included items concerning both anxiety about the pregnancy or delivery and acceptance of the mother or mother-to-be role (Table 1). The Feelings towards the Baby (fetus or neonate) Scale (Hanazawa, 1978) was also administered in mid-pregnancy and five days after delivery. This scale consists of 14 adjectives that were associated with "my own baby" (Table 2). These were rated on a 7-point scale from disagree completely (0) to agree completely (7).

Table 1. Comparison of Maternal Consciousness (*t*-test of mean scores)

| Items | Irritable (<i>n</i> = 956) | Non-Irritable (<i>n</i> = 366) |
|-----------------------------------|--------------------------------|------------------------------------|
| Middle of pregnancy (20–24 weeks) | | |
| Anxiety about Pregnancy | 5.07 (1.48) | 4.65 (1.68)** |
| Anxiety about Delivery | 4.71 (1.52) | 4.16 (1.75)** |
| Reluctance to Become a Mother | 2.10 (1.37) | 1.92 (1.36)* |
| Envy of Non-Pregnant Person | 3.44 (1.72) | 3.05 (1.63)** |
| 5 days After Delivery | | |
| Satisfaction with Delivery | 6.05 (1.00) | 6.13 (.83) <i>ns</i> |
| Tiredness | 4.59 (1.53) | 4.32 (1.58)** |
| Happy to be a Mother | 6.27 (.78) | 6.28 (.77) <i>ns</i> |
| A Feeling of Reality- "My Baby" | 2.57 (1.71) | 2.30 (1.59)* |

***p* < .01; **p* < .05.

RESULTS

The subjects were divided into those who reported experiencing premenstrual irritability at least sometimes, ("irritable group" *n* = 956, 72.3%) and those who had never experienced such irritability ("non-irritable group" *n* = 366, 27.7%). The breakdown of the irritable group was as follows: almost all of the time = 4.8% (*n* = 64), often = 16.9% (*n* = 224), and sometimes = 50.5% (*n* = 668). There were no significant differences in age, occupation, income, number of previous pregnancies, or parity between the two groups. Although the "non-irritable group" had a higher average level of education than the "irritable group" (non-irritable group = 4.38 (.79), irritable group = 4.22 (.73), *t* = 3.41, *p* < .01), no significant interaction was observed through variance analysis of all the independent variables.

Table 2. Factor Analysis of Feelings for Baby Scale

| Items/Factor Loadings | Middle of Pregnancy (20–24 weeks, <i>n</i> = 1,150) | 5 Days After Delivery (<i>n</i> = 1,113) |
|------------------------------------|--|--|
| Factor I: "Angel Baby Image" | | |
| Fresh | .75 | .71 |
| Pretty | .78 | .70 |
| Pure | .75 | .64 |
| Innocent | .74 | .65 |
| Want to touch | .67 | .63 |
| Cuddly | .65 | .54 |
| Sweet | .61 | .55 |
| Touching | .52 | .61 |
| Factor II: "Vulnerable Baby Image" | | |
| Fragile | .61 | .73 |
| Sickly | .66 | .58 |
| Flabby | .49 | .61 |
| Scary | .54 | .64 |
| Factor III: "Detachment from Baby" | | |
| Obstructive | .74 | .67 |
| Burdensome | .74 | .56 |
| % Variance Explained | 60.2% | 56.9% |

Across all the measuring points, SDS scores were significantly higher among the “irritable group” than among the ‘non-irritable group’ (Figure 1). The mean score (*SD*), *t*-value, and significance level of each measuring point were as follows: early pregnancy: “irritable group” = 42.58 (6.54)/“non-irritable group” = 40.08 (6.55), $t = 5.44, p < .01$; middle pregnancy: “irritable group” = 39.93 (6.03)/“non-irritable group” = 37.89 (5.78), $t = 4.97, p < .01$; late pregnancy: “irritable group” = 41.20 (5.71)/“non-irritable group” = 39.24 (6.22), $t = 4.58, p < .01$; 5 days after delivery: “irritable group” = 39.07 (6.58)/“non-irritable group” = 38.13 (6.74), $t = 2.00, p < .05$; 1 month after delivery: “irritable group” = 40.32 (7.54)/“non-irritable group” = 39.21 (7.55), $t = 2.01, p < .05$; 6 months after delivery: “irritable group” = 41.53 (7.44)/“non-irritable group” = 39.66 (7.52), $t = 3.51, p < .01$.

The Feelings toward Baby Scale scores were factor-analyzed (principal component analysis) with subsequent varimax rotation. The number of factors extracted was determined by Kaiser criteria (eigenvalue more than unity). This yielded three factors interpretable as “angel baby image,” “vulnerable baby image,” “detachment from the baby” (Table 2).

The “vulnerable baby image” scores were significantly higher among the “irritable group” than among the “non-irritable group” both in mid-pregnancy and 5 days after delivery (middle pregnancy: “irritable group” = 17.65 (4.52)/“non-irritable group” = 16.53 (4.77), $t = 3.58, p < .01$; 5 days after delivery: “irritable group” = 19.14 (4.72)/“non-irritable group” = 17.89 (5.35), $t = 3.55, p < .01$). On the other hand, the “angel baby image” and “detachment from the baby” scores did not differ significantly between the two groups, throughout the pregnancy and puerperium.

Table 1 shows the comparison between the two groups of anxiety about pregnancy or delivery and feelings of accepting the mother and mother-to-be role. The irritable group showed a higher level of anxiety about pregnancy or delivery, and stronger reluctance to become a mother in mid-pregnancy. Five days after delivery, the “irritable group” women were more likely to complain of tiredness and had less feeling of accepting the reality of “my baby.”

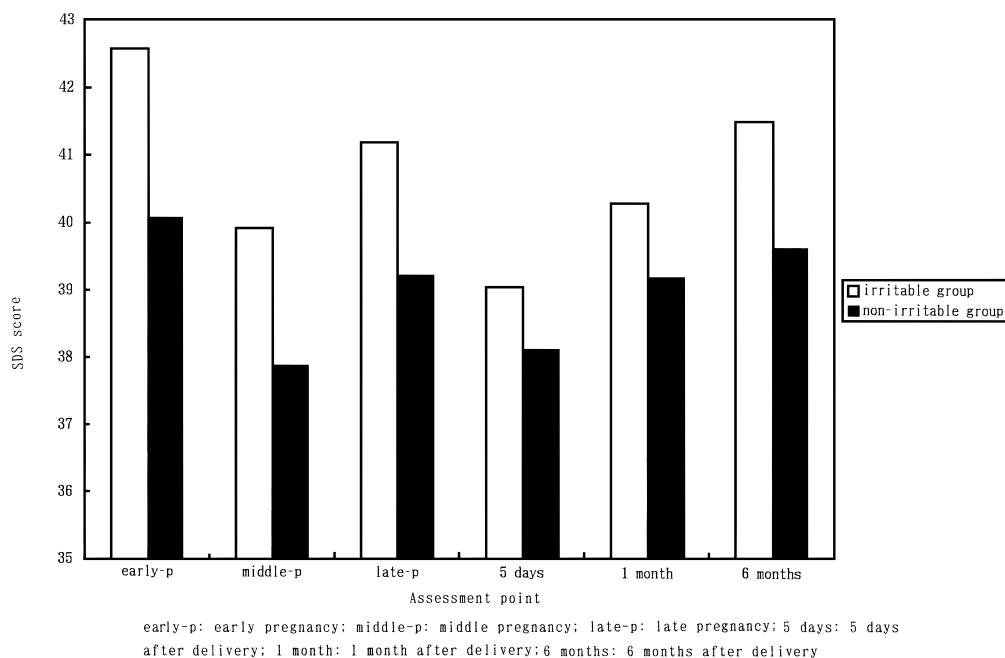


Figure 1. Comparison of SDS score between irritable group and non-irritable group.

DISCUSSION

Using a relatively large sample population, the present study found that premenstrual irritability was correlated with depression during pregnancy and the postpartum period. Pearlstein et al. (1990) reported that fertile women who were diagnosed as suffering from LLPDD according to DSM-III-R, were more likely to experience postpartum depression. While his assessment of postpartum depression was retrospective, our longitudinal study was prospective and discovered a similar relationship of premenstrual mood changes with the severity of depression throughout the perinatal period. This suggests that premenstrual mood change is an important risk factor for the occurrence of both prenatal and postpartum depression.

The relationship between premenstrual mood change and severity of depression during pregnancy and the postpartum period may be explained by a vulnerability to hormonal changes. During pregnancy and the postpartum period, women undergo much greater hormonal changes than in the premenstrual cycle-phase (Hamilton, Parry, & Blumenthal, 1988). It is possible that premenstrual negative mood changes and depressive mood during pregnancy and the postpartum period share a similar physiological background.

A second possible explanation is that there are several common psychosocial factors in menstruation and pregnancy or childbearing. Some previous studies have investigated female gender role conflict. Thus, Robert (1976) maintained that women suffering greater distress premenstrually both resented and did not accept the traditional female role. However, Spencer-Gardner et al. (1983) found no significant relationship between premenstrual tension and the female role. Our findings showed that those women experiencing premenstrual mood change exhibited more negative attitudes towards the pregnancy or delivery. Moreover, these premenstrual mood changers were more likely to feel that "their" baby was vulnerable than were non-mood changers. This may be consistent with the proposal that there is a relationship between premenstrual mood change and maternal role-taking. However, it was impossible in this study to clarify whether maternal consciousness may be affected by the mother's negative mood following hormonal changes, or if premenstrual negative mood changes may be exacerbated by negativity towards pregnancy and motherhood. More detailed study may be warranted to gain further insight into women's psychological development as a parent.

Another psychological factor correlating to premenstrual mood changes is that women who complained of premenstrual negative mood changes had a stronger level of anxiety than controls (Awaritefe, Awaritefe, Lib, Diejomach, & Ebie, 1980). The results of our study were consistent with this; premenstrual mood changers felt greater anxiety about pregnancy or childbearing. High trait anxiety may produce more negative cognition about the physical and psychological changes due to menstruation, pregnancy or childbearing.

From a number of studies of premenstrual mood or physical changes, measurements of entire premenstrual physical and mood changes have been proposed (e.g., Premenstrual Distress Questionnaire; Moos, 1968) and the diagnostic criteria for premenstrual change as a mental disorder were proposed in DSM-III-R (Spitzer et al., 1989), though DSM-IV (American Psychiatric Association, 1994) did not accept it as a diagnostic category. The premenstrual syndrome is a constellation of many symptoms such as anxiety, sadness, irritability, depression, and changes in sleep or appetite. The present study examined only premenstrual irritability, so our results should be interpreted with caution. However, the fact that premenstrual irritability exhibited clear correlations with depression during pregnancy and the postpartum period suggests that irritability may be an important index of the premenstrual syndromes.

Future studies may be needed to assess the entire premenstrual physical and mood changes, as well as the relationship between premenstrual syndromes and depression during pregnancy and the postpartum period.

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