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A STUDY OF MOODS IN POSTPARTUM WOMEN

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With the assumption that the new mothers have rather negative and unstable moods during their puerperium than during their pregnancy/non-pregnancy period, as they must adapt themselves to the changes of their psychological and social environments concomitant with the acute physiological changes following delivery, the present studies aimed at measuring the moods in mothers by using Nowlis' MACL under two different nursing situations; in one situation the postpartum mothers kept their babies beside them after the 2nd day of puerperium, and in the other the mothers were separated from their babies till discharge. The results obtained are summarized as follows: 1) although the higher score of Anxiety was demonstrated in the primiparous mothers, the scores of other mood factors such as Aggression, Sadness and Egotism did not present high values at all; 2) higher scores of Surgency, Social affection and Concentration were also observed in the postpartum women; and 3) neither the daily mood changes nor the intraindividual variations of moods during 5 days of puerperium were generally so great in the postpartum women. Contrary to our prediction, these findings seem to suggest that the moods of postpartum women are relatively positive and stable. This seems to be true especially for the mothers whose babies were kept separated from them in the nursery room.

The previous comparative study between the pregnant and the non-pregnant control groups by us showed that no distinct difference was found between the two groups so far as mood factors of Aggression, Anxiety, Concentration and Egotism are concerned, but that Surgency, Fatigue and Social affection had higher scores and Sadness a lower score among the pregnant than among the control group (Murai & Murai, 1976). It was also indicated that the pregnant women's group had more positive and stable mood than the control group with the exception of the nulliparous having somewhat unstable mood in the early stage of pregnancy.

As one of a series of psychological studies of pregnant and postpartum women, the present studies aim at measuring the moods in postpartum mothers. It has been well recognized that the commonly observed depression during the immediate puerperium,

so-called "postpartum blues", occurs about 3 days after delivery. The patient tends to be irritable and unreasonable. She may burst into tears without provocation. Yalom et al (1968) found that in the first 10 days after delivery, 26 of the 39 women (66.7%) had episodes of crying lasting for more than 5 minutes.

We assumed that, the new mothers had rather negative and unstable moods during their puerperium than during their pregnancy/non-pregnancy period, as they must adapt themselves to the changes of their psychological and social environments concomitant with the acute physiological changes following delivery.

STUDY I

METHOD

Subjects: Our subjects were 80 women coming under the following 3 categories: 1) postpartum women of mean age 26.9, 41 in number, 20 primiparous and 21 multiparous, randomly selected from the postpartum women who had delivered normally at the Obstetric Clinic of Tohoku University Hospital; 2) pregnant women at their middle stage of pregnancy (5-6 months), 21 in number with mean age of 27.3, 10 of them being primiparous; and 3) non-pregnant married women of mean age 31.3, 18 in number.

Questionnaire: Mood was measured in 24 items taken from a shorter version of Nowlis Mood Adjective Check List (Nowlis & Green, 1965) which was translated into Japanese by one of the present authors (Murai, 1969).

Procedures: In the case of postpartum women, each subject was individually given the check list with explanation thereof on the 1st day of puerperium and was asked to fill the list. The same check list was used once each day for 5 consecutive days thereafter.

In the group of pregnant women, each subject was individually handed the check lists at the prenatal visit to the clinic and asked to fill them for 5 days in the same way as the postpartum women except that she was asked to fill them at home and mail them to us.

Each subject of the non-pregnant control group was also given the same lists as the two groups mentioned above and was asked to fill them for 5 days excepting the menstrual and premenstrual periods.

RESULTS

The mean value of mood scores obtained throughout 5 consecutive days for each of 8 moods in each of the 3 groups is shown in Table 1.

In the comparisons between these groups, it was indicated that the postpartum group gave a significantly lower score of Aggression than the pregnant group [$t(60)=2.32$, $p<.05$], and that the postpartum group gave significantly higher scores of Concentration and of Social affection than the control group [$t(57)=2.32$, $p<.05$; $t(57)=3.56$, $p<.01$, respectively]. There was no significant group difference, however, in any

Table 1. Means of mood factors of Nowlis' MACL for postpartum, pregnant and non-pregnant women's groups.

Mood factors	Group					
	Postpartum (N=41)		Pregnant (N=21)		Non-pregnant (N=18)	
	M	SD	M	SD	M	SD
Aggression	0.7 ^a	1.5	1.9	2.5	1.2	1.8
Anxiety	2.1	2.1	1.6	1.8	1.1	1.2
Surgency	3.1	2.1	3.4	2.0	2.6	2.3
Concentration	4.7 ^b	2.2	4.0	2.4	3.3	1.8
Fatigue	4.4	2.3	3.9	2.2	4.0	2.0
Social affection	6.7 ^c	2.1	5.6	2.2	4.4	2.8
Sadness	0.8	1.5	1.8	2.4	1.5	1.9
Egotism	1.0	1.6	1.5	2.0	1.5	1.5

^a Differs from pregnant at the .05 level.

^b Differs from non-pregnant at the .05 level.

^c Differs from non-pregnant at the .01 level.

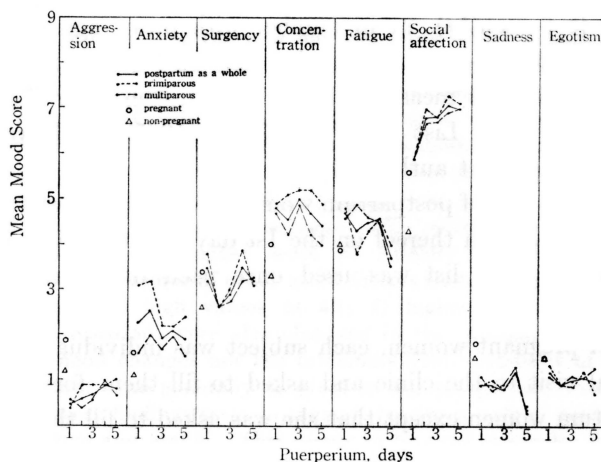


Fig. 1. Daily changes of 8 mood scores for the postpartum women's group as a whole and for the two subgroups, primiparous and multiparous, subdivided according to their parity.

mood factors between the pregnant and the control groups.

Figure 1 shows the mean values of mood scores of the postpartum women for each of 8 moods and for each of 5 consecutive days of puerperium. In this figure, the daily mean value of each mood is shown by 3 lines, which represent the 3 groups: the postpartum women's group as a whole, and its two subgroups, primiparous and multiparous, subdivided according to their parity. There are also plotted the mean values of each mood scores obtained throughout 5 consecutive days for the pregnant and the control groups.

The mood scores of the postpartum group for each day of puerperium were compared with the mean values obtained throughout 5 days of the pregnant and the

control groups. Comparing the postpartum group to the pregnant one, we found the significant group differences in the following 3 mood factors of Aggression, Social affection and Sadness: the postpartum group gave a significantly lower score in Aggression on the 1st day of puerperium, significantly higher scores in Social affection on the 2nd to 5th day, and a significantly lower score in Sadness on the 5th day than the pregnant group [in Aggression $t(60)=2.37$, $p < .05$; in Social affection $t(60)=2.06$ (for 2nd day), $t(60)=2.00$ (3rd), $t(60)=2.65$ (4th), and $t(60)=2.26$ (5th), $p < .05$, in all cases; and in Sadness $t(60)=2.65$, $p < .05$].

The comparison between the postpartum and the control groups indicated that the postpartum group gave significantly higher scores than the control group in Anxiety, Concentration and Social affection: the Anxiety scores on 1st, 2nd and 4th day [$t(57)=2.67$, $p < .05$ (for 1st day), $t(57)=3.22$, $p < .01$ (2nd) and $t(57)=2.21$, $p < .05$ (4th)]; the Concentration scores on 1st to 4th day [$t(57)=2.50$, $p < .05$ (for 1st day), $t(57)=2.24$, $p < .05$ (2nd), $t(57)=2.83$, $p < .01$ (3rd) and $t(57)=2.33$, $p < .05$ (4th)]; and the Social affection scores on 2nd to 5th day [$t(57)=3.72$ (for 2nd day), $t(57)=3.26$ (3rd), $t(57)=4.28$ (4th) and $t(57)=3.81$ (5th), $p < .01$, in all cases].

In the examination of the daily changes for each of 8 mood scores in the postpartum group, the significant daily changes were observed so far as 5 mood factors of Anxiety, Surgency, Fatigue, Social affection and Sadness are concerned: in Anxiety the score of the 2nd day of puerperium was significantly higher than that of the 3rd day [$t(80)=2.28$, $p < .05$]; in Surgency the score of the 2nd day was significantly lower than that of the 1st day [$t(80)=3.31$, $p < .01$]; in Fatigue the score of the 5th day was significantly lower than that of the 4th day [$t(80)=2.80$, $p < .01$]; in Social affection the score of the 2nd day was significantly higher than that of the 1st day [$t(80)=2.89$, $p < .01$]; and in Sadness the score of the 5th day was significantly lower than that of the 4th day [$t(80)=2.79$, $p < .01$].

Then, the postpartum women were divided into two subgroups, primiparous and multiparous, and their mood scores were compared. Between the two subgroups, no significant group difference for any mood factors was found except that on the 1st day of puerperium the primiparous gave a significantly highr Anxiety score than the multiparous [$t(39)=2.28$, $p < .05$].

In addition, when the intraindividual variations during 5 days between the two groups were compared, the primiparous group showed a significantly greater variation in the mood of Anxiety than the multiparous group [$F(80, 84)=3.47$, $p < .01$].

DISCUSSION

The present study indicated that the postpartum women gave significantly lower mood scores in Aggression and Sadness, and a higher score in Social affection than the pregnant women, and that they gave significantly higher scores in Anxiety, Concentration and Social affection than the non-pregnant control women.

The higher score in Anxiety of the postpartum group seems to suggest that the

postpartum women have a somewhat negative and unstable mood. However, we can not hastily draw such a conclusion, for there are no significant group differences among the 3 groups in the score of Sadness, which is considered to have the closest relationship to so-called "postpartum blues".

In regard to higher score of Concentration of the postpartum mothers, this can be interpreted as reflecting their tension when adapting themselves to the new environments after childbirth.

In addition, referring to the higher score of Social affection of the postpartum women when compared with those of the pregnant and the control women, it can be interpreted as an indication that they want to show their social desirability because one of the present investigators was a staff of the Obstetric Clinic, an obstetrician. However, in this study it was also found that the score of Social affection in the postpartum women rose significantly from the 1st day to the 2nd day of puerperium, while their score of Surgency fell significantly from the 1st day to the 2nd day of puerperium. Taken these findings together, it can be suggested that there is a close relationship between the higher score of Social affection in the postpartum women and such new environmental stimuli or physical conditions as the emotional response to their babies and the secretion of breast milk. As a rule at the Tohoku University Hospital the babies are brought to their mothers for the first time on the 2nd day of puerperium from the nursery room and since then they are kept beside their mothers till discharge.

The scores of Fatigue and of Sadness in the postpartum women fell significantly from the 4th day to the 5th day of puerperium. These findings can be interpreted as reflecting their adaptation to the new environments and the psychological as well as physical recovery.

In the primiparous, the score of Anxiety on the 1st day of puerperium was higher than that in the multiparous. The primiparous also showed a greater intraindividual variation in the mood of Anxiety. These may suggest a somewhat negative mood in the primiparous women.

STUDY II

In the previous study the following two questions were raised: 1) Have the changes of mood scores in Surgency and in Social affection observed on the 2nd day of puerperium resulted from the nursing situation of the hospital, where the babies are usually kept beside their mothers after the 2nd day of puerperium?; and 2) Has the higher mood score in Social affection of the postpartum women resulted from their desire for social desirability because of the investigator being a medical staff?

In this study, therefore, the mood of postpartum women was investigated in the other hospital where the babies are usually kept separated from their mothers in the nursery room except for feeding, and by the other investigator who is neither a medical staff nor a participant in the medical care of that hospital.

METHOD

Subjects: The subjects were 40 postpartum women, 20 primiparous and 20 multiparous, of mean age 28.5, randomly selected from the postpartum women who had delivered normally at the Obstetric Clinic of the Tohoku Kohsai Hospital (a hospital for government employees and their families, with somewhat similar accommodations for the maternity ward to those of the Tohoku University Hospital). In this hospital the babies are usually kept separated from their mothers in the nursery room except for primiparous women whose babies are kept beside their mothers after the 6th day of puerperium.

Procedure: Each subject was individually given the identical check list used in the previous study and asked to fill the list in the same procedures as in the previous investigation. In this study, however, the investigator was introduced to each subject by the chief nurse as psychologist as well as university professor studying the moods of postpartum women.

RESULTS

Moods of the postpartum women in the Tohoku Kohsai Hospital

Figure 2 shows the mean mood score for each of 8 moods and for each of 5 consecutive days of puerperium in the postpartum women of the Tohoku Kohsai Hospital. As Figure 1 in the previous study, this figure also gives 3 different lines, each of them representing the 3 groups of the postpartum women as a whole, the primiparous, and the multiparous among them, respectively.

Inspection of this figure reveals that there are generally little daily changes for each of 8 mood scores in the postpartum women of the present study. So far as the

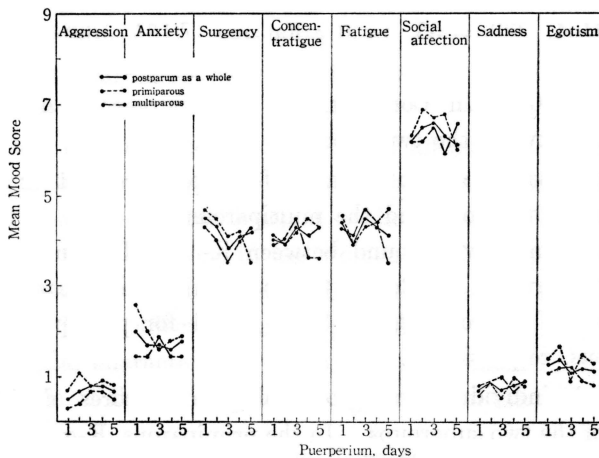


Fig. 2. Daily changes of mood scores for the postpartum women's groups at the Tohoku Kohsai Hospital.

postpartum women's group as a whole is concerned, no significant daily changes were observed for any of 8 moods.

Observing each of their subgroups, primiparous and multiparous, we also found that neither primiparous nor multiparous groups showed significant daily changes for any of 8 mood factors.

The comparison of the primiparous group and the multiparous one showed a significant group difference only in the Anxiety score on the 1st day of puerperium: the primiparous gave a significantly higher score than the multiparous [$t(38)=2.09$, $p<.05$].

In addition, the intraindividual variations of mood scores during 5 days between the two groups were compared. The primiparous group showed a significantly greater variation in the mood of Surgency than the multiparous group [$F(80, 80)=1.48$, $p<.05$].

Comparisons with the postpartum women in the Tohoku University Hospital

The mood scores of the present study obtained from the patients in the Tohoku Kohsai Hospital (referred to as K-group, after this) were compared with those obtained from the patients of the previous study in the Tohoku University Hospital (referred to as U-group, after this).

When K- and U-groups were compared as the postpartum women as a whole, K-group showed significantly higher mood scores of Surgency on the 1st, 2nd and 3rd days of puerperium than U-group: on the 1st day, K-group $\bar{x}=4.5$, U-group $\bar{x}=3.5$, [$t(79)=2.46$, $p<.05$]; on the 2nd day, K-group $\bar{x}=4.3$, U-group $\bar{x}=2.0$, [$t(79)=5.24$, $p<.01$]; and on the 3rd day, K-group $\bar{x}=3.8$, U-group $\bar{x}=2.9$, [$t(79)=2.22$, $p<.05$]. There were no significant group differences between the two groups in any of the other mood scores.

In the examination of the intraindividual variations of mood scores during 5 days between the two groups, K-group showed significantly less variations in all mood scores excepting Concentration and Surgency than U-group [in Aggression, $F(164, 160)=1.49$, $p<.05$; Anxiety, $F(164, 160)=1.33$, $p<.05$; Fatigue, $F(164, 160)=1.63$, $p<.01$; Social affection, $F(164, 160)=1.48$, $p<.05$; Sadness, $F(164, 160)=1.88$, $p<.01$; and Egotism, $F(164, 160)=1.70$, $p<.01$]. In Concentration and Surgency, no significant group difference was found between the two groups.

Then, the comparisons between K- and U-groups were further made in each of their subgroups, the primiparous and the multiparous. In each of the subgroups, no significant group differences were found between K- and U-groups, except that both subgroups of K-group gave on the 2nd day of puerperium significantly higher scores of Surgency than those of U-group [$t(38)=3.04$, $p<.01$ for primiparous; $t(39)=2.15$, $p<.05$ for multiparous, respectively].

Finally, the intraindividual variations of mood scores during 5 days were examined for each of the two subgroups. In the primiparous, K-group gave significantly less variations in moods of Anxiety, Surgency, Social affection, Sadness and Egotism than U-group [in Anxiety, $F(80, 80)=1.88$, $p<.01$; Surgency, $F(80, 80)=1.62$, $p<.05$; Social

affection, $F(80, 80)=1.54$, $p<.05$; Sadness, $F(80, 80)=2.29$, $p<.01$; and Egotism, $F(80, 80)=2.10$, $p<.01$]. In the multiparous, K-group also showed significantly less variations in moods of Concentration, Fatigue and Sadness than U-group [in Concentration, $F(84, 80)=1.45$, $p<.05$; Fatigue, $F(84, 80)=2.05$, $p<.01$; and Sadness, $F(84, 80)=1.54$, $p<.05$].

DISCUSSION

In the previous study, it was found that the postpartum women whose babies were kept beside them after the 2nd day of puerperium, *i.e.*, U-group, showed significant daily changes in mood scores concerned with Surgency and Social affection. However, no significant daily changes for any of 8 mood scores were found in the group of postpartum women whose babies were kept separated from them in the nursery room, *i.e.*, K-group. This study further showed that the score of Surgency of K-group was significantly higher than that of U-group. From these findings it may be suggested that the significant daily changes of moods in Surgency and in Social affection, which were observed in the women of U-group, resulted from such environmental events as their babies being brought to them on the 2nd day of puerperium and since then kept beside them till discharge.

In addition to these findings, it was also revealed that K-group gave significantly less intraindividual variations in most mood scores than U-group. Considering all these findings together, we may draw a conclusion that the moods of the postpartum women of K-group, where their babies were kept separated from them, were generally more stable than those of the women of U-group, where their babies were kept beside them during puerperium. But this does not immediately imply that the moods of the postpartum women of U-group are generally negative as well as unstable because: 1) the higher Anxiety score of the primiparous was observed on the 1st day of puerperium in K-group as well as U-group; 2) there were no significant group differences in any mood scores between K- and U-groups except for Surgency; and 3) the two groups had almost even scores in each of the moods of Aggression, Sadness and Egotism and also the scores themselves were at low level.

In regard to the higher mood score of Social affection observed in U-group, we assumed that it had resulted from the desire for the social desirability of postpartum women because of the investigator being a medical staff. The high score in that mood factor was observed, however, in the women of K-group as well and there was no significant difference in the mood score between the two groups. Therefore, the higher mood score of Social affection during puerperium may be interpreted as rather one of the psychological characteristics of postpartum women immediately after child-birth than an influence of the investigator being a medical staff.

Concluding Remarks

The studies reported above dealt with moods of postpartum women immediately

after childbirth (1st to 5th days of puerperium). The moods were evaluated by Nowlis Mood Adjective Check List, a self-evaluating questionnaire, and under two different nursing situations such as the babies being kept beside their mothers and being kept separated from their mothers.

The leading characteristics in moods of postpartum women demonstrated in these studies were summarized as follows: higher Social affection; higher Surgency under the situation separated from the babies; higher Concentration under the situation keeping beside the babies; and higher Anxiety in the primiparous women.

The present studies have been conducted under the prediction that the moods of postpartum women are generally negative and unstable. Although the higher score of Anxiety was demonstrated in the primiparous, the scores of other mood factors, usually considered negative, such as Aggression, Sadness and Egotism, did not present high values at all. As mentioned above, higher scores of Surgency, Social affection and Concentration were also observed in postpartum women. In reference to the changes of moods, it was indicated that neither the daily mood changes nor the intraindividual variations of moods during 5 days of puerperium were generally so great. Contrary to our prediction, these findings would suggest that the moods of postpartum women are relatively positive and stable. Particularly, this is true for the postpartum women whose babies are kept separated from them in the nursery room.

The following are suggested as further problems yet to study: 1) to clarify the relationship between the moods of postpartum period and some characteristic behaviors of so-called "postpartum blues", postpartum "crying" in particular; and 2) to investigate the changes of moods after discharge for several weeks, 4 weeks at least.

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