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A STUDY OF MOODS IN PREGNANT WOMEN

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We have conducted a series of psychological studies of pregnancy and shown that pregnant women have wholesome emotional traits and that especially in their middle stage of pregnancy they have the most stable period. In the present study, two mood measurements were taken at an interval of a week by using Nowlis's MACL on 128 pregnant women and on a control group of 38 women. The results showed that the pregnant women's group was higher in surgency, fatigue, and social affection and lower in sadness than the control group, and that the correlation of two mood measurements was higher in the pregnant group. The nulliparous were somewhat unstable in their mood at their early and late stages of pregnancy in comparison with the multiparous, but in their middle stage, both the nulliparous and the multiparous showed stability. Therefore, our previous findings are confirmed by this study on the phase of mood. The mental dullness scale based on MMPI was also taken up and studied.

We have been conducting a series of psychological studies of pregnant and puerperal women and have shown that 1) a pregnant woman has wholesome emotional traits, and especially has emotional stability in the middle stage of pregnancy; and 2) pregnant woman's emotional traits affect the process of pregnancy and that of parturition and the growth of the child (Kushima et al, 1966 and Murai & Sato, 1971). As to their mechanism an attempt has been made to explain it on the basis of adaptability of maternal body, and assuming that a pregnant woman has a larger adaptability to the changes in her environmental and other stimuli, we have tried to examine the fluctuation of adaptability in a pregnant woman.

Human behaviour is described not only by his own characters and his environmental stimuli but also by the moods he is currently in. The present study, therefore, aims at measuring the moods, and investigating the adaptability of common behaviour of pregnant women. Social and domestic conditions differ from person to person, and consequently individual psychological reactions caused by pregnancy are said to differ widely, but we assumed that, since moods involve some organic sensory reflection of biological condition, pregnant women must have some changes in their moods affected by their specific biological condition, i.e. pregnancy.

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As for the measurement of moods, we adopted a shorter version of Mood Adjective Check List (MACL) by Nowlis. We have previously used this check list and proved its effectiveness when we checked the following: 1) before and after Kläpelin test, many persons have a low value in the mood factors of surgency, social affection and egotism, and a higher value in those of fatigue and sadness (Murai, 1971); 2) in the 5-hour sensory overload test, the moodchanges were observed in aggression, anxiety, surgency and fatigue, and in the 5-hour sensory deprivation, the mood of aggression changed (Murai & Okabe, 1971).

At the same time, the Mental Dullness Scale based on MMPI was taken up to investigate the changes caused by pregnancy in the pregnant women's interests in their daily intellectual life.

METHOD

Subjects: The subjects were 128 pregnant women of mean age 26.7, randomly selected from the pregnant women who visited the Obstetric Clinic of the Tohoku University Hospital, during the period of May 26 to July 10 of 1971. The subjects were divided into 6 groups according to the stage of their pregnancy—early (2–4 months), middle (5–8) or late (9–10)—and according to their parturient history—nulliparous or multiparous—as is shown in Table 1. The control group was 38 nurses and student midwives of mean age 25.2.

Table 1. Number and mean age of pregnant women's group

Group of pregnant women	Number of women	Mean age (yr)
Nulliparous		
Early (2–4 months)	25	25.4
Middle (5–8 months)	22	25.5
Late (9–10 months)	21	24.5
Multiparous		
Early (2–4 months)	20	27.6
Middle (5–8 months)	21	29.3
Late (9–10 months)	19	28.6

Questionnaires: Mood was measured in 24 items taken from Nowlis Mood Adjective Check List which was translated into Japanese by one of the present authors (Murai, 1969). Each item was scored by a four point scale, ranging from no feeling (0) to definite feeling (3), following Nowlis's way. Each mood has 3 items, and the score of mood factor was gained by adding the scores of the 3 items (Nowlis & Green, 1965).

Mental Dullness Scale consists of 15 items based on MMPI (Dahlstrom & Welsh, 1960). The scores were counted as follows: 'Yes'=2, 'No'=0, and Neither 'Yes' nor 'No'=1.

Procedures: First, each subject was individually given the check list and

explanation thereof, and was asked to fill in the list and hand it in then and there (hereafter referred to as T_1). At the same time the Mental Dullness Scale was filled in, too.

Second, another but identical check list was handed for the subject to fill in at the same hour but a week later, at her home this time, and be mailed to the hospital (hereafter referred to as T_2).

Nearly 100 % of the subjects handed in T_1 , and 95% mailed T_2 , and we used as our data only those that made T_1 - T_2 pairs.

RESULTS

The mean value of the total score of T_1 and T_2 of each of 8 moods in the pregnant and non-pregnant women's groups is shown in Table 2. Group comparisons were made by *t*-test and it was revealed that there were statistically significant group differences in the scores of surgency, sadness, fatigue and social affection, at the levels of confidence 0.05 to 0.01: surgency, fatigue and social affection were high in the pregnant group, while sadness was high in the control group of non-pregnant women.

Table 2. Mean score of mood factors (T_1+T_2) of MACL for pregnant women's group and control group of nonpregnant women.

Mood factors	Pregnant women (N=128)		Non-pregnant women (N=38)	
	Mean	<i>S.D.</i>	Mean	<i>S.D.</i>
aggression	5.1	5.0	4.6	4.2
anxiety	5.5	3.9	5.4	3.9
surgency	9.5**	3.6	8.3	4.1
concentration	9.1	3.7	10.2	4.3
fatigue	10.4*	4.2	8.7	4.7
social affection	12.5*	4.1	10.9	4.4
sadness	2.6**	3.3	5.5	5.2
egotism	4.7	4.2	4.6	4.1

* Differs from non-pregnant, $p < 0.05$.

** Differs from non-pregnant, $p < 0.01$.

Figure 1 shows the mean score of each mood in the pregnant group subdivided according to the stage of pregnancy. Firstly, the statistical analysis indicated that: 1) the score of fatigue of the pregnant women in their early stage of pregnancy was significantly higher than that of the control group at 1 % level of confidence; 2) the scores of sadness in both early and middle stages of the pregnant women were significantly lower than that in the control group at the level of 1 %; and 3) the score of social affection in the early stage of pregnancy was significantly higher than that in the control group at the level of 5 %. Secondly, in the comparisons among the stages of pregnancy, no significant difference was found among the pregnant women of different stages except that aggression showed some but not quite significant difference.

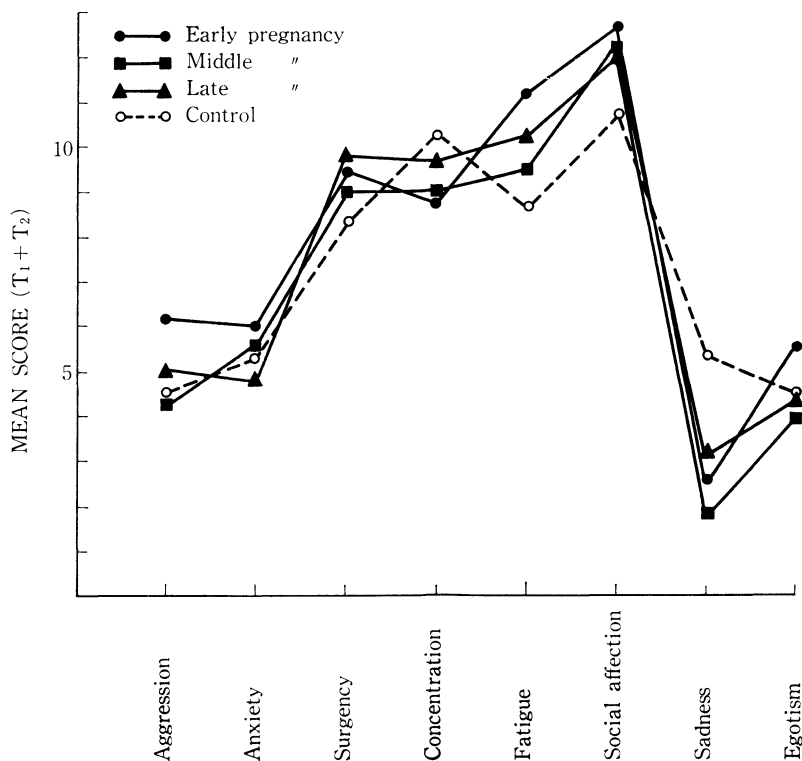


Fig. 1. Profiles of the mean scores of 8 mood factors for the control group and the pregnant group subdivided according to the stage of pregnancy.

Table 3 presents a comparison between the nulliparous and the multiparous of the pregnant group in their different stages of pregnancy. It indicates that a significant difference at the level of 1 % was observed in the score of aggression in the middle stage of pregnancy: aggression was higher among the multiparous women.

Table 4 presents the correlation (r) of the total mood score gained from T_1 and T_2 in each of the 6 subgroups (divided by the stage of pregnancy and further by the parturient history), and the correlation of the same total scores of the whole group of the pregnant women and of the control group. Although statistically not significant, it shows that on the whole the pregnant women had higher r , that among the pregnant, the multiparous had higher r than the nulliparous, and that the nulliparous in the early stage of pregnancy had the lowest r , and in the late stage, the second lowest.

Table 5 shows the scores of Mental Dullness Scale in the control group and the pregnant women's group as a whole and as individual subgroups. It indicates that the nulliparous at the early stage of pregnancy showed difference which approaches statistically significant value from their later stage: their mental dullness was higher.

Table 3. Mean score of mood factors (T_1+T_2) for the nulliparous and the multiparous

Mood factors	Stage of pregnancy											
	Early				Middle				Late			
	Nulliparous		Multiparous		Nulliparous		Multiparous		Nulliparous		Multiparous	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
aggression	5.3	5.6	5.6	4.8	2.7**	2.6	5.8**	4.2	4.1	4.2	5.4	5.2
anxiety	6.9	3.8	5.1	4.1	4.9	3.1	6.1	3.6	6.2	4.5	3.3	2.7
surgency	9.5	3.2	9.6	3.9	9.1	3.0	9.7	4.2	10.0	3.6	9.6	3.7
concentration	8.5	3.4	8.9	3.4	9.0	3.8	9.0	3.6	10.1	3.3	9.1	4.6
fatigue	10.9	4.3	11.5	3.9	9.2	3.9	10.9	4.2	9.5	4.0	11.2	3.9
social affection	13.5	3.3	12.2	4.1	13.7	4.4	11.2	5.0	12.8	3.2	11.3	4.2
sadness	2.8	2.4	2.7	3.4	2.4	2.6	1.6	2.3	4.1	4.7	2.4	3.6
egotism	5.3	2.4	5.4	4.2	3.4	3.8	4.7	4.0	4.3	4.0	5.2	4.4

** Difference between two groups significant at 0.01 level.

Table 4. Intercorrelations between T_1 and T_2 scores of MACL

Groups	Correlation coefficients
Control (N=38)	.53
Whole pregnant (N=128)	.65
Nulliparous - Early pregnancy (N=25)	.58
" Middle " (N=22)	.71
" Late " (N=21)	.62
Multiparous - Early pregnancy (N=20)	.72
" Middle " (N=21)	.65
" Late " (N=19)	.72

Table 5. Mean scores of Mental Dullness Scale based on MMPI

Groups	Mean	S.D.
Control (N=38)	4.7	2.74
Whole pregnant (N=128)	4.5	2.39
Nulliparous - Early pregnancy (N=25)	5.7	2.33
" Middle " (N=22)	4.0	2.42
" Late " (N=21)	3.9	2.78
Multiparous - Early pregnancy (N=20)	5.0	2.49
" Middle " (N=21)	4.1	2.74
" Late " (N=19)	4.3	2.79

Except that, there was no significant difference among others.

DISCUSSION

The comparative study between the pregnant women's group and the control group shows 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 women than among the control group. It was also found that difference between the two groups was prominent in fatigue and social affection at the early stage of pregnancy, and in sadness at the early and middle stages. These findings clearly differ in their patterns of changes from those caused negatively on the mood of aggression and anxiety by the exertion of sensory overload and sensory deprivation. And further, the pregnant women's group had a higher correlation (r) of T_1 and T_2 than the control group. This may be thought due to mood fluctuations during menstrual cycle in the control group (Moos et al, 1969). But in the present study, this influence must have been little, as we avoided the menstrual period in our two checks of the control group.

It was also indicated that the pregnant women's group had more positive and stable mood than the control group although their fatigue was high, with the complaints of their 'sleepiness', 'dullness' and 'tiredness'.

The comparison between the nulliparous and the multiparous among the pregnant women's group shows that in their middle stage of pregnancy, the nulliparous had a lower mood score in aggression than the multiparous. This is due to the fact that the nulliparous in the middle stage had a comparatively lower score than in their early or later stages; it does not mean the multiparous in the middle stage had a higher score in aggression than in the other stages.

The mood correlation among the nulliparous was somewhat lower than the multiparous in their early and late stages, but a little higher in their middle stage of pregnancy. It is shown, after all, that the pregnant women in any stage of pregnancy had higher correlation values than the control group of non-pregnant women. Although the nulliparous had somewhat unstable mood in their early and late stages in comparison with the multiparous, both the nulliparous and multiparous had stable mood in their middle stage of pregnancy.

In the nulliparous, the score of the Mental Dullness Scale was higher in the early stage of pregnancy than in the later stage, suggesting a possible loss of intellectual concern. No difference in scores was found, however, between the pregnant women's group and the control group. The lowest score was found in the middle stage of both the nulliparous and the multiparous.

These findings show that pregnant women have wholesome emotional traits and confirm that the middle stage of pregnancy is the most stable period for pregnant women both in their mood and in their intellectual phase. It can be interpreted that pregnancy does not have a clear, primary influence on the intellectual phase, but that it does affect positively on a woman's moods in daily life, that is, her adaptability is being improved.

The following are suggested as further problems yet to study: 1) the present study was based on the simultaneous check of a group of pregnant women at

different stages of pregnancy, but another, longitudinal study, that is, a follow-up study of the identical women throughout their pregnant and non-pregnant periods, is further needed; 2) by giving some stimulus (such as showing a movie to excite specific mood), to study the difference in mood reaction between the pregnant women's group and the non-pregnant women's group; and 3) to employ as the control group exclusively married women.

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