

Changes in the Mental State of Mothers after Giving Birth

Yuko YAMAKAWA* and Yukiko FUKUZAWA**

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Abstract

The authors investigated the changes in the mental state of mothers from five days to one month after giving birth. The subjects were 664 women admitted for delivery to an obstetric clinic between February 2002 and May 2003. The Edinburgh Postnatal Depression Scale (EPDS) was used for the analysis of mental state. Subjects' general attributes were investigated through a series of questionnaires. Among 786 mothers, 664 participated (participation rate was 84.5%). The mean age of the subjects was 29.2 ± 4.5 (SD) years. Three hundred eighty three mothers (58%) were primiparous. Most subjects only suffered minimally from obstetric complications. Based on the changes in EPDS score, we defined four groups. At five days after delivery, 10.8% of the women were in a depressive state, but after one month, only 4.7% had depressive tendencies. At five days, the primiparous group had a significantly higher EPDS score when compared with the multiparous group (5.16 ± 3.20 vs 3.98 ± 2.88 (Mean \pm SD) ; $p < 0.001$). But after one month, the EPDS score of both groups had almost the same value. This study showed that the depressive state of women after giving birth can generally be considered a temporary mental state and that most women recover from this depression within a month of delivery.

Introduction

Pregnancy, delivery and the raising of children are stages many women must overcome during their lives. During the one month period after birth, the mother's reproductive organs, altered during pregnancy and delivery, undergo involution in order to return to a non-pregnant state. Other changes also immediately follow delivery due to the rapid change in hormones, such as involution of the uterus, of the sexual organs and body and the recommencement of milk secretion. This is called puerperium and is a period of transition for women physically, emotionally and socially.

The new role of the mother following childbirth is also a considerable change. A mother must learn a number of new skills in the short time before leaving hospital, including how to breast feed and how to look after her new baby. Other factors must also be considered, such as the influence the new baby will have on family dynamics. In other words, a new mother returning home with a neonatal baby must not only adapt to her altered social role, but must also adjust to other psychological and social changes brought about in other family members due to the introduction of the newborn.

* Division of Psychiatric and Mental Health Nursing, Institute of Nursing, Faculty of Medicine, Saga University
Saga 849-8501, Japan

** Department of Clinical Nursing, School of Health Sciences University of Occupational and Environmental Health, Japan
Kitakyusyu, Fukuoka 807-8555, Japan

During the maternity experience[1] and the process of adjusting to life after giving birth, the mother's psychological state is in constant motion. Mothers are susceptible to maternity blues, postnatal depression and anxieties related to child-rearing. In fact, women are more likely to experience mental illness post partum than at any other time throughout their lives[2]. The mother's puerperal mental instability can effect the nurturing of the child in a number of ways. It has been pointed out that postnatal depression can greatly influence the mother-child relationship, by delaying the newborn's emotional and intellectual development and interfering with the mutual relationship between mother and baby[3].

In order to provide appropriate measures for mothers requiring postnatal support after leaving the hospital, it is vital that we investigate the mental state of mothers soon after giving birth. Although many studies of puerperal mental health are conducted from one month after birth, there is a lack of research into early puerperium[4, 5]. This paper investigates the mental state of mothers in early puerperium (upon being discharged from hospital) and at one month after discharge. Establishing the mental state of mothers at this early stage, when the bonds between mother and baby are being formed, will allow for the early detection of mothers unable to completely and appropriately care for their baby after leaving the hospital, and subsequently contribute to the improvement of mental healthcare for mothers in the future.

Subjects and Method

1. Subjects and Period: Subjects were 664 puerperal women who gave birth at an Obstetrics Clinic in City F between February 2002 and May 2003. Among 786 mothers, 664 participated in this study (effective response rate was 84.5%). The average age of subjects was 29.2 ± 4.5 years (SD). The subject group consisted of 383 primiparous (58%), and 281 multiparous women (43%). Thirty seven women gave birth by caesarean section (5.6%). The average number of additional children for multiparous women was 1.3. Four hundred and six subjects returned to their parents' homes after giving birth (61.1%; 268 primiparous and 138 multiparous women).
2. Survey Method: Subjects were given the Japanese version of the Edinburgh Postnatal Depression questionnaire (EPDS ; Cox., 1987)[6] at the fifth day after delivery and at their first monthly check-up after delivery.
3. Edinburgh Postnatal Depression Questionnaire: Ten questions were completed by the individual subjects and each answer was allocated 0 to 3 points. Subjects with a total of 8 points or less shall hereafter be referred to as the 'low-scoring group' and those with a total of 9 points or more as the 'high-scoring group'. Japanese women who score 9 points or more are considered as possible sufferers of postnatal depression[6]. The scale-creator's permission was sought before use. Information regarding subjects' general attributes was gained from the women's medical records.
4. Analysis: Statistical analyses (χ^2 -test, t-test and one-way analysis of variance) were performed by statistical analysis software SPSS12.J[7].
5. Ethical Considerations: Subjects were informed that the purpose of this study had no direct relation to their individual medical care, that data collected would not be used outside this study and that their privacy would be protected. Approval was given by all subjects before they were given the questionnaire.

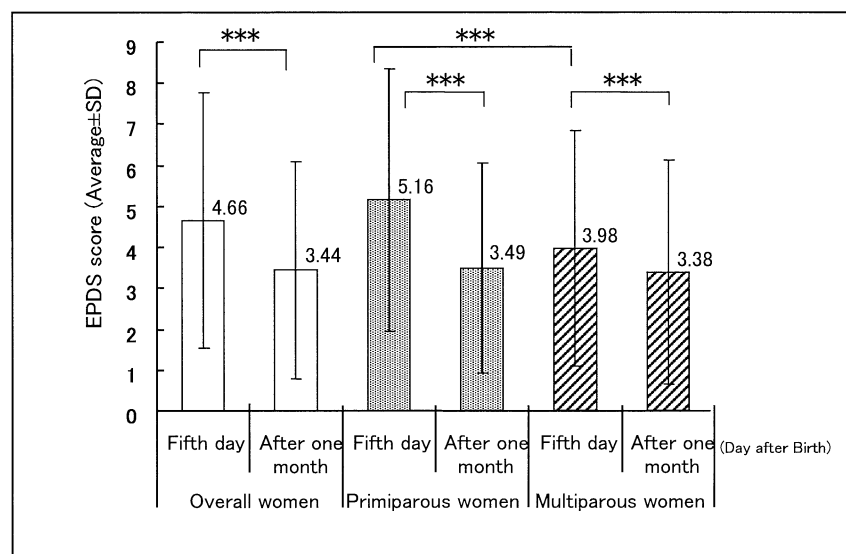
Results

1. Six hundred and nineteen subjects had families assisting them during the first month after the birth (93.2%) - primarily the subject's mother or husband. Most subjects had few obstetric complications and most women received some form of support after leaving hospital. There were significantly more primiparous than multiparous women who returned to their parent's home after giving birth ($p < 0.001$).

2. EPDS Scores

a) At the time of discharge from hospital (fifth day): Overall EPDS scores (Mean \pm SD) were 4.66 ± 3.12 ; primiparous women 5.16 ± 3.20 ; multiparous women 3.98 ± 2.88 . On the t-test there was a significant difference between the scores for primiparous and multiparous women ($p < 0.001$).

At the first monthly check-up after delivery: Overall EPDS scores (Mean \pm SD) were 3.44 ± 2.64 ; primiparous 3.49 ± 2.57 ; multiparous 3.38 ± 2.73 . There was no significant difference between the two groups (shown in Figure 1).



*** $p < 0.001$ by t-test

Fig. 1 EPDS scores of primiparous and multiparous women at fifth day and one month after giving birth.

b) We divided the subjects into four groups according to the EPDS scores as shown in Table 1. Subjects whose scores were high at the time of discharge and remained high at one month on from delivery were classified as Group A. Subjects whose scores were high at the time of discharge, but low at one month were classified as Group B. Subjects whose scores were low at discharge and high at one month were classified as Group C. Subjects whose scores were low at discharge and remained low one month on from delivery were classified as Group D. The numbers and ratios are shown in Table 1. Twenty three women (3.5%) were classified in group C, whose EPDS score rose from a low score on the fifth day to a high score after one month. At five days the rate of high scoring women was 10.8%, but after one month this figure had decreased significantly to only 4.7%. At five days,

the primiparous group had a significantly high EPDS score compared with the multiparous group (5.16 ± 3.20 vs 3.98 ± 2.88 ; $p < 0.001$). But after one month, the EPDS scores of both groups had almost the same value (3.49 ± 2.57 vs 3.38 ± 2.73).

Table 1 Four Groups' Classification according to the EPDS Score.

		No. of Persons (%)		
		After One Month		
		High Scores	Low Scores	Total
Fifth day	High	Group A	Group B	72
	Scores	8 (1.2%)	64 (9.6%)	(10.8%)
	Low	Group C	Group D	592
	Scores	23 (3.5%)	569 (85.7%)	(89.2%)
Total		31 (4.7%)	633 (95.3%)	664 (100%)

χ^2 test $p < 0.01$

※ Subjects with a total of 8 points or less shall hereafter be referred to as the 'low-scoring group' and those with a total of 9 points or more as the 'high-scoring group'.

Discussion

1. Postnatal Mental Health

This study shows that overall there is a tendency for postnatal women to experience a strong sense of depression at the time they are discharged from hospital, which diminishes after one month. This corresponds with Fukuzawa's findings[8]. We can assume that a wide range of issues concern mothers at the one-month point: matters relating to breastfeeding, relations with other children and other such worries that occur after the birth of a child. Additionally, many mothers are likely to be in poor physical condition at this stage, due to loss of sleep and exhaustion. However, despite this, many mothers are in fine mental health. Many mothers who were suffering depression when they left the hospital had regained their mental health at their one-month check-up, having adjusted to their post partum lifestyle.

A comparison of the EPDS scores for primiparous and multiparous women shows that although primiparous scores were high at the time of discharge, these figures had dropped by one month; and the score difference with multiparous women had reduced. It seems as though primiparous are more prone to depression in the initial puerperium.

According to Rubin[1] women go through three stages after giving birth before psychologically adjusting to their new role. The first two to three days post-partum is the 'taking-in-phase', during which time the mother's body recovers from the fatigue and pain of delivery. At this stage the mother is passive and dependent; under the care of those around her, it is preferable that she reflects on her experience while she waits until she is given charge of the newborn. The next stage - the 'taking-hold phase' - occurs between three to seven days after delivery when the puerperal woman regains physical control and shows more of an interest in the child. This is when she begins to accept her role as mother. After the 'taking-hold

phase' ends, the 'letting-go phase' begins, when the mother adjusts to the changes in herself and the family and is able to fulfill her new role, centered around the infant. According to Rubin, the time spent in hospital after the birth corresponds with the first two stages - the taking-in and taking-hold phases. In the early puerperium the mother in many cases is primarily concerned with issues such as her own physical exhaustion, learning child-rearing skills, and the appearance and health of her infant.

The effects of various concerns such as the change in bodily secretions and reproductive organs on the puerperal mother's emotions are well known. Shindo and Wada consider pregnancy, birth and puerperium as a period of deprivation and distress, and propound the benefits of 'reflecting upon the birth process'[9]. If nurses assisting in this process are able to encourage the puerperal woman to express her ill feelings and dispel them, the nurses may be able to draw out the power the woman possesses within herself, enhancing her ability to adjust to her new role as a mother. By receiving adequate support from nursing staff at the hospital, a mother's dependency needs may be met, helping her to start gaining confidence in herself through learning. The issue of maternity blues and postnatal depression are important issues in the mental health of mothers[2, 10]. EPDS allows for an objective investigation of mothers' mental health from early puerperium.

2. Appearance of EPDS High Scorers

The average EPDS score at the time of hospital discharge was 4.7 ± 3.1 . Compared to the results of Yoshida et al.[4] showing an average of 5.4 ± 4.4 . The score from our study is relatively low in comparison to the study Yoshida et al. conducted. There were numerous high-risk subjects included in the advanced study into postnatal depression conducted by Yoshida et al. comparatively; the subjects in this study who gave birth at a regional obstetric clinic were mainly low-risk. The lower EPDS average is a natural outcome when investigating lower risk subjects.

Although this study is limited to mothers who gave birth at a designated obstetrics clinic in a regional city in Japan, the results are valuable for showing the mental health of average Japanese women up to one month after giving birth. This study also shows that even amongst low-risk women, there are a number of mothers who are in a depressed state when they discharge from hospital. The results of this study therefore possibly provide valuable data about the puerperal mental health of obstetric low-risk women and could help prevent the occurrence of postnatal depression.

It has been reported that in western countries the rate of postnatal depression is quite high - at approximately 10% to 20% [2, 11]. Yamashita et al.[5] and Yoshida[3] have reported that the rate of postnatal depression in Japan is between 12% and 17% peaking at one month after birth the same as in western countries. Although there are a number of studies into postnatal depression conducted one month or more after birth, there is little short-term longitudinal research conducted between early puerperium and one month, making it difficult to conduct comparative analysis. Ogasawara et al.[12] reported that 4.3% of women (7 cases of 161 subjects) showed up as high-EPDS scorers at one month after birth. There is no significant difference between their findings and our own in which 4.7% of women had high scores at this point.

It is still common in Japan for new mothers to return to their family home to spend a period of time after the birth under the care of the infant's maternal grandmother. This is referred to as *satogaeri* or the 'return home'. If a new mother is unable to return home due to same extenuating circumstances, the mother is still often able to rest at her home in a protected environment because the grandmother or other relatives will go to her house to assist. In this study, 61.1% of subjects returned home; 70% of primiparous and 49.1% of multiparous women received such assistance.

Although we can infer that the one-month period after birth is extremely stressful for the new mother, we are unable to define with quantitative studies exactly how the mother is adjusting to her new environment or what type of support would be most beneficial. Qualitative studies are necessary to achieve this. While it is important that we maintain the social customs for supporting the mother after birth, we must also expand other support systems which do not involve family members.

3. Psychological Shifts during One-Month Period after Birth

By classifying the subjects into four groups, based on their shifts in EPDS scores between hospital discharge and one month, the changing character of the subjects' psychological state became more evident.

Group A remained in a state of depression from discharge until one month, suggesting a shift from early-onset postnatal depression or maternity blues to full-blown postnatal depression. As the EPDS scores of these women were already high at the time they were discharged from hospital, they had drawn the attention of the obstetrics staff and were given follow-up treatment after leaving hospital. This type of woman may also require psychiatric attention and will need continued follow-up treatment.

Subjects in Group B were suffering depression when they were discharged, but this condition had improved by one month. As with Group A, obstetric staff took note of Group B subjects due to their high EPDS scores at the time of hospital discharge and these subjects were given follow-up treatment, too. In this study, most of the Group B subjects were primipara (82.8%). The EPDS scores for primipara were significantly higher at the point of discharge from hospital. Although there is no general consensus regarding a correlation between primipara and maternity blues[2], there is a possibility that there were many mothers with the maternity blues included in Group B. As the Group B subjects' mental state stabilized, we can infer that these women were able to adjust to their new lifestyle during the one-month period, further corroborating the possibility of maternity blues. It will be necessary to combine a study into maternity blues in the future to analyze the situation from a multidimensional standpoint.

The state of depression increased after being discharged from hospital for subjects in Group C. We can infer that these subjects were physically and emotionally fatigued by their lifestyle after leaving hospital and they were most likely suffering from postnatal depression. Although the numbers were few - 23 subjects - the number of primiparous and multiparous women were almost equal. Further studies are necessary, as there may well be major environmental differences in the postnatal lifestyles of these women.

Group D subjects were in a good mental state throughout the period of analysis.

4. Significance of EPDS Study at Five Days and One Month

Although the majority of the subjects in this study suffered from relatively few obstetrical complications and both the mothers and infants were healthy, 10.8% of subjects (Group A and Group B) had high EPDS scores at the time of discharge from hospital. Yamashita et al. [5] has reported that even at five days after birth, potential postnatal depression can be detected in depressed mothers with high EPDS scores. Furthermore, Yamashita et al. [5] explain that EPDS testing in early puerperium is an easy way to screen for postnatal depression. This study shows similar results. Utilizing EPDS, particularly in early puerperium, proved a meaningful method to screen for the early detection of postnatal depression and can be used to determine mothers requiring follow-up treatment after release from hospital. Attention must be given to mothers who show high scores when they are released from hospital to ensure that they are able to cope with their new lifestyle and are able to care for their infants. To achieve this requires data collection and intervention including individual interviews or phone calls to determine the risk of postnatal

depression and the amount of support being provided; medical checks at two weeks; the support of family and coordination with public facilities such as local welfare centers.

Yamashita[13] has reported that the incidence of postnatal depression was lowered in cases where midwives who received psychological interview training gave psychological support to women during and after pregnancy. It is vital that obstetrical staff who intervene in the ante- and postnatal mental health of women have a solid understanding of the psychological issues facing mothers. In order to deepen their knowledge of psychological diagnostics and their ability to provide appropriate antenatal support we must, with the cooperation of administration and research institutes, implement the spread of in-service mental healthcare training.

By studying the EPDS scores when subjects are discharged from hospital and again at one month and understanding any changes observed, we will be able to provide continued assistance to mothers with high scores at one month. Based on the reports that suggest a higher probability of postnatal depression for persons who have experienced maternity blues[2, 5], it would be beneficial to consider the correlation between maternity blues and EPDS in the future. The primary contribution this study makes is to reveal the existence and extent of Group C subjects who showed signs of depression at one month, despite the fact they showed no signs of depression when initially interviewed. This could not have been detected in previous studies which only looked at either the time of hospital discharge or at one month.

The care of women experiencing mental anxiety in their attempts to adjust to postnatal life will likely be an important issue in the future. For primipara it is their first time to nurture a new-born baby. Even for multiparous women, it is a new experience to care for a second child. After being released from hospital, these mothers spend all day looking after their children and become increasingly fatigued from lack of sleep and exhaustion due to household chores and caring for their other children. No doubt the reality of life after leaving hospital differs greatly from preconceived images.

The study by Ito et al.[14] into childrearing-related anxiety showed that of the 60 subjects who underwent EPDS testing between one to six months after giving birth, 11 subjects (18.3%) scored 9 points or higher. This study showed that such women had feelings of negativity or isolation towards childrearing and they tended to be concerned about the health of their child or believe that their child was particularly difficult to handle. Although Ito et al. [14] did not discuss postnatal depression, the study seems to suggest that amongst the high-scoring subjects were mothers suffering not only from postnatal depression but also from anxiety disorders, adjustment disorders and problems forming attachments. It is of concern that mothers living with psychological anxiety and chronic fatigue after the birth of their babies are diagnosed as having nothing more than anxiety towards childrearing.

The viability of EPDS as a means for testing not only postnatal depression but also anxiety disorders related to other childrearing neurosis has been reported by Yoshida et al[3]. Having problems bonding during puerperium is common for mothers with postnatal depression. Due to the propensity for postnatal depression to intensify, these women face a higher risk of problems developing in the mother-child dyad and should be given follow-up care[3, 11, 15]. EPDS is clearly valid as a simple tool to objectively screen mothers in order to provide appropriate assistance in predictable cases of bonding disorders (and not to brush off symptoms as mere anxiety problems). This study proves the importance of using EPDS on an ongoing basis to measure the mental health of mothers as they adjust to postnatal life. It is a useful way to determine specific intervention methods to assist with childrearing, in line with the mother's mental health during puerperium.

Medical staff should support the mental health of families embarking on the journey of parenthood. We should give advice and monitor the mental well-being of mothers during their first month of life as new parents. Considering the mental health of mothers after hospital discharge and providing a consultation

chance for this purpose may reduce the incidence of high-scorers at one month.

Conclusion

We used EPDS scores to examine the mental state of new mothers with few obstetric complications after five days from delivery and after one month. A total of 10.8% of women had a high EPDS score suggesting postnatal depression five days after giving birth. But after one month only 4.7% of the women had depressive tendencies. The majority of women with high scores when discharged from hospital improved and had low scores after one month. This study showed that a depressive state after giving birth can generally be considered to be a temporary mental state and most women recover from the depression within one month of giving birth.

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