

Mother-infant bonding during the early postnatal period in a sample of Chinese primiparous mothers

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Abstract. This study aims to investigate the mother-infant bonding impairment among Chinese primiparous mothers in the early postpartum period. Totally, there were 119 primiparous mothers who were conveniently recruited at the 42 days postpartum from a local hospital in Wuhan, China. Data on the social-demographic characteristics, clinical information, prenatal depressive and anxious mood, and mother-infant bonding were collected using a self-designed basic information questionnaire and the Chinese-version of Postpartum Bonding Questionnaire (C-PBQ). The results showed that the total score of C-PBQ was 14.62 ± 10.35 . The prevalence of reported mild bonding disturbances and potential rejections of infants were 21.8% and 1.68%, respectively, while no one reported explicit rejections. During pregnancy, only 5.0% of women experienced depressive mood, while 11.8% with anxiety. Although a higher score of C-PBQ was observed in women with prenatal anxiety compared to those without ($P < 0.05$), no significant effects of anxiety during pregnancy on the mother-infant bonding were found based on the regression analysis. Therefore, close attention should be paid to mother-infant bonding impairment for Chinese new mothers in the early postpartum period. Investigating methods to enhance perinatal maternal bonding and reduce anxiety in pregnancy is needed.

1. Introduction

The mother-infant bonding refers to the mother's attitude towards her baby, including emotion, cognition and action intention, as well as her intention to pay for the baby [1]. Forming a strong bond between mother and infant leads to more positive parenting behavior and improved cognitive and neurobehavioral development in infants [2]. However, there were researchers found that some mothers experience an impairment in the affection between mother and infants after childbirth [3]. Although many researches on mother-infant bonding were conducted, only few reports were founded in China [4]. The purpose of this study was to investigate the mother-infant bonding impairment among Chinese primiparous women in order to find problems in the mother's feelings towards her new baby in the early postpartum period and to provide useful information to establish targeted programs.

2. Material and method

From September to November, 2018, at the 42-days' routine clinic revisit after delivery, 119 primiparous mothers aged 20 years and above with single live birth were conveniently recruited from a local children hospital in Wuhan, China. After participants signed written informed consents, a basic information questionnaire and the Chinese version of Postpartum Bonding Questionnaire (C-PBQ) [5] were used for to collect data on their socio-demographic and clinical characteristics, depressive and anxious mood during pregnancy, and postpartum mother-infant bonding. Statistical analysis was carried out with SPSS 22.0.

3. Results

3.1 Sample Characteristics

The characteristics of the sample shown in Table 1. The mean age of women was 28.59 ± 3.60 years (ranged from 20 to 40). The majority had obtained at least associate degree (n=101, 84.9%), got married (n=117, 98.3 %), reported annual household income over 100,000RMB (n=89, 74.8%). Also, most of the participants expressed satisfaction about marital relationship (n=109, 91.6%).

Table 1 Social-demographic characteristics of participants (n=119)

Variable		n	%
Age (year)	≤25	15	12.6
	26~30	80	67.2
	31~35	22	18.5
	>35	2	1.7
Education	High school and below	18	15.1
	associate degree	37	31.1
	Bachelor degree and above	64	53.7
Marital status	Married	117	98.3
	Separation/Divorced	2	1.6
Annual household income(RMB)	<50,000	16	13.4
	50,000-99,999	36	30.3
	100,000-199,999	53	44.5
	≥200,000	14	11.8
Marital satisfaction	Very satisfied	60	50.4
	Satisfied	49	41.2
	general	9	7.6
	Dissatisfied	1	0.8

The mother-infant clinical characteristics are shown in Table 2. Among the participants, the rate of planned pregnancy was 66.4% (n=79). About 19.3% (n=23) had abortion history, 95.0% conceived spontaneously, and 52.9% delivered naturally. Also, 20.2% experienced pregnancy complications. Among the infants, male babies accounted for 50.4%, and 48.7% of baby's sex was consistent with their mothers' expectations. Breastfeeding (55.5%) and mixed feeding (43.7%) were the main feeding methods. In addition, 52.1% of mothers' sleep time per day was 6 hours or less, and 59.6% had a good sleep.

Table 2 Clinical characteristics of participants (n=119)

Variable		n	%
Planned pregnancy	Yes	79	66.4
	No	40	33.6
Abortion history	Yes	23	19.3
	No	96	80.7
Type of conception	spontaneous	113	95.0
	assistant	6	5.0
Mode of delivery	natural	63	52.9
	caesarean	56	47.1
Pregnancy complications	No	95	79.8
	Yes	24	20.2
Baby gender	Male	60	50.4
	Female	59	49.6
Sex of baby consistent with mother's expectation	Yes	58	48.7
	No	2	1.7
	no matter	59	49.6
Feeding pattern	Breastfeeding	66	55.5
	mixed feeding	52	43.7
	artificial feeding	1	0.8

Mother's sleep time per day	≤6h	62	52.1
	7~9h	48	40.3
	≥10h	9	7.6
Mothers' sleep quality	Very good/Good	71	59.6
	Poor/worse	48	40.4

3.2 The level of Mother-infant bonding and its types

The total score of C-PBQ was 14.62 ± 10.3 . The scores of its four scales were as following: 7.87 ± 5.33 in scale 1 (impaired bonding), 3.65 ± 3.43 in scale 2 (rejection & pathological anger), 3.03 ± 2.70 in scale 3 (anxiety about care), and 0.05 ± 0.22 in scale 4 (risk of abuse), respectively.

Table 3 revealed that, according to the scores of C-PBQ and its four factors, all participants in this study could be divided into three types using cut-off value suggested by Brockington et al. [6]: normal bonding (76.5%), mild abnormality (21.8%), and potential rejections (1.68%). No one reported any evidence of explicit rejections.

Table3 The prevalence of different mother-infant bonding types (n=119)

Type	n	%
Normal	91	76.5%
Mild Abnormality	26	21.8
Potential Rejection	2	1.68
Explicit Rejection	0	0

3.3 Participants' pre-delivery mood

Among the participants, about 5.0% (n=6) reported depressive mood experience, and 11.85% (n=14) experienced anxiety during pregnancy.

3.4 Relationship between mother-infant bonding and participants' characteristics

Bivariate analyses found that only women with anxiety during pregnancy scored significantly higher on maternal bonding compared to mentally well mothers (19.14 ± 8.95 vs. 14.02 ± 10.41) ($t = -2.052$, $P = 0.04$).

A linear regression analysis was conducted with C-PBQ as the dependent variable, and with education, household income, and anxiety during pregnancy as independent variables based on the results in the bivariate analysis ($P < 0.1$), to assess their relationships. However, after adjusting the other two factors, no significant effects of anxiety during pregnancy on the mother-infant bonding ($\beta = 0.167$, $t = 1.796$, $P = 0.075$).

4. Discussion

The bonding between a mother and child is of crucial importance for the infant's cognitive and emotional development from early on after birth. Any disturbance of a mother-infant bond can lead to long-term detrimental effects. This study assessed the mother-infant bonding impairment after delivery over one month in a sample of Chinese primiparous women. Based on the scores of the C-PBQ and its four scales, using the cut-off points by Brockington et al. [6] and Siu et al [5] as screening standards, the prevalence was 21.8% in mild impaired mother-infant bonding, 1.68% in potential rejections, while no one had any evidence of explicit rejections. Compared to the results ranged from 5.2% to 11.3% for mildly abnormal bonding founded in some community samples [7-9], the figures of this study are significantly higher. It means this Chinese primiparous women display more delay or contradictory emotion towards their infants. However, the figures are similar to the results found in some clinical samples who have been diagnosed with postpartum depression (the prevalence between 16.6% and 24.2%) [5]. Moreover, it is noticed that the prevalence of 1.68% in potential rejection is still in line with the results from community samples (0~2%). The discrepancy may be attributed to the difference between the study populations. In this study, all participants are new mothers lack of experience in caring for babies and themselves, and still in the period of mother role adaptation. In addition, most of them were post-80s' generation and are the

only child of their family. Those factors mentioned above may put them in the high level of maternal parenting stress. Prior research has found parenting stress is positively associated with maternal depression [10]. It indicates that the presence of high level parenting stress may increase the risk of bonding impairment. Thus, it is important to pay more attention to such group of women at their early postnatal period when addressing mother-infant relationship and develop rational interventions targeting maternal bonding disturbance early on.

In this study, the frequency of self-reported depressive and anxious mood in pregnancy were 5.0% and 11.8%, respectively, which are similar to the result of 11.3% for anxiety in pregnancy found in Ma's study[11] and the result of 4.5% for depression in pregnancy found in He's study[12], but lower than the result in Borja's study[13]. Literature review showed that there is a greater discrepancy in the reported prevalence of depression (from 3.5% to 29.0%) [14, 15] and anxiety (from 9.1% to 59.5 %) [16, 17] among the population of pregnant women. Different assessment periods, assessment methods, and population could partly explain the differences in the prevalence. In this study, self-reported data were collected postpartum. In addition, most of primiparous mothers were well-educated, at higher level of family income, and becoming the center of their family during pregnancy in Chinese culture, which may decrease their risk for any negative mood experienced in the pre-delivery period. But paying more attention to this specific population is still needed.

Feldman et al. [18] stated that increased perinatal anxiety seem to interfere with the mother's ability to bond and interact sensitively with the child. Although studies have shown the importance of maternal anxiety in mother-infant bonding, the negative effects of anxiety on mother-infant bonding were not as significant as those of depression [19]. Britton [20] found that anxious mothers were less sensitive, less responsive and showed less competence in parenting. However, Edhborget al.[8]did not find negative associations between perinatal general anxiety and postpartum bonding in a community sample. In this study, although the results found the level of mother-infant bonding was significantly higher in women with maternal anxiety than those without, anxiety in pregnancy fails to have any effect in regression analysis. The possible reason is that the small sample size of this study underestimates the true effect. Also, self-reported data used in the study may hinder Chinese women to express their feeling and emotion explicitly. It is necessary for further larger-scale studies to be conducted based on Chinese culture background.

The cross-sectional design and the self-reported data used in this study limit its generalizability and for inferring true effect between the variables. Selection bias for the convenient sampling method is another limitation.

5. Summary

The present study demonstrates that there are impaired mother-infant bonding and negative mood experienced during pregnancy among those Chinese primiparous women. The relationship between those variables is still not clear. Close attention should be paid to those with maternal bonding disturbance and those with depression and anxiety in pre-delivery period. Further study is needed to identify the link between perinatal depression and anxiety and mother-infant bonding in Chinese population.

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