Research Open

Endocrinology, Diabetes and Metabolism Journal

Volume 9 Issue 2

Research Article

Research Progress on the Correlation Between Maternal-Fetal Attachment, Childbirth Experience and Maternal-Infant Attachment

Jingyi YING[1], Jianying ZHAN[2], Mengyan XU[3], Jing ZHANG[1]*, Jin WANG[1], Yajie KANG[1], Xinyu YAO[1] and Yi ZHANG[1]

[1]School of Nursing, Hangzhou Normal University, Hangzhou 311121

[2]Department of Child Healthcare, Hangzhou Obstetrics and Gynecology Hospital, Hangzhou 310008

[3]Department of Nursing, Hangzhou Obstetrics and Gynecology Hospital, Hangzhou 310008

***Corresponding author:** ZHANG Jing, School of Nursing, Hangzhou Normal University, Hangzhou 311121

Received: March 13, 2025; **Accepted:** March 15, 2025; **Published:** March 17, 2025

Abstract

The transition from pregnancy to childbirth and then to parenting is a time of rapid physiological, psychological, and social change, as a key turning point in the transformation of women's roles, childbirth plays a vital role in the smooth establishment of mother-infant relationships. This paper based on the attachment theory, introduces the concepts of maternal-fetal attachment, childbirth experience and maternal-infant attachment, and systematically reviews the correlation between maternal-fetal attachment, childbirth experience and maternal-infant attachment, so as to provide theoretical basis and practical guidance for formulating relevant perinatal health care policies.

Keywords: *Maternal-fetal attachment, Childbirth experience, Maternal-infant attachment, Relevance*

In recent years, the parent-child relationship has been rethought as research in developmental psychology has polarized toward the two poles of the life course ("one old, one young"). Research has shown [1] that the parent-child relationship begins to form gradually during pregnancy and manifests itself in the form of maternal-fetal attachment. The term Maternal-Fetal Attachment (MFA) describes the emotional bond between a mother and her unborn fetus during pregnancy. During the perinatal period, establishing an emotional bond with the fetus and the newborn is one of the most important tasks of the mother [2]. However, the transition from pregnancy to labor and delivery and then to parenting is a process of rapid physiological, psychological, and social change for women, and labor and delivery, as a key turning point in the transformation of women's roles, plays a crucial role in the successful establishment of the mother-infant attachment relationship [3]. In view of this, the childbirth experience may play a mediating role between mother-fetus attachment and mother-infant attachment. Currently, the national literature has only found studies on the current status of maternal-fetal attachment, labor and delivery experience, or a single variable of mother-infant attachment and its influencing factors. Therefore, based on attachment theory, this paper reviews the correlation between maternal-fetal attachment, labor and delivery experience, and mother-infant attachment, with a view to providing a theoretical basis and practical guidance for the formulation of relevant perinatal health policies, so as to enhance maternal labor and delivery experience and maintain mother-infant relationships.

Attachment

Attachment Theory (Attachment Theory) was first proposed in the 1960s by the British psychologist John Bowlby [4]. Bowlby defined Attachment as a biologically based innate system that guides individuals to stay close to an attachment figure when faced with a threat to protect themselves from harm [4]. Based on this, a special and strong emotional connection is formed between mother and child [5] (Bonding). Emotional bonding is an important theme within attachment theory. During the development of attachment theory, emotional bonding and attachment are two important concepts that need to be differentiated emphatically.

Maternal-infant Bonding (MIB) refers to the process of communication between mother and infant through behavior and emotion [6], which is mainly reflected in the sense of intimacy between mother and infant and the mother's confidence in caring for the infant [7], as well as in the mother's love for the infant and her sense of the infant's uniqueness and importance, which is a kind of unidirectional emotional bonding, specifically referring to the mother's emotions towards the infant. This bond is a unidirectional emotional bond, specifically referring to the mother's feelings toward the infant. On the other hand, Maternal-infant Attachment (MIA) is a special and strong emotional connection between infants and their primary caregivers (usually mothers) established through emotional communication and behavioral interactions [8], which is a bi-directional emotional connection between mothers and infants, and is a phenomenon that can only be manifested by infants when they have developed the ability to express their emotions about separation and reunion. Therefore, mother-infant attachment has a specific developmental time period, with attachment establishment occurring from 6 weeks of birth to 6

to 8 months, with clarity of display occurring from 8 months to 18 months, and reaching the period of reciprocal relationships by 24 months [4]. In summary, it is possible to describe the mother-infant relationship as emotional bonding before 8 months. After 8 months it is described as attachment. However, the existing literature has not been subdivided by scholars on the concepts of mother-infant emotional connection and mother-infant attachment, which are usually referred to as mother-infant attachment.

With the development of attachment theory, some scholars pointed out that when a mother becomes a pregnant mother, she is also emotionally attached to the fetus in her womb. Therefore, maternal-fetal attachment was extended. Cranley [9] first defined maternal-fetal attachment as "the behavioral and emotional relationship of a pregnant woman interacting with her unborn fetus". Based on Cranley's conceptualization, Muller and Mercer proposed that the definition of maternal-fetal attachment should also include the mother's imagination of the unborn fetus [10]. In addition, Condon proposed that maternal-fetal attachment consists of five key attributes: knowing the fetus, being with the fetus, protecting the fetus from physical or emotional harm, attending to the needs of the fetus, and avoiding separation from the fetus, with love being the core of maternal-fetal attachment [11]. Although scholars define maternal-fetal attachment differently, they agree that maternal-fetal attachment is a multidimensional structure that includes the mother's thoughts, behaviors, emotions, and attitudes, and is an emotional connection that the mother creates to the fetus in the womb.

The Importance of the Childbirth Experience in Attachment Research

Currently, there is no uniform definition of the concept of childbirth experience. Salmon et al. [12] first proposed that childbirth experience is a multidimensional phenomenon based on women's emotions and perceptions of childbirth, including three dimensions: emotional distress, physical discomfort, and satisfaction. Larkin [13] used a conceptual analysis approach to define the childbirth experience as a unique life event experienced by a woman, including the subjective mental and physiological processes, which are influenced by society, environment, organization, and policies, and this concept is agreed upon by most scholars. Childbirth, as an important turning point in the transformation of women's roles, plays a crucial role in the successful establishment of the mother-infant relationship [14]. Positive birth experiences can empower women through labor and delivery, promote personal growth and self-knowledge, which in turn enhances women's self-esteem, sense of responsibility, self-efficacy and self-confidence levels, actively participate in self and infant care and interaction, and promote the establishment of the mother-infant relationship [15]. In contrast, negative birth experiences, such as post-traumatic stress disorder after childbirth, can undermine the continued development of the mother-infant relationship. Kennell and Klaus et al. have shown [16] that after a negative birth experience, mothers may become preoccupied with their own physical and emotional needs and reduce their interactions with their infants, thereby weakening the mother-infant relationship. Smorti et al. have shown [17] that the birth experience can significantly affect the the relationship between prenatal and postnatal attachment. as the emotional bond between mother and infant evolves from pregnancy to postpartum. Given this, labor and delivery experiences may play a mediating role between mother-fetus attachment and mother-infant attachment. However, there is a lack of national research related to the inclusion of the labor and delivery experience in the domain of attachment.

Correlation Between Maternal-Fetal Attachment, Birth Experience and Mother-Infant Attachment

Research on the Correlation Between Maternal-Fetal Attachment and Mother-Infant Attachment

At this stage, there is a lack of research on the correlation between maternal-fetal attachment and mother-infant attachment in China, and the existing literature has only found studies on the status of maternal-fetal attachment or mother-infant attachment as a single variable and its influencing factors. Overseas research on the correlation between maternal-fetal attachment and mother-infant attachment first began in the 1980s, with studies focusing on the United States, Australia, Italy, and other European countries, and the existing literature suggests that the emotional bond between mothers and their infants continues to develop from pregnancy to the postpartum period. Prospective studies measuring maternal-fetal attachment and mother-infant attachment separately at different points in time have found that maternal-fetal attachment predicts mother-infant attachment and positively influences mother-infant attachment. A longitudinal study in an Australian region found [18] that stronger maternal-fetal attachment in the third, sixth, and ninth months of pregnancy predicted stronger postpartum mother-infant attachment in the eighth week of the infant's life. Italian scholars Cataudella [1] investigated using the Maternal Antenatal Attachment Scale (MAAS) and the Maternal Postnatal Attachment Scale (MPAS), respectively, and showed that in mid-pregnancy, The results showed that pregnant women who showed a stronger emotional connection with their fetus in late pregnancy had a higher level of attachment to their infants in the postpartum 3 months. German scholars Dubber [19] measured maternal-fetal attachment and maternal-infant attachment at 32 weeks of late pregnancy and 3 months postpartum, and found that there was a significant negative correlation between maternal-fetal attachment and postpartum maternal-infant attachment disorder, i.e., the higher the level of mother's attachment to the unborn fetus during pregnancy, the fewer postpartum attachment disorders. In addition, researchers investigating different populations have come to similar conclusions. Hildingsson [20] investigated 172 women with fear of childbirth and found that low levels of maternal-fetal attachment showed impaired mother-infant bonding, in which depressive symptoms played a mediating role. American scholars Karina [21] and others investigated 124 pregnant women with unintended pregnancies using the Prenatal Attachment Inventory (PAI) and the Mother-to-Infant Bonding Scale (MIBS) and found that maternal-fetal attachment would have an independent and positive effects on postpartum maternal-infant attachment, with higher levels of maternal-fetal attachment during pregnancy being a protective factor for postpartum maternal-infant attachment among women with unintended pregnancies. The positive association between maternal-fetal attachment and mother-infant

attachment can be confirmed regardless of the measurement tool used. Thus, maternal-fetal attachment lays the foundation for postpartum mother-infant attachment. Early identification of maternal-fetal attachment disorders during pregnancy is especially critical in order to prevent possible attachment problems in the early postpartum period. Monitoring maternal-fetal attachment levels during pregnancy and providing timely interventions for possible maternal-fetal attachment problems in pregnant women can be considered to further enhance the quality of maternal-infant attachment in the early postpartum period.

Study of the Correlation Between Maternal-Fetal Attachment and Labor Experience

Currently, only 3 foreign studies on the correlation between labor and delivery experience and maternal-fetal attachment have been retrieved. Two of them suggest that maternal-fetal attachment contributes to the emergence of postpartum labor-related PTSD symptoms. The results of a cross-sectional study in Turkey [22] showed a negative correlation between maternal-fetal attachment and postpartum labor-related PTSD symptoms. Higher maternal-fetal attachment scores were associated with fewer postpartum labor-related PTSD symptoms. The results of a study by Italian scholars such as Tani [23] showed that the quality of maternal-fetal attachment was negatively associated with negative labor experiences (use of oxytocin and analgesics and duration of labor). In addition, labor-related PTSD symptoms can positively affect maternal-fetal attachment in PMSMs. In 2019, Norwegian scholar Susan [24] administered a questionnaire to 1, 493 PMSMs on labor-related PTSD symptoms at 17 weeks and maternal-fetal attachment levels at 32 weeks, and showed that women with labor-related PTSD symptoms who became pregnant again had a more higher levels of maternal-fetal attachment. However, there is only one study on this subject, and the results need to be further confirmed.

A Study of the Correlation Between the Experience of Childbirth and Mother-Infant Attachment

Findings on the relevance of the birth experience to mother-infant attachment are not consistent, with most studies suggesting that negative birth experiences for mothers, such as posttraumatic stress disorder after childbirth, disrupt the development of the mother-infant bond. In 2020, a Japanese regional study using the Postpartum Bonding Questionnaire (PBQ) surveyed 130 mothers at 1 and 4 months postpartum and showed a positive correlation between posttraumatic stress disorder after childbirth and failure of the mother-infant bond at 1 month postpartum [25]. Ponti found [26] that postpartum PTSD symptoms caused by traumatic birth experiences negatively impacted mother-infant attachment, either directly or indirectly through postpartum depression. American scholars such as Dekel [27] showed that women with postpartum PTSD symptoms had lower mother-infant attachment scores than women without postpartum PTSD symptoms, and that postpartum PTSD symptoms can hinder the establishment of mother-infant attachment. However, there is also a study that states that negative birth experiences can improve the mother-infant relationship. American scholar Babu [28] used the Maternal Attachment Inventory (MAI) to investigate 2205 women who gave birth during the COVID-19 pandemic and 540 women who had given birth before, and found that a large proportion of mothers who had traumatic birth experiences during the COVID-19 pandemic triggered the mother's s psychological growth, leading to an improvement in the mother-infant relationship. In addition, a few studies have indicated no association between the two. 2022, Iranian scholars Moniri [29] found no statistically significant relationship between birth experience and mother-infant attachment using the Postnatal Bonding Questionnaire (PBQ) and the Childbirth Experience Questionnaire (CEQ) in 228 pregnant women at 6 weeks postpartum. There was no statistical significance between the two. In conclusion, the contradictions between the above results may be due to differences in year, country, measurement tools applied, and time point of mother-infant attachment measurement.

The Mediating Role of the Childbirth Experience in Maternal-Fetal Attachment and Mother-Infant Attachment

Currently, foreign literature on the relationship between labor and delivery experience, maternal-fetal attachment, and mother-infant attachment suggests that labor and delivery experience plays a mediating role in maternal-fetal attachment and mother-infant attachment. However, only 2 relevant literatures were retrieved. The results of Smorti [17] and other studies showed that traumatic birth experience plays a mediating role between maternal-fetal attachment and mother-infant attachment. Adverse maternal-fetal attachment is a risk factor for traumatic birth experience, which in turn hinders the development of mother-infant attachment. Damato et al.'s study [30] found that maternal-fetal attachment indirectly affects mother-infant attachment, with the birth experience being an important variable that influences the relationship between the two. Positive maternal-fetal attachment improves a woman's ability to cope with labor and promotes a positive birth experience, which in turn facilitates the development of positive mother-infant attachment. Due to the limited amount of literature, further research is needed.

Summary

There may be a certain connection between maternal-fetal attachment, mother-infant attachment, and labor and delivery experience. At present, the existing domestic research only focuses on maternal-fetal attachment, maternal-infant attachment, and childbirth experience individually for current research or multifactorial analysis, and there is a lack of relevant research linking the three. The existing foreign studies start from the negative birth experience, such as postpartum post-traumatic stress disorder symptoms, future research can be analyzed in depth from the perspective of positive birth experience, to explore the mediating role of positive birth experience between maternal-fetal attachment and mother-infant attachment, and at the same time, combined with the intervening factors to develop precise intervention strategies, to provide a theoretical basis and practical reference for the development of perinatal health care policies, to establish This will provide a theoretical basis and practical reference for the formulation of perinatal health care policies, establish a deep emotional connection between mother and fetus, promote positive labor experience, improve labor outcomes, and maintain the mother-infant relationship.

Fund Program

The Ministry of education of Humanities and Social Science project(22YJAZH148).

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Citation:

Ying J, Zhan J, Xu M, Zhang J, Wang J, et al. (2025) Research Progress on the Correlation Between Maternal-Fetal Attachment, Childbirth Experience and Maternal-Infant Attachment. *Endocrinol Diabetes Metab J* Volume 9(2): 1-4.