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The Maternal-Fetus Relationship in the Uterus: Essential for Wellbeing through Life

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Abstract: Motherhood involves a mental reorganization including biological, sociological, and emotional elements that come into being in the mother's psyche during conception, pregnancy, birth, and throughout life. The fetus is a partner who engages in an active dialogue with the mother. From the moment of fertilization, the process of development begins as part of the course of life. Pre- and perinatal experiences shape the child's brain structure and functioning and lay the foundation for their personality and sense of security and trust. The attempts to build a replacement for the mother's womb in which a fetus grows have led me to re-emphasize the importance of the mother's uterus as a uniquely important place for the development of the fetus.

Keywords: motherhood, fetus, pregnancy, artificial womb

More than 15 million babies are born prematurely every year, and half of them don't survive (BBC News, 2019). Scientists in the Netherlands are now less than 10 years away from developing useable artificial womb technology (AWT) that could sustain the growth and development of a very premature baby outside of the human body (BBC News, 2019). The

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artificial womb would serve as a fluid-filled incubator for preterm babies between 14 and 35 weeks gestation, in effect treating the baby almost as if they had not yet been born, and keeping them in fluid instead of air, in contrast to the traditional Neonatal Intensive Care Unit (NICU) incubator. This new technology could also assist women with damaged or diseased uteri (Bulletti et al., 2011), or be an option for others who cannot carry a child, such as gay male couples, or those who choose not to carry a child, but still wish for one (BBC News, 2019; Romanis, 2018, 2020; Kingma & Finn, 2020).

The idea of artificial gestation, of growing “babies in bottles,” could affect women positively and liberate them from carrying a baby in their own womb. While there may be instances where AWT helps preterm babies of the future survive, we should also consider the mother’s body to be a uniquely important place for growing and birthing a baby.

The relationship with a mother is often the longest relationship a person experiences in their life. Motherhood is a mental reorganization including biological, sociological, and emotional elements that come into being in the mother’s psyche during conception, pregnancy, birth, and throughout life. The woman who is becoming a mother, and the relationship she shares with her children, are both personal and universal experiences (Perroni, 2009).

Palgi-Hecker (2005) adds that motherhood can be viewed as a mental, physical, and behavioral experience that builds the basic pattern of “the foundation for containing conflicts” (p. 325). That is to say, the possibility exists of keeping different feelings of the self and the other together without erasing the self or the other, and without having to decide between them. The meeting between the mother and her child and her devotion to the child offer new challenges to her mental options. The mother has to work hard to create a possible mental space for both her child and her motherhood (Palgi-Hecker, 2005).

Psychoanalysts have emphasized the existence for most women of a deep desire to realize the passion of motherhood in life. Those dealing with the subject draw attention to the importance of motherhood and its centrality in the child’s development, as well as the complexity of this experience.

In her article *Stabat Mater* (1985), Julia Kristava examines the question of what lies behind a woman’s desire to be a mother. In her view:

pregnancy is a dramatic experience . . . a type of natural psychosis . . . love of another person with whom the ego merges . . . a slow process of attentive and delicate coming into being . . . motherhood can be a genuinely creative act. (p. 249–273)

The Fetus

Advances in technology allow real-time monitoring of embryos throughout their development process: movements, patterns of behavior, facial expressions, identification of organs, and their vitality from fertilization to the initiation of cell division. Everything that enters the mother's body passes through the placenta to the fetus. The fetus shares with the mother mental and emotional experiences. Life in the womb is active. The fetus is capable of self-regulating and cognitively assimilating stimuli from the environment. The fetus lives and functions in a perceptual world like the newborn does immediately after birth. Not only that, the fetus is involved in the perceptual world leading to the ability for differentiation and specification. The events that occur in the uterus, during labor, and after birth are kept in memory.

Today we know that the fetus in the womb lives a fully human life. From the moment of fertilization, the process of development begins as part of the course of life. Experiences in utero, during childbirth, and after birth shape the child's brain structure and functioning and lay the foundation for personality development. The fetus is a partner who engages in an active dialogue with the mother. The sense of security and trust are already established during pregnancy. The fetus has its own rich and varied repertoire that is carried to the newborn after birth. It uses its own general, spontaneous movements that are dynamic, complex, and variable, and that allow it to adapt to changing conditions in the uterus, to prevent adherence, and to serve as a framework for what will come after birth. There is intrauterine learning ability: the ability to integrate the senses (following evoked motor responses), and for memory to function. Providing uterine stimuli speeds up the learning process and enriches and influences contact. Our existence is based on the earliest experiences that remain alive and active in each one of us. Traumatic events that occur in the uterus may explain many of the difficulties and pathologies that occur later in life.

Fetal exposure affects both parents and their newly-created relationship with the fetus. Ultrasound provides real proof of the baby's existence, and the fetus is perceived as real. Mothers sometimes give affectionate names and frequently bond with the fetus. A woman's quality of life during pregnancy and her physical and social environment have a significant impact on fetal development. Based on observations by Piontelli (1992), who is a pioneer using ultrasound during fetal and postnatal longitudinal follow-ups, there appears to be continuity in behavioral patterns between uterine and postnatal behavior. Children showed signs after birth that they were affected by the experiences they had had before birth.

Following the use of ultrasound in recent years, the subsequent studies have been conducted to examine the mother-fetal relationship and the effects on the relationship after birth:

1. Measuring maternal-fetus bonding using ultrasound (Cuijlits et al., 2019; Denbow, 2019; Le Bas et al., 2019; McNamara et al., 2019; Petri et al., 2017);
2. Pregnant women's emotions become a central focus of understanding of fetal and baby well-being (Denbow, 2019);
3. Bonding refers to the mother's self-reported emotional connection to her unborn child (Le Bas et al., 2019);
4. Antenatal attachment is the extent to which women engage in behaviors that represent an affiliation and interaction with their unborn fetus (Petri et al., 2017).

Attachment and Bonding

The attachment system is described by Bowlby as the way a child seeks care, comfort, and security from a caregiver, and the way a caregiver recognizes and responds to those needs. While attachment involves a dyadic and reciprocal interaction, mother-fetus bonding is unidirectional (McNamara et al., 2019). Higher quality bonding during pregnancy appears to predict higher quality bonding in the postnatal period.

Studies have found evidence that higher antenatal bonding was associated with more optimal infant development in infants aged 0-26 months, with outcomes including normal levels of activities (Le Bas et al., 2020). Reporting poor quality of bonding during pregnancy shows an increased risk of giving birth to an infant with adverse neonatal outcomes and less optimal early childhood development (Petri et al., 2017). Maternal distress has been found to be associated with poor obstetric outcomes and impaired cognitive, behavioral, and emotional child development. Maternal depression negatively impacts a mother's ability to bond with her baby both during pregnancy and in the early postpartum period (McNamara et al., 2019). Depression was the most studied mental health variable within the included studies (above) and was associated with lower mother-fetus attachment and postpartum bonding in the majority of publications. The capacity to give and receive love and maintain a long-term bond is increasingly recognized as key to human thriving, well-being, a positive outlook in the face of adversity, physical health, and better aging (Le Bas et al., 2019).

A comprehensive assessment of maternal risk factors for perinatal psychopathology during pregnancy should include the evaluation of antenatal bonding that could be modifiable by specific interventions promoting the quality of maternal bonding (Petri et al., 2017). The majority of findings demonstrated a positive association between

maternal bonding and infant social and emotional development. There is a need for further evidence to strengthen the results of measuring mother-fetus bonding using ultrasound. In the future, encouraging the development of the prenatal bond could have potentially far-reaching effects. Today's attempts to build a replacement for the mother's womb in which a fetus grows have led me to re-emphasize the importance of the mother's uterus as a uniquely important place for the development of the fetus.

Case Study

This case study deals with an IVF pregnancy with female and male embryos, the influence on the pregnant mother, and the "dialogue" between her and the twins. The woman is the youngest daughter in a family of three daughters. She always felt rejected and underestimated by her family. After her marriage, she gave birth to a healthy boy, but later she experienced repeated miscarriages. Her strong desire to have more children led her to several IVF treatments, which resulted in a pregnancy with twins. Her pregnancy was difficult, but she was determined to cope with all the difficulties. She was very attentive to the pregnancy process and knew she had twins even before the first ultrasound. She even knew exactly where each of the twins was located in the uterus. The girl occupied most of the place in the womb while seeking "attention." The boy laid in a corner. From the way she described her pregnancy, one could feel how happy and proud she was to be pregnant and how she was not worried about pregnancy difficulties.

Her doctor recommended an amniocentesis after seeing an issue with the boy's developmental health in one of the routine scans. However, the mother was scared of the risks embedded in the procedure and even described how the male fetus reacted uneasily and seemed to resist it every time she was thinking of it. She was convinced he was scared of the examination as much as she was. She ruled out the amniocentesis and took responsibility for the results. She continued the pregnancy with a strong belief that she had made the right decision.

The woman had a cesarean birth and immediately connected with both children. She especially attended to her son because she thought he needed more help than her daughter, who was strong enough. She named her son Ben and her daughter Lee (Ben means *a son* in Hebrew and Lee means *belongs to me*). She continued to give Ben the utmost attention, as she did throughout her pregnancy, and was unable to bear his crying.

This mother continues to tie herself to her son, complaining about many bad feelings and him not being prepared to build his independence. Over the past two years, the boy has been taking growth hormones, because he is below the age curve. On one hand, Ben keeps his mother

away and rejects her; on the other hand, Ben is very dependent and the mother does not dare to allow the separation necessary for adolescence.

This case expresses the mother's bonding with her embryos and her complete ability to feel attached to them. The need for an existential feeling of herself was expressed through her strong connection to the fetuses in her womb. At the time of the pregnancy, she felt their movements and knew their exact location, and had a close and deep "dialogue" with them. The exclusive connection to them gave her a sense of value and uniqueness and served as a correction to the rejection and feelings of worthlessness she had experienced with her family. The embryos received the maximum amount of attention and she had a very close relationship with them as if they were already born. The mother and the twins gained an important existential experience that could support future development and improve the quality of life.

Discussion

This article discusses the importance of the initial antenatal meeting between the fetus and their mother. The fetus and the mother are inseparable. The uterine interactions are an irreplaceable source of life and initial human interaction, which are the essential existential basis. The functioning mother satisfies the needs of the fetus and thus creates the initial alliance and human connection that last for a lifetime.

Today's advanced use of ultrasound allows studies to document the initial contact formation between the fetus and the mother. They show that depression is associated with lower mother-fetus bonding. Those studies, however, are quite new and require further evidence to strengthen the results of measuring mother-fetus bonding using ultrasound. The mother-fetus bonding may affect the mother's postpartum ability to provide holding (Winnicott, 1979), allow an experience of vitality (Stern, 1985) and continue building the mother-child attachment bond (Bowlby, 1984). This could hinder future healthy development.

The case presented in this article shows how attentive and sensitive the mother was and how she made close contact with her two fetuses. Despite her doctor's recommendation, she ruled out an amniocentesis because she felt her male fetus was resisting it. She continued the pregnancy with a strong belief that she had made the right decision while taking full responsibility for the consequences. Postpartum, the mother continued to be very close to her twins and her devotion to them was still without boundaries. She was so close to them that sometimes it was difficult to distinguish between her feelings and needs and theirs. The separation between the twins and the mother had not started yet and there was great dependence upon her intentions and expectations.

This article helps emphasize the importance of the mother's body to the future life of the baby. The interconnection between fetus and mother cannot be denied. The attempts to build a replacement for the mother's womb in which a fetus grows exclusively, while potentially life-giving to some, is a disturbing option in my opinion, in terms of raising a healthy human being. The mother's body is not just a physical residence, but an emotional one, where the bond between her and her baby grows.

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