Araceli presented in the emergency room with dehydration. She had been experiencing excessive vomiting for over five weeks and had been unable to stomach her HIV medication. Her labs indicated both a pregnancy and the presence of opioids. When the hospital social worker met with Araceli, she learned that Araceli had given birth to a child who was placed in foster care eighteen months prior due to similar circumstances. Araceli was in denial about this unplanned pregnancy, and refused an ultrasound. She reported anxiety about potential child welfare involvement, as well as fear that the infant would be born HIV-positive. Araceli’s vomiting was stabilized, and she was discharged from the hospital before the social worker was able to connect her with community resources. Four months later, Araceli delivered a premature infant with opioids in his system. Child welfare was contacted, and the infant was placed in foster care. Araceli’s adherence to HIV medication during pregnancy was unknown, and the infant was at high-risk for contracting HIV.

Maternal-Fetal Attachment

Maternal-fetal attachment (MFA) defines the relationship between a pregnant woman and her fetus and is demonstrated through the expression of her feelings and behaviors (1). It often begins when the woman learns that she is pregnant, and increases dramatically as she feels the baby grow and move within her body (2). Through a continuously evolving thought process, the woman develops an internal representation of her unborn baby, and begins the complicated psychological task of identifying as a mother, while simultaneously accepting the fetus as a unique individual who is separate from her. (2). Often, this process is enjoyable, providing a mixture of fantasies and thoughts about the realistic expectations of pregnancy and impending parenthood (3).
MFA fluctuates throughout pregnancy, in even the healthiest maternal-fetal relationships. These shifts can be due to biological and physiological changes in the woman and her fetus, the psychological process of preparing for a new baby, the social ecology surrounding the pregnancy, and changes or interventions occurring externally (4). Biological and physical changes can include the presence of morning sickness. Some women report that although they experience discomfort, it can actually make the pregnancy feel much more real, triggering feelings of excitement or nervousness. In another case, a woman who planned her pregnancy, conceives, and subsequently learns of her partner’s job loss experiences a decrease in maternal-fetal attachment due to worries about increasing financial strain on the family.

Protective Factors Associated with Maternal-Fetal Attachment

Clear advantages have consistently emerged in relation to high levels of MFA. Benefits have been noted for both infants and mothers, as well as for the mother-baby dyads.

Benefits for Baby

Levels of maternal-fetal attachment are positively correlated with styles of postnatal attachment and relationship quality (5). Heightened MFA levels often lead to more positive parent-infant attachment behaviors after birth and a secure parent-child attachment. Secure mother-infant attachments have been linked to a child’s:

• future success regarding exploration, problem solving, and social maneuvering (6);
• ability to regulate emotions, seek safety or comfort under threat, and positively navigate new experiences (7);
• healthy physiological and psychological development; and
• resiliency against life stressors and pains (8).

Benefits for Mother

Prenatal attachment quality is also associated with heightened levels of mental and physical health for the mother, as pregnant women are more likely to improve their health practices for the health of the baby (9). Mothers with high levels of MFA typically engage in more positive health behaviors and practices during pregnancy, including:

• abstinence from tobacco, alcohol, illicit drug use;
• adherence to suggested prenatal care;
• healthy diets;
• regular sleep schedules;
• increased exercise;
• seat belt use; and
• utilization of medical attention, when needed (9, 10).
Additionally, high levels of MFA are correlated with numerous benefits for the mother during the post-partum period. These benefits include:

- increased levels of family involvement;
- positive maternal affective mood (10); and
- less vulnerability to postpartum depression.

**Benefits for Mother-Infant Dyad**

Dyads who have experienced a high level of MFA often have more pronounced mutual enjoyment and satisfaction. They are often able to read one another’s cues more easily, and then appropriately modify their behavior in response to those cues (5). The mental health of the dyad, as well as each individual, is enhanced from this mutual regulation and enjoyment. This high degree of relational attunement provides an optimal setting for infants and children to grow and thrive.

**Effects Associated with Low Maternal-Fetal Attachment**

Poor MFA has consequences for the unborn fetus, and later, the baby. Development of attachment begins in utero, and becomes further rooted within the first year of life. In numerous studies, a correlation is drawn between levels of prenatal and postnatal attachment, indicating that low levels of MFA point to a high likelihood that the postnatal attachment conditions will be suboptimal.

**Effects on the Fetus**

Most research demonstrates that within the dyad, the fetus receives the bulk of negative consequences for low MFA (9, 11). In more severe cases — when the mother has minimal feelings of attachment and investment — the fetus is at the greatest risk for abuse. In extreme cases, this can lead to passive or active forms of fetal abuse. In these acute cases, women often report that they wish to hurt the fetus or the baby (11). Women in these situations often state that they do not trust themselves to stay in control of their emotions and or behavior towards the child.

The two types of fetal abuse can be distinguished as such:

- Passive fetal abuse includes drug misuse, and refusal or failure to access prenatal health services.
- Active forms of fetal abuse involve such things as intentionally punching one’s own stomach with fists or pushing the stomach against hard objects. (11)

**Effects on the Baby**

When maternal-fetal attachment does not increase over time, the baby is born to a mother who is less likely and less able to:

- engage in positive attachment behaviors;
- soothe the baby; and
- feel protective impulses towards the baby.

This often results in the development of an insecure parent-infant attachment. (12, 13, 14)
Barriers to Healthy Maternal-Fetal Attachment

Although maternal-fetal attachment commonly intensifies throughout the course of pregnancy, certain circumstances act as barriers to healthy MFA.

**Fear of a Compromised Infant**

The concern that the fetus may not be healthy, or even viable, is the greatest predictor of low MFA. As a coping mechanism, mothers experiencing high-risk pregnancies (e.g., fetal abnormality; advanced maternal age; heavy maternal drug use) are less willing to develop attachments to, or investments in, their unborn child (6).

**Depression & Anxiety**

Depressive symptoms and moderate-to-high levels of anxiety are consistently shown to affect maternal-fetal attachment. In fact, depression and anxiety are among the most reliable predictive factors of poor MFA. Although the degree of depression and anxiety can fluctuate throughout the gestational period, even low levels are consistently linked to poor MFA (9, 11, 13).

**Prior Loss of Offspring**

Women who have had histories of past loss due to abortion, miscarriage, or prior removal of a child by the child welfare system sometimes report feeling less attached to the fetus (11, 15). The pain that a woman recalls when reflecting on such experiences can be so great that it obstructs the development of MFA with her new fetus.

**Unwanted Pregnancy**

An unwanted pregnancy should be distinguished from an unplanned pregnancy. Women who experience unplanned pregnancies typically experience a progressive and optimal increase of MFA, whereas women who experience unwanted pregnancies do not. Low MFA is found more frequently among mothers who do not want the child they are carrying (15). For women who plan to place the baby up for adoption, MFA levels remain consistently low.

**Traumatic Maternal Attachment History**

Many women who report feelings of severe maternal inadequacy often refer to their own traumatic attachment relationships with mothers or primary caregivers who caused them emotional and/or physical pain, especially within their first few years of life (11). For women who experienced negative attachment relationships with their
caregivers, or for women who lack a caregiving model of any kind, the prospect of having and caring for a child can be extremely alarming. This anxiety centers on feelings of uncertainty, fear of inadequacy, and pain from past unmet needs.

**Stigma**

Enduring the social stigma of being a pregnant HIV-positive woman has led some women to maintain psychological distance from their fetuses (16). Often, the stigma is based upon a public misconception that an HIV-positive woman will most certainly birth an HIV-positive infant. According to the Centers for Disease Control and Prevention, with appropriate treatment, perinatal HIV transmission occurs in less than 1% of cases (29). Women who are pregnant and HIV-positive relate feelings of shame and fear regarding their HIV-status in relation to childbearing due to pervasive social stigma (16).

**Threat of Discovery**

The threat of legal penalties, loss of the baby, and forced recovery can lead substance using mothers, or those with a history of substance use, to emotionally distance themselves from their fetuses, thereby avoiding medical involvement as long as possible (17). It is important to note that this choice to delay or abstain from prenatal care is often made in order to diminish the risk of loss and systemic repercussion, rather than stemming from neglectful or abusive intentions (17).

**Interventions to Promote Maternal-Fetal Attachment**

Women can experience positive levels of attachment to their unborn fetuses, regardless of their health status or behaviors (9, 18). MFA typically strengthens over the course of a pregnancy, but it can also be promoted through conscious intention and action.

Professionals can utilize multiple interventions to increase maternal-fetal attachment in any population.

- **Provide Health Care Advocacy**
  Women from marginalized communities who are recipients of free or subsidized health care often have larger distances to travel on public transportation, and are more likely to be whisked through their prenatal appointments with proportionally less physician time. (19, 20) With limited time, emphasis is often placed on measuring levels of prenatal risk, rather than on instructing mother about her developing baby. Mothers could benefit from assistance in planning their appointments, accessing transportation, and negotiating childcare logistics, so that they are able to utilize medical interventions. (21)
• **Offer Information on Fetal Development**  
Physicians, nurses, midwives and other clinical personnel can provide women with detailed information about their baby’s development and growth. Verbal and written information can offer weekly or trimester-specific facts about how the baby is developing, and suggestions on how to interact with the baby.

• **The Mayo Clinic’s “Pregnancy Week by Week”:**  
http://www.mayoclinic.com/health/prenatal-care/PR00112

• **Kid’s Health “Pregnancy Calendar”:**  
http://kidshealth.org/parent/pregnancy_calendar/

• **Assist Mother in Detecting Fetal Placement and Movement**  
One of the foremost methods of promoting MFA is to teach women to detect fetal movement (10, 15). By counting kicks and movements, women naturally increase the amount of time they are actively paying attention to the fetus. Additionally, women can learn to detect the placement of the fetus by stroking and palpating their abdomen, taking note of where they imagine the baby’s body parts are located (5, 10, 15). This particular intervention can also increase the partner’s level of involvement, as the movement and activity can be recognized externally (22).

• **Encourage Positive Internal Representation**  
In order to increase the mother’s capacity for an enhanced sense of her baby, she should be encouraged to talk to the fetus and assign it a pet name. Directing the mother to verbalize what she believes her baby might be feeling, or designing games where she fantasizes about the baby’s emotions, can promote maternal satisfaction while interacting with the fetus (23). Learning the baby’s gender often reinforces MFA, as mothers report this intensifies their conceptualization of the babies.

• **Educate about Fetal Sensitivity to the Maternal Experience**  
The mother can be advised about how clearly the baby responds to her voice, and moves more in response to her voice than any other (24). More information about fetal sensitivity to the mother’s emotions and health can include educating the mother about baby’s sensitivity to maternal stress. Reminding the mother that the baby eats what she eats, and feels what she feels, can greatly alter and deepen the mother’s perception of the fetus (24). Often, as mothers learn the extent to which their circumstances affect the experience and development of their baby, they feel much more connected to the fetus. This increases maternal feelings of protectiveness towards the fetus.

• **Plan Ahead for Infant Feeding**  
Many women find that their level of fetal attachment increases as they begin to contemplate breastfeeding (23). Breastfeeding is a great opportunity for bonding with a new baby, and thinking about future bonding activities can greatly promote MFA. In the United States, HIV-positive mothers are strongly recommended against breastfeeding (29). This can create a sense of personal loss for the mother, as well as negative community feedback in pro-breastfeeding cultures. Clinicians should work with mothers who will not breastfeed, for whatever reason, to develop a plan for feeding times involving skin-to-skin contact.
• Assist Mother in Building a Support System
  Studies indicate that the mother’s feelings of being supported by her social network greatly influence her ability to engage more with her fetus. It is not the number of people in her social support network, but rather her perceived level of support specifically related to her pregnancy and upcoming role as a mother. Discussing with the mother how she might advocate for her needs within her social network, as well as adding supports to her network, can increase her feelings of satisfaction with her supports, lower her anxiety, and increase her ability to be present with the fetus (13).

• Connect Mother with Mental Health Services
  The maternal/child health community is perfectly situated to connect mothers to mental health services. Since mothers who are experiencing depression, anxiety, or various other mental health concerns are at heightened risk for the development of low MFA and postpartum depression, these mothers should be referred for therapeutic services and supports.

Supplemental Supports for Mothers with HIV

Women with HIV have similar levels of maternal-fetal attachment as HIV negative mothers (25). The principle distinctions are that mothers with HIV commonly encounter stigma related to medical and pregnancy status, anxiety around the health of their fetus, and stress regarding navigation of numerous medical appointments while preparing for an infant. In addition, these women are living with a chronic life-threatening condition with its own effects on health and mental health. Interventions recommended for this population include: (26)

• Create a Medical Management Plan
  Creating a strengths-based plan for the medical maintenance of the mother’s HIV, and maintaining the baby’s health during pregnancy, is critical. HIV-positive women can benefit greatly from having a medical counselor or case manager advise them on ways to prevent, or minimize, transmission of the disease to their infant. By ensuring access to the most up-to-date medical information, providers can help mothers invest in attachment to their unborn babies.

  AIDS info “HIV and Pregnancy”

• Provide Therapeutic Support
  Pregnant women with HIV can benefit from a warm and emotionally supportive therapeutic environment. In this context, they can discuss the social stigma of parenting with HIV, strengthen stress management techniques, prepare for the unlikely possibility that the baby is born HIV-positive, and reflect on future responsibilities and reality of life as a mother living with HIV (16, 27).
- **Provide Culturally-Informed and Respectful Services**
  Offering services delivered by respectful and empathic human service workers can greatly increase the likelihood that mothers will attend necessary appointments (21). Some pregnant women with HIV report that they stopped going to appointments because they encountered high levels of judgment, stigma, and painful disrespect by providers (21). Demonstrated repeatedly, women with HIV attend appointments for their babies at much higher and more consistent rates than appointments for themselves (21).

- **Advocate for Joint Fetal and Maternal Medical Appointments**
  Combining or piggy-backing prenatal appointments with their own HIV management appointments could help pregnant women care for their own medical needs better, while also attending to the well-being of the baby (21).

- **Create Support Groups**
  Support groups afford HIV-infected women who intend to be, or are, pregnant with an opportunity to interact with other women who have successfully navigated the path of pregnancy while HIV-positive. Many women report feeling more relaxed and positive after they have heard from other women who are “like them,” and have delivered healthy babies (18). Optimism can be shared and transferred between new and expectant mothers, increasing the hope of a healthy baby. This hope can translate to a belief that it is emotionally safe to invest in the fetus.

**Supplemental Supports for Mothers Who Use Substances**

Typically, women who are addicted to substances are much slower to acknowledge, accept, and invest in their pregnancies (17). Although their values and ideas about motherhood are commonly quite traditional, they have heightened concerns about their baby’s health and their ability to maintain custody of the baby in light of their drug use during pregnancy. Beyond the general interventions mentioned above, the following techniques have been shown to promote MFA with pregnant women who use substances:

- **Focus on Fetal Health**
  When prenatal care and involvement is seen as a tool to improve the health of the baby, women who use substances are more likely to adhere to prenatal health management suggestions. Fetal health is improved as the mother makes more frequent positive health decisions regarding her own body.
• **Optimize Child Custody**

Mothers have higher levels of MFA when they believe they will maintain custody of their baby (11, 15). When perinatal services are provided in a threatening way, inducing fear of legal repercussions and custody loss, women are very likely to avoid further treatment or prenatal healthcare involvement (17). Although impossible to ensure maintenance of the family unit, health and social work clinicians can validate the mother’s desire to keep her baby with her. They can assist the mother to set goals to improve the likelihood of family maintenance, such as securing safe and stable housing, enrollment in benefits programs, substance use management or cessation, referrals for rehabilitation services, and referrals to therapy.

• **Offer Toxicology Screenings**

Use of voluntary periodic substance use screenings in a culturally-sensitive, trauma-informed and de-stigmatized environment can be a precursor to early referrals for substance abuse counseling and rehabilitation services.

• **Offer Comprehensive Substance Use Counseling**

Pregnant women who are actively using substances should be referred for comprehensive counseling that will delineate the effects of continued use on her and the fetus. A referral to a multidisciplinary team should follow, with access to clinicians who can help with drug rehabilitation, as well as a fetal specialist who can maintain a close eye on the development and health of the fetus. (28) Ensuring that the baby is as healthy as possible allows the mother to make investments in the development and well-being of the fetus.

**Conclusion**

The promotion of maternal-fetal attachment occurs both naturally and in concert with respectful, constructive clinicians and health workers. All women, regardless of age, ethnicity, health status and behavior patterns, are apt to experience shared changes, rates and shifts in MFA. Practitioners are advised to consider supplemental interventions for pregnant women affected by HIV and/or substance use to achieve an optimal level of maternal-fetal attachment. With enhanced MFA, mothers and infants can begin life together in the most productive way possible. Araceli and her babies could quite possibly have experienced a wildly different outcome, had they been supported by an empathic multidisciplinary team who understood what they could do to provide the supports necessary to change the life of the family.
References


The National Abandoned Infants Assistance Resource Center’s mission is to enhance the quality of social and health services delivered to children who are abandoned or at risk of abandonment due to the presence of drugs and/or HIV in the family by providing training, information, support, and resources to service providers who assist these children and their families. The Resource Center is located at the University of California at Berkeley, and is a service of the Children’s Bureau.

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