

Parent-Child Attachment Disruption

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Abstract

Childbirth is a neurobiologically sensitive period, conceptualized as a developmental window during which a system displays high plasticity and vulnerability to shaping and attunement by environmental input. Healthcare professionals involved in perinatal services play a major role in the initiation of caregiver-child attachment by supporting practices that promote breastfeeding, immediate skin to skin contact, mother-child attachment, and father-child attachment. However, most of the facilities which provide maternity services promote policies that disrupt the establishment of attachment in spite of the recommendations of the World Health Organization (WHO). In México, only 3.7% of the births that occur in facilities, take place in a baby-friendly certified facility. For many private hospitals, to separate the mother from the infant in the first hour after birth is a strict policy and newborn permanence with her/his mother is denied even if requested by parents or healthcare professionals. This disruptive policy results in neuroendocrine alterations during a highly sensitive period.

“A disruption in these neuroendocrine events is likely to have not only a short-term impact on mother-child attachment but also long-term effects in the newborn, increasing the risk of behavioral alterations or mental health problems that may have not yet been causally related to a peripartal origin. (1)(2)”

Introduction

In humans like in other mammalian species, peripartal neuroendocrine events play an essential role in the initiation of the bonding of the newborn immediately after birth. (1)(2). A disruption in these neuroendocrine events is likely to have not only a short-term impact on mother-child attachment but also long-term effects in the newborn, increasing the risk of behavioral alterations or mental health problems that may have not yet been causally related to a peripartal origin. (1-2)

Childbirth is a neurobiologically sensitive period, conceptualized as a developmental window during which a system displays high plasticity and vulnerability to shaping and attunement by environmental input. (2)(3) According to Bowlby, attachment between the infant and his or her mother is an innate biological response that increases the prob-

ability of survival. (Bowlby, 1978). The attachment neurobiology develops early, beginning in utero and continues through preschool age. This is a complex process that involves the development of the HPA axis and reward system early on, followed by the development of the amygdala, followed by PFC development into adulthood. (2, 4)

Healthcare professionals involved in perinatal services play a major role in the initiation of caregiver-child attachment by supporting practices that promote breastfeeding, immediate skin to skin contact, mother-child attachment, and father-child attachment. However, most of the facilities which provide maternity services promote policies that disrupt the establishment of attachment in spite of the recommendations of the World Health Organization (WHO).

The Baby-Friendly Hospitals Initiative

The Baby-Friendly Hospital Initiative (BFHI) was launched in 1991 by the WHO and the United Nations Children's Fund (UNICEF), with the goal of protecting, promoting, and supporting breastfeeding in facilities that provide maternity services. Despite its proven benefits and relevance to current global health goals, the BFHI has suffered from waning political and financial support in recent years.

In México, only 3.7% of the births that occur in facilities take place in a baby-friendly certified facility. (10). According to INEGI (Instituto Nacional de Estadística y Geografía) 2, 234, 039 births occurred in 2017, of which 1,986,490 occurred in a health facility (1,672,295 [84.2%] took place in an official/ public facility, and 314,195 [15.8%] occurred in a private facility). Of note, births that occurred in a private facility have increased steadily for the last three years, and there is only one baby-friendly certified private facility in the entire country.

Rooming-in (allowing mothers and infants to remain together 24 hours a day) which is one of the Ten Steps for the promotion of successful breastfeeding, is a determinant for the establishment of caregiver-newborn attachment. However, in the majority of facilities, rooming-in for 24 hours a day is not routinely carried out, and it is implemented only when parents request it.

Moreover, routine separation occurs after cesarean section and even after vaginal delivery, so that the baby is placed in an isolette and vital signs are monitored for a variable number of hours. (Justified as surveillance of transitional period). During this period, infants are fed with formula and deprived of skin-to-skin contact from a caregiver.

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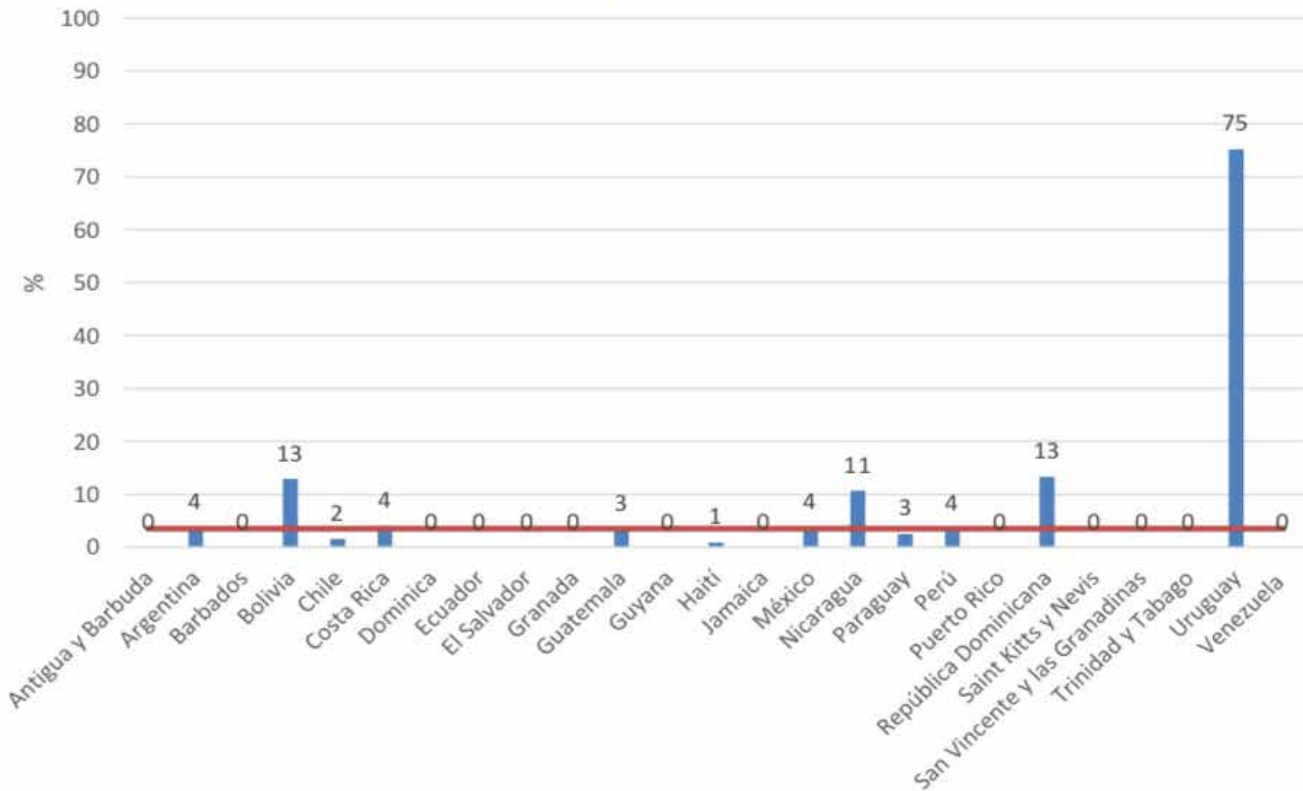
It is important for healthcare professionals to understand that an infant separated from its mother should be cared for skin-to-skin with its father or another primary caregiver for the infant's well-being. (5)

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Health facility births occurring in facilities certified as baby-friendly since 2008*



Health Organization.

Focusing on attachment

Birth outcomes have traditionally been measured in terms of maternal and neonatal morbidity in the short term. However, experiences during childbirth and in the first days of life can produce hypothetical changes in the brain, whose impact may only be manifested later in life. (1) Potential scenarios that can cause neurohormonal disruptions include elective cesarean section, intrapartum hormonal manipulations, pre-term delivery, mother-infant postpartum separation, and bottle-feeding. (1)

Activation of the oxytocinergic system is inhibited during pregnancy, and its activation is necessary for parturition and for the onset of lactation and maternal behavior. (1)(2) Vaginal delivery results in increased levels of oxytocin not only in the periphery but also in the brain, as indicated by animal studies showing increased levels of the hormone at parturition in the cerebrospinal fluid and the paraventricular nucleus of sheep and in the brain of rats. (1)

The central increase in oxytocin levels may contribute to the generation of mother-infant bonding, which may be associated with increased activation of oxytocin and dopamine pathways in the brain. (1) In humans, the passage of the baby head through the birth canal is accompanied by a substantial activation of the sympathoadrenal axis and the enhanced release of noradrenaline, cortisol, and vasopressin. (1-2)

During natural childbirth, the odor of the mother is supposed to be the first biologically relevant odor that the newborn confronts. Therefore, the increase in noradrenaline levels caused by vaginal delivery may contribute to the identification of maternal odor and to the consequent establishment of the attachment of the newborns with their mothers. (1)

Right after delivery occurs the so-called sensitive period, a quiet alert-

ness state that lasts for about two hours. (1-2) The sensitive neonatal period includes the spontaneous onset of breastfeeding in the first two hours of life. The first hours after birth are also a critical period for the development of attachment behavior. (1, 6) During this critical period for programming complex cognition and behavior, developmental perturbations can produce vulnerability to psychiatric disorders and maladaptive behaviors that reduce access to resources. (6)

Skin to skin contact immediately after delivery helps the baby to conserve energy, adjust acid-base balance and breathing and has a calming effect. (1) Skin to skin contact with both mothers and fathers reduces an infant's crying and promotes vocal communication between parent and newborns. (1). As a consequence of early skin to skin contact, infant regulation of emotions, stress reactivity, metabolic adaptation, social and cognitive development, and future interaction between mother and infant are promoted. (1-2)

In rats, maternal skin to skin contact increases central oxytocin in the pups, facilitating the induction of preference for maternal odor and the establishment of social affiliation. (1). The interaction of the mother with her pups seems to be necessary for the interaction of specific neuroplastic changes in the mother brain during the postpartum period. It is unknown if similar neuroplastic changes occur in the brain of human mothers. (1-2) Although the limited fMRI studies available suggest the existence of functional modifications in the hypothalamus, amygdala, and cerebral cortex in the brain of women during the postpartum period. (1) These functional modifications in the brain of postpartum women are influenced by the interaction with their infants. (1) The increase in intracerebral oxytocinergic signaling may mediate the association between breastfeeding and mother-child attachment. (6)

Early skin-to-skin contact with the mother has been shown as being important for the duration of breastfeeding, being even more important than early initiation of breastfeeding. (10). Breastfeeding might promote attachment, as one study showed that mother who breastfeed demonstrate greater activity in brain regions involved in bonding and

empathy in response to their own infant's cry. (7)

The work of Harlow and Harlow with rhesus monkeys clearly highlighted the importance of the infant's social interactions during a sensitive period in development since, without the caregiver, infants showed emotional and cognitive disabilities that were reminiscent of human children reared in adequate orphanages without an attachment figure. (2,4,6) For these reasons, not only breastfeeding but attachment to a caregiver must be enhanced and encouraged in all maternity facilities.

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Father's role in the first days of life

During early life, the infant relies on the caregiver for the regulation of basic physiology, ranging from vital functions, such as heart rate and respiration, to emotional regulation. (6). Attachment between a child and a secure attachment figure is inherently biological and supersedes the existence of any genetic relationship. (7)

In situations of mother-child separation, healthcare professionals must recognize fathers as resources and primary caregivers for the infant immediately after birth. (5). In an experiment, Perry et al. reared infant pups with both their mother and father to test whether or not pups also displayed attachment to their father. Pups reared in these conditions showed similar approach levels to their mother's and father's natural odors, indicating high odor preference learning for both. (3)

Furthermore, the father's odor induced a neural signature similar to that of the maternal odor, suggesting that infant experiences with their fathers as a co-caregiver elicited infant attachment in a similar way to mothers. (5) In a study by Erlandsson, the fathers as primary caregivers during maternal-infant separation were the source of comfort and approach for the infant immediately following birth. (5)

Also, fathers can give the infant a chance to coordinate their pre-feeding behavior. (5) In situations of separation, when early skin-to-skin contact with the mother and initiation of breastfeeding is delayed fathers as primary caregivers, from the infant's perspective, can provide a calming skin-to-skin contact, an enhanced adaptation of breathing and a chance to pre-feed. (5)

Fathers supported for attachment process in infancy and through their presence in the delivery room have an increased possibility of developing secure attachment between themselves and their babies. (8). A strong father-infant attachment after childbirth serves as a good starting point for such a role. (8). Harrington et al interviewed with 1000 employed fathers to compare father's caregiver role. Only 30% of the fathers reported that they effectively participated in infant care. (8). According to a model of the parental brain by James Swain and colleagues, an infant's cry, smell, feel and appearance activate cortico-limbic modules and trigger "reflexive caring impulses" (7), which might promote father's participation in infant's care.

Although father-child attachment remains understudied, it appears that

attachment relationships can and do form in most father-child dyads. (9) Father-child attachment security has been implicated in numerous child outcomes, such that securely attached children show fewer behavior problems, greater sociability, and more reciprocated friendships. (9)

Besides the father, the entire family must be informed, supported, and enabled in order to take responsibility for the care of the newborn infant during periods of maternal-infant separation, after for example a cesarean section. (10)

The exceptionally strong influence of early experiences on brain architecture makes the early years a period of both great opportunity and great vulnerability for development. (10)

The reciprocal and dynamic interactions between the child and a caregiver are essential for healthy development and literally shape the architecture of the developing brain. (10)

Conclusion

Although healthcare professionals are aware of the benefits of early skin to skin contact and breastfeeding, the consequences of disrupting caregiver-infant attachment in the first hours of life seem to be unclear, as they may manifest at later ages.

As healthcare providers, we must enhance full and continuous child attachment to the mother or another primary caregiver in case of child-mother separation. Routine separation of the child from the mother without a medical indication is unacceptable, especially during the first hours after birth, when a sensitive period for attachment occurs.

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