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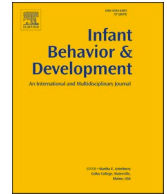
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Infant Behavior and Development

journal homepage: www.elsevier.com/locate/inbede

Editorial

To have and to hold: Effects of physical contact on infants and their caregivers



1. Introduction

Physical contact with others is vital to infant development. Over sixty years ago, [Harlow \(1958\)](#) demonstrated in his studies of infant monkeys with wire and cloth-covered surrogate mothers that physical contact is desired over closeness to food sources. Studies of orphaned human infants raised in deprived circumstances show that the lack of nurturing physical contact with others has devastating consequences for infant development ([Chisholm, 2000](#); [Dennis, 1973](#); [MacLean, 2003](#); [McCall, van IJzendoorn, Juffer, Groark, & Groza, 2011](#); [Nelson, Bos, Gunnar, & Sonuga-Barke, 2011](#); [Rutter & the English and Romanian Adoptees \(ERA\) Study Team, 1998](#)). The importance of infants' physical contact with their caregivers has a well-established theoretical grounding within early attachment research for long-term healthy development ([Ainsworth, 1967](#); [Ainsworth, Blehar, Waters, & Wall, 1978](#); [Bowlby, 1958](#)).

Touch is a primary sense, and in early infancy, it may be the most important sense. Infants are born with experience with touch; prenatally the fetus has ample opportunity to sense physical contact with its own body and the immediate prenatal environment. The skin is our largest sense organ and young babies use it to their advantage. Typically, infants seek as much physical contact with another person as possible. When held, infants tend to snuggle into your neck and mold themselves to you. This position is calming for the infant, and it also allows infants to get to know their caregivers—to associate the various perceptions of touch, voice, sight, and smell with the person who is holding them.

Physical contact with infants also affects caregivers. Physiologically, physical contact with infants, particularly frontal contact, stimulates the release of oxytocin, which is associated with nurturing behaviors and positive mood states ([Uvnäs-Moberg, 2003](#); [Uvnäs-Moberg, Handlin, & Petersson, 2015](#)). Behaviorally, when in close physical contact with infants, caregivers learn more readily to recognize infants' signals—when they are asleep, when they are awake, when they are hungry. Such awareness enhances caregivers' responsiveness to infants.

The importance of physical contact to infant development seems self-evident. However, until relatively recently the importance of tactile contact to infants' early development received scant research compared to that of vision or hearing. But that is changing, as is the need for such research.

Close body contact between infants and their caregivers has historically been the norm. Yet in Western societies, infants are in body contact with their caregivers about 18 % of the day compared to 79–99 % of the day in many non-Western societies ([Hewlett & Lamb, 2002](#)). Modern means of infant care that are particularly prevalent in Western societies, such as formula feeding, institutional medical practices, and baby gear that limits contact with caregivers, have reduced the physical closeness of infants and their caregivers. Although these practices and equipment are designed primarily to make life easier for parents, there is a cost, namely the reduction in infants' physical contact with others, which can negatively affect infant development, caregiver behaviors, and the developing infant-caregiver relationship.

At the time of this writing, we are in the midst of the 2020 COVID-19 pandemic, which is restricting physical contact further. Hospitals are closed to visitors. Many women are giving birth alone or with only one support person who must leave immediately afterwards. Families, including those with babies, are isolating from others. Mothers exposed to the virus are often encouraged to separate from their infants. Social distancing is the norm, even within some families. These restrictions are promoted to keep people safe, but the physical, psychological, and emotional costs are potentially high. This Special Issue on the importance of physical contact

<https://doi.org/10.1016/j.infbeh.2020.101494>

Available online 20 September 2020
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for infants and their caregivers is especially relevant at this time, when all people are struggling to adapt to a new reality that restricts contact.

Inquiry into the effects of physical contact in infancy can go in many directions as the diversity of articles in this Special Issue can attest. This volume brings together scholars from various fields. They collectively examine physical contact from the perspectives of attachment theory, neuro-endocrine research, typical and atypical development, cross-cultural research, parenting practices, and non-human primate research, and present new methodological tools. The diversity of the papers reflects the breadth of research focusing on the importance of physical contact with infants. Amidst the diversity, there is also overlap among the papers, indicating the convergence of interest in, and findings from, these varied research perspectives.

Below we offer a brief contextual overview of the contributions to this Special issue.

2. Overview of the social-emotional effects of infants' close body contact with others

[Norholt \(2020\)](#) reviews the importance of mother-infant physical contact to attachment theory and research. He presents historical and current findings from studies with animal and human infants. While noting gaps within the literature and the need for future studies, Northolt's review attests to the central position of physical contact between parent and infant for attachment.

3. Infant holding or carrying

Two review papers and three empirical papers focus on carrying infants via skin-to-skin contact or babywearing. In skin-to-skin contact, the infant, dressed only in a diaper, is placed on the mother's bare chest so that frontal contact between mother and infant is skin-to-skin. In babywearing, caregivers carry infants on their bodies, not in skin-to-skin contact, but in slings or other cloth carriers.

[Uvnäs-Moberg, Handlin, & Petersson \(2020\)](#) review the multiple physiological and behavioral effects of skin-to-skin contact for the infant and the parent, and the bidirectionality of the effects on the dyad that would explain many of the positive outcomes that [Norholt \(2020\)](#) presents. The underlying neuro-endocrine mechanisms involved are elucidated, particularly the release of oxytocin and the activation of sensory nerve fibers.

[Owusu-Ansah, Bigelow, & Power \(2019\)](#) examine the effect of skin-to-skin contact in a cross-cultural study of Ghanaian mother-infant dyads during the infants' first month on their response to the Still Face Task at six weeks. They found that skin-to-skin contact enhanced infants' ability to emotionally respond to their mothers' changing behavior during the task, which paralleled findings from Canadian infants, suggesting skin-to-skin contact accelerates infants' developing expectations for maternal social engagement.

[Berez, Cyrille, Casselbrant, Oleksak, & Norholt \(2020\)](#) review the propensity of infants to cling and be carried throughout the evolution of our species. They propose that slings and other infant carriers emerged as encephalization evolved. In much of human prehistory as today, caregivers carried infants on their bodies as a means of insuring infants' close contact with others, which allowed infants to survive, mature, and acquire social cognitive abilities in the context of others.

[Little, Legare, & Carver, 2019](#) examine maternal behavior and beliefs concerning babywearing. They found that babywearing enhanced maternal contingent responsiveness to infants' cues, tactile interactions, and belief in the importance of responding to infants' cues.

[Williams and Turner \(2020\)](#) randomly assigned at-risk adolescent mothers to babywearing or control conditions. They found that at seven months, using the Global Rating Scale, infants in the babywearing group were more likely to have secure attachments and less likely to have disorganized attachments.

In a related paper, [Patel, Shi, Hajiaghajani, Biswas and Lee \(2019\)](#) report on a new measurement tool to assess infants' spontaneous movements when being held. Spontaneous movements, defined as repetitive movements in the absence of external stimulators, are reflective of infants' neurodevelopmental status. The two-body sensor system shows promise in tracking infants' spontaneous movement while being held, which may provide useful information in the assessment of infants at-risk for developmental disorders.

4. Caregiver touch

[Mercuri et al. \(2019\)](#) investigate the relation between parents' initial touch with their newborns and later touch when the infants are a few months old. Their findings indicate the nurturing and predictive quality of parents' touch as a primary means of early contact and communication.

[Provenzi et al. \(2020\)](#) examine type of maternal touch eliciting gaze orienting in infants with and without neurodevelopmental disability. Findings suggest types of touch are important in supporting infants' attention, but that the types of touch facilitating social orientation may vary with neurodevelopmental status.

[Serra, Miguel, Moura, Sampaio, & Pereira \(2020\)](#) investigate mothers' use of touch during different mother-infant play tasks with year-old infants. They found that mothers adjusted their frequency and type of touch to tasks with and without objects and to task difficulty.

[Simpson et al. \(2019\)](#) examine the effect of human caregiver touch on infant monkeys' subsequent attention to social and non-social displays. Soothing caregiver touch reduced stress-related behaviors in the infant monkeys and influenced their interest in social displays.

5. Infant Co-sleeping

Co-sleeping, defined as parents sleeping with their infants, is the norm in most non-Western societies; yet it is viewed as harmful in many Western societies. In an interdisciplinary review of co-sleeping, Barry (2019) examines how physical touch and proximity in co-sleeping affects infants and their caregivers. The author suggests that, rather than trying to eliminate co-sleeping as an unhealthy practice, public health messages to parents would benefit from advising how to co-sleep safely for parents who choose it.

Raghunath, Azhari, Bornstein, Setoh, & Esposito (2020) investigate physiological calming and self-regulation during nap time of young infants who regularly co-sleep with their mothers, sleep within an arm's length of their mothers, or are solitary sleepers. Results suggest that infants who sleep in close physical contact with their mothers acquire enhanced regulation that allows them to adapt to different sleep contexts.

6. Conclusion

The contributions to this Special Issue stem from multiple disciplines and incorporate different methodologies and approaches to the study of physical contact in infancy. The diversity of perspectives is to be embraced as collectively the contributions yield a rich understanding of the multifaceted ways infants' physical contact with others benefits their development. It is our hope that this Special Issue will result in a cross-fertilization of ideas to generate future research on this important topic.

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