

Universality Without Uniformity: A Culturally Inclusive Approach to Sensitive Responsiveness in Infant Caregiving

Judi Mesman and Tessa Minter
Leiden University

Andrei Angged
Freelance Cultural Anthropologist

Ibrahima A. H. Cissé
ULSHB (University of Humanities in Bamako)

Gul Deniz Salali and Andrea Bamberg
Migliano
University College London

Do caregivers in non-Western communities adapt their behaviors to the needs of infants? This question reflects one of the most long-standing debates on the universality versus culture-specificity of caregiver–infant interactions in general and sensitive responsiveness to infants in particular. In this article, an integration of both points of view is presented, based on the theoretical origins of the sensitive responsiveness construct combined with the ethnographic literature on caregivers and infants in different parts of the world. This integration advocates universality without uniformity, and calls for multidisciplinary collaborations to investigate the complexities and nuances of caregiver–infant interactions in different cultures. Salient issues are illustrated with observations of infants (ages 7–31 months) in Mali, the Republic of Congo, and the Philippines.

Caregiver sensitive responsiveness was first formulated in the context of attachment theory and refers to a caregiver's ability to notice infant signals, to interpret these signals correctly, and to respond to them promptly and appropriately by adapting her behaviors to the infant's needs (Ainsworth, Bell, & Stayton, 1974). Theoretically, sensitive responsiveness is hypothesized to be a universal aspect of parenting in infancy that is related to positive child development, given the evolutionary advantage of being taken care of by a responsive caregiver when infants themselves cannot take care of their own needs (Bowlby, 1969; Mesman, Van IJzendoorn, & Bakermans-Kranenburg, 2012; Mesman, Van IJzendoorn, & Sagi-Schwartz, 2016). The notion of sensitive responsiveness originated in part from Ainsworth's observational work in rural Uganda (Ainsworth, 1967), clearly serving as a significant

starting point from which her future work emerged (Bretherton, 2013). However, the bulk of research on caregiver sensitive responsiveness has since been carried out in parents as primary caregivers in Western countries and urban areas, and studies in non-Western rural regions, where extensive shared caregiving is the norm, are very rare. This state of affairs leaves the field vulnerable to criticism from scholars who contest the universality of the sensitivity construct. Indeed, several authors have argued that caregiver sensitivity simply does not exist in some cultural contexts as it is suggested to be incompatible with local norms, customs, and attitudes (Keller, 2013; Lancy, 2015; LeVine, 2004; Weisner, 2015).

The current study aims to dissect the sensitivity construct to examine to what extent and in which form it is or is not applicable to non-Western cultural contexts. Of course the Western versus non-Western dichotomy is a simplification of a complex set of interacting socioeconomic, physical, and social factors that vary across communities in almost infinite combinations. We analyze the literature for insights into the exact meaning and manifestation of sensitive responsiveness across cultures

We are grateful for the support from several sources that funded the data collection in the Republic of Congo (Leverhulme Program Grant RP2011-R-045, awarded to Andrea Bamberg Migliano), the Philippines (Treib Maatschappij, awarded to Tessa Minter), and Mali (French Ministry of Education and Research, awarded to Ibrahima A. H. Cissé). We further thank our informants, respondents, and collaborators who have been of vital assistance throughout the data collection process.

Correspondence concerning this article should be addressed to Judi Mesman, Centre for Child and Family Studies, Leiden University, Wassenaarseweg 52, 2333 AK, Leiden, The Netherlands. Electronic mail may be sent to mesmanj@fsw.leidenuniv.nl.

© 2017 The Authors
Child Development © 2017 Society for Research in Child Development, Inc.
All rights reserved. 0009-3920/2017/xxxx-xxxx
DOI: 10.1111/cdev.12795

in the context of nonexhaustive examples of such variations, and we add to the existing literature by drawing from our own observations of families in rural parts of the world that are off the beaten track of mainstream attachment research. We will first describe the point of view of attachment theory and its universality claims, and then discuss arguments against these claims from scholars who emphasize the importance of cultural context.

The Attachment Theory Perspective

Mary Ainsworth developed the notion of sensitive responsiveness within the framework of attachment theory as formulated by Bowlby (1969) who described attachment as the bond between an infant and a specific caregiver, mostly the mother. The infant–mother bond is secure when the infant not only seeks out the mother for comfort in times of distress but also feels free to playfully explore the environment when all is well, knowing that the mother will be there when things go awry (Ainsworth, Belhar, Waters, & Wall, 1978). More sensitive caregiving was hypothesized to predict secure attachment, which has been confirmed in a meta-analysis showing a correlational association (De Wolff & Van IJzendoorn, 1997), as well as a causal relation (Bakermans-Kranenburg et al., 2003). In addition, maternal sensitive responsiveness has been found to predict positive child development across a variety of domains (Bernier, Whipple, & Carlson, 2010; Fraley, Roisman, & Haltigan, 2013; Kochanska, Barry, Aksan, & Boldt, 2008; Mesman et al., 2012; Tamis-LeMonda, Borstein, & Baumwell, 2001).

From an evolutionary perspective, becoming attached to and relying on a sensitively responsive caregiver is crucial for infant survival. Human infants are completely defenseless and require extensive adult care for several years before becoming self-reliant (Bogin, 1997; Gurven & Walker, 2006). Most importantly, sensitive responsiveness enhances general infant well-being because it ensures that the infant will be fed when signaling hunger, protected when signaling fear, and cared for when signaling pain. The fact that consistent caregiving relates to secure attachment bonds in chimpanzees, also a species with costly investment in reproduction and offspring care like humans, further strengthens the evolutionary relevance of the notion of caregiver responsiveness (Van IJzendoorn, Bard, Bakermans-Kranenburg, & Ivan, 2009). Although much of Ainsworth's work focused on the 1st year of life (e.g., Ainsworth et al., 1974),

infancy can also include the 2nd and even 3rd years of life, as human children still require extensive care during that period. Indeed, in her description of the sensitivity versus insensitivity scale, Ainsworth gives examples of infant behavior and sensitive responsiveness in the 2nd year of life (Ainsworth et al., 1974, pp. 129–130). She thus highlights that the appropriateness and therefore sensitivity of a response depends on the child's developmental stage.

The long period of dependency that lasts for at least 2 years, associated with possible maternal mortality, the high energetic costs of reproduction and short interbirth intervals, which are characteristic of humans, are likely to have selected for strong sensitive responsiveness not only in mothers but also in close kin (fathers, grandmothers, aunts, and siblings), who in small-scale societies play a crucial role in caregiving, increasing the rates of child survival (Sear & Mace, 2008). A sensitive caregiver makes sure she is close to the infant so that she can notice its signals, and caregiver proximity represents the first requirement for basic caregiving such as feeding, washing, and grooming, and providing physical safety and shelter.

Sensitive caregiving can also contribute to infant adaptive functioning in a more indirect manner that fits with the notion of sensitivity as an important aspect of caregiving that evolved to enhance offspring survival. An interesting consequence of receiving sensitive responsiveness is that it fosters the infant's ability to detect the link between its own behaviors and the environment, because its behaviors are predictably followed by appropriate caregiving responses. For example, the infant learns that if it cries, a caregiver will come to provide comfort, and when it reaches for the breast, mother will offer milk. The experience of predictable relations between behaviors and outcomes (also known as behavior-based contingencies) in early caregiving interactions enhances infants' ability to learn the consequences of their own behavior in other situations (Tarabulsy et al., 1998), which is a necessary skill for general adaptive functioning (Ainsworth, 1967; Ainsworth et al., 1974; Gewirtz & Palaez-Nogueras, 1992). For example, to develop appropriate social skills, a child needs to recognize which behaviors evoke positive responses from others and which ones evoke disapproval. To learn language skills, a child needs to notice when its utterances are followed by meaningful responses that indicate that its language use was effective. More importantly, it needs to be quick to learn to avoid behaviors that may have harmful consequences (e.g.,

coming close to a fire or wander of too far from supervision). Thus, the early experience of behavior-based contingencies in the form of caregiver sensitive responsiveness in infancy may serve an important evolutionary function of fostering children's adaptive functioning that is crucial to their survival.

If sensitive responsiveness is a fundamental human adaptation, then it should be a universal characteristic of human parenting and caregiving, relevant across cultures. However, similar to research in many domains of human development, the overwhelming majority of empirical work on sensitive caregiving has been done in urban Western samples (Henrich, Heine, & Norenzayan, 2010). There are some rare studies that have applied observational measures of sensitivity to non-Western contexts. In a study among the Dogon in Mali, maternal sensitivity observed during 30 min of daily routines was marginally related to secure attachment (True, Pisani, & Oumar, 2001). Sensitivity during daily routines was also related to infant secure attachment in rural and urban Mexico (Gojman et al., 2012). Sensitivity as observed in more brief and standardized settings has been shown to be associated with secure attachment in samples from urban South Africa (Tomlinson, Cooper, & Murray, 2005), urban Colombia (Posada et al., 2002), urban South Korea (Jin, Jacobvitz, Hazen, & Jung, 2012), and urban Japan (Vereijken, 1996). The potential cross-cultural relevance of the sensitivity construct was also supported by a study showing strong convergence between maternal descriptions of the ideal mother and standardized descriptions of the highly sensitive mother across 26 cultural groups from 15 countries (Mesman et al., 2016). This means that most mothers not only ranked behaviors such as comforting a sad child, being close to the child, but also encouraging exploration as highly characteristic of the ideal mother. This study therefore provides evidence for the universality of sensitivity as an important part of parenting (see also Emmen, Malda, Mesman, Ekmekci, & Van IJzendoorn, 2012).

In sum, there are compelling theoretical arguments to suggest that sensitive responsiveness in the care of infants is relevant across cultures, supported by some, albeit very rare, empirical evidence. However, the scarcity of studies on sensitive responsiveness in non-Western contexts and the lack of in-depth explorations of the potential meaning of sensitive responsiveness in field studies outside of the Western world limits the persuasive power of the theoretical arguments. This

shortcoming of attachment research was forewarned by Mary Ainsworth herself, as she noted the risks of moving away from field work (Ainsworth & Marvin, 1995). As we will see, field work by cultural psychologists and anthropologists are a major source of doubt about the cross-cultural relevance of sensitive responsiveness.

The Contextual Perspective

Several scholars have criticized the universality of attachment processes in general and the sensitivity construct in particular (Keller, 2013; Lancy, 2015; LeVine, 2004; Weisner, 2015). They refer to ethnographic accounts of mother–infant interactions that apparently show a complete lack of sensitive responsiveness in certain communities. For example, the Gusii of Kenya have been described to only respond to infant distress, to ignore nondistress vocalizations, and to barely look at or speak to their infants, even during breastfeeding (Lancy, 2015; LeVine, 2004). Similar claims have been made about the Nso of Cameroon, who have been described as “generally neither sensitive nor mind-minded” (Otto, 2015, p. 225). Several other ethnographic records have been referred to as evidence of the absence of attachment-related sensitive responsiveness, because the mothers in those studies do not hold their babies en face, do not use motherese, generally speak very little to them, and do not cuddle or kiss the babies (Lancy, 2015).

One of the reasons that have been brought forward to explain the supposed absence of sensitive responsiveness in some communities is its incompatibility with local parenting goals and attitudes toward children. Some have noted that sensitive responsiveness implies that the parent sees the infant as an autonomous being with its own wishes and goals that require satisfaction, whereas in many non-Western cultures the focus is not on the well-being of individuals but on the welfare of the group (Keller, 2013). Thus, it is argued, babies are simply rarely the center of attention in non-Western rural communities and are therefore unlikely to receive a lot of sensitive responsiveness (Keller, 2015; Otto, 2015). It has even been suggested that in many non-Western cultures infants are trained not to expect sensitive responsiveness from their caregivers, as the parenting goal is to foster obedience, conformity, and respect for authority (Otto, 2015; Weisner, 2015).

The critics also note that the existence of extensive networks of caregivers and frequent care by others than the mother in non-Western societies

invalidates the concept of a primary caregiver who needs to show consistent availability and responsiveness to foster secure attachment (Keller, 2015). Indeed, shared caregiving with grandmothers, aunts, siblings, and other kin and nonkin is very common in many non-Western societies, particularly in forager communities (Hrdy, 2009) and in subsistence farming communities (Otto, 2015). This multiple caregiver context is rarely represented in attachment research, as the vast majority of studies in this field focus solely on mothers. There is a growing interest in studying fathers' sensitivity (e.g., Hallers-Haalboom et al., 2014; Lucassen et al., 2011), but studying two parents in nuclear Western families is simply not the same as studying a range of caregivers of varying ages and kinship levels who share infant care in a way that is deeply embedded in all daily routines. When Western infants have multiple caregivers, they tend to take care of the infant in a serial fashion, that is, each with their own allocated time slot, relieving each other from the caregiving task at given times so that other activities can be pursued (e.g., babysitter when both parents are at work, mother during bedtime routine when father clears up the dishes, and father on Saturday morning when mother is at the gym, or any variations on this serial care sharing).

The notion of multiple caregivers in many non-Western contexts is far more fluid, with many people in proximity of the infant at the same time and without clearly laid out time slots for each caregiver to take the lead (e.g., Tronick, Morelli, & Ivey, 1992). Instead, infant care is determined more by the availability and proximity of community members at a given time, and this pattern can vary from 1 day to the next, as part of the adaptive pattern of cooperative breeding in small-scale human populations (Hewlett, 1996; Kramer, 2011; Sear & Mace, 2008), which increases child survival and fertility rates in those populations. Thus, assessing the universality of caregiver sensitivity is far more complex and should involve many more people than mothers and fathers in small-scale societies, requiring special attention to test whether caregiver sensitivity is adaptive across cultures (see also Mesman, Minter, & Angged, 2016, for an observational method to assess sensitivity by multiple caregivers).

Method

The two camps, those emphasizing universality of sensitive caregiving and those emphasizing cultural differences, are currently heavily entrenched in their

own theoretical bunkers and an offer of truce does not seem to be forthcoming. Yet, a truce we need to move forward in this field. Because heated debates often suffer from conceptual confusion, a journey back to the origins and definition of the construct of sensitive responsiveness to infant signals is the logical starting point. We analyze the beginnings of the sensitivity construct as well as its current day use in the literature to elucidate the core of the debate and to identify potential common ground from which to start building bridges between the two points of view.

In addition to an analysis of the sensitivity construct, we draw on three video data sets of caregiver–infant interactions from very different parts of the world to highlight key issues in sensitive caregiving across cultures. We would like to emphasize that observations are included for illustration purposes not for providing systematic evidence. The videos used for these illustrations were collected in the last 5 years for studies unrelated to attachment research, and include:

1. Videos of naturalistic family interactions around two focus infants (aged 7 and 18 months) in an Agta community of six households at Dikaberitbitan, a remote and sparsely populated coastal strip in the north-eastern Philippines. The Agta live in small, kin-based settlements and subsist on fishing, hunting, and gathering, complemented with extensive horticulture and paid labor. The videos, which cover a total of 7 hr observation time, were collected over 4 days in August 2013 by the second author (Tessa Minter), in the context of an anthropological study on infant weaning.
2. Videos of naturalistic interactions of one focus infant (age 13 months) with her caregivers among the Mbendjele foragers hunter–gatherers from the Republic of Congo (ROC; total video duration 30 min, collected across 10 days), collected in the context of an anthropological study on infant learning by the fifth author (Gul Deniz Salali). Mbendjele are a subgroup of the BaYaka Pygmies whose residence spans across the Northern rainforests of the ROC and Central African Republic. BaYaka subsistence techniques include hunting, trapping, fishing, gathering forest products such as wild yams and caterpillars, honey collecting, and agricultural work (for farmers). The Mbendjele live in lango's—multifamily camps consisting of a number of fuma's (huts) in

which nuclear families reside; camp size tends to vary from 10 to 60 individuals. They are highly mobile; camp movement is influenced both by the availability of food resources and the availability of the food products for exchange with villagers. The videos were taken during an anthropological study on infant learning by the fifth author (Gul Deniz Salali) across 3 weeks in June 2014, at a campsite of 33 people in the Likouala region of ROC (total video duration: 30 min).

3. Videos of six infants and their caregivers in the small-scale agrarian Fulani community in Nokara (rural central Mali) were collected in the context of a linguistic study of infant babbling and first words, with about 8 hr of video per infant collected across 7 months (March to September 2010) in seminaturalistic situations, that is, free interaction, but specific to one location chosen by mother for every 30–60 min of video collected by the fourth author (Ibrahima A. H. Cissé). The infants' ages ranged from 7 to 31 months across the duration of data collection. The Fulani in Nokara subsist on farming, small-scale trading (mainly of cattle), and paid labor (see also Cissé, 2014).

Results

The Construct of Sensitivity Revisited

In attachment theory, the primary function of sensitive responsiveness is to provide a haven of safety for the infant in times of distress and the subsequent development of a secure attachment by the infant (Ainsworth et al., 1974; Bowlby, 1969). There is indeed empirical evidence to support the prime importance of sensitive responsiveness to distress signals relative to responsiveness to other signals (Higley & Dozier, 2009; Leerkes, Blankson, & O'Brien, 2009; McElwain & Booth-LaForce, 2006). Interestingly, the universality of responsiveness to infant distress in particular does not appear to be contested, given the clear survival-promoting signaling function of infant crying (Zeifman, 2001). Indeed, we know of no ethnographic studies of regular infant care that report an absence of responsiveness to infant distress. However, this is minimized in some accounts as the "only" responsiveness that mothers in some communities appear to show (Lancy, 2015; LeVine, 2004), when it is in fact a key element of sensitive responsiveness in attachment theory.

However, the ways that crying infants are soothed differ substantially across cultures. In many rural non-Western communities, soothing consists mostly of offering the breast, bouncing the baby, or patting their bottoms (Takada, 2005) and rarely includes the Western pattern of extensive verbal soothing, carrying the baby while walking up and down, and attempts at distraction through (object-mediated) games. Furthermore, Ainsworth's description of sensitive responsiveness includes many more aspects of infant behavior as relevant, such as social bids and expressions of physical needs, such as hunger. Thus, focusing only on distress unnecessarily narrows the sensitivity construct.

What about other elements of sensitive responsiveness? The critics state that verbal responsiveness, face-to-face interaction, and smiling are largely absent in many rural non-Western communities (Lancy, 2015), whereas these are often assessed as key elements of sensitive responsiveness in the Western literature (e.g., Biringen, Derscheid, Vliegen, Closson, & Easterbrooks, 2014). However, the original definition of sensitivity responsiveness by Mary Ainsworth does not actually include any of these specific behaviors. To illustrate this point, we copy the description of the highly sensitive mother as provided by Ainsworth in her observational measure of sensitivity versus insensitivity, with B referring to the baby (Ainsworth et al., 1974, pp. 231–232):

This mother is exquisitely attuned to B's signals; and responds to them promptly and appropriately. She is able to see things from B's point of view; her perceptions of his signals and communications are not distorted by her own needs and defenses. She "reads" B's signals and communications skillfully, and knows what the meaning is of even his subtle, minimal, and understated cue. She nearly always gives B what he indicates that he wants, although perhaps not invariably so. When she feels that it is best not to comply with his demands—for example, when he is too excited, over-imperious, or wants something he should not have—she is tactful in acknowledging his communication and in offering an acceptable alternative. She has "well-rounded" interactions with B, so that the transaction is smoothly completed and both she and B feel satisfied. Finally, she makes her responses temporally contingent upon B's signals and communications.

As this citation shows, there are absolutely no references to positive affect, verbal responses, or face-to-face interaction. Such references can also not be found in the other descriptions provided by Mary Ainsworth. The definition of the highly sensitive mother only includes general references to reading the infant's signals and responding to these in a way that meets the infant's physical and social needs. Indeed, there is evidence that nonverbal responsiveness to infant signals also relates to positive child outcomes, even in Western samples in which verbal responsiveness appears to be the norm (Beebe et al., 2010; Lohaus et al., 2005).

Over the years, new conceptualizations of sensitive responsiveness have added elements such as positive affect and verbal exchanges to its definition (Mesman & Emmen, 2013). For example, the sensitivity scale of the Emotional Availability scales includes a subscale on positive affect that weighs heavily on the final score (Biringen, 2008). In the CARE Index, sensitivity is rated based on evaluations of many aspects of parental behavior, including positive affect and vocal expression (Crittenden, 2001). Although the study of such elements of caregiving can certainly provide new insights into patterns of interactions and their roles in attachment formation, the use of the term sensitivity is potentially confusing. The importance of this issue was recently highlighted by Cheah (2016) who describes how a too narrow focus on Western conceptualizations of warmth in Asian American families fails to capture the cultural reality of warmth as experienced and expressed in that cultural community. Similarly, a study of sensitivity in Singapore suggested that the positive affect component of the Emotional Availability scales may not be appropriate for this cultural context (Cheung & Elliott, 2016). In fact, very few of the post-Ainsworth observational measures that use the label sensitivity have retained the focus on function (meeting the infant's needs) over form (how one goes about meeting the infant's needs). These deviations are actually at odds with the organizational nature of attachment processes that emphasizes the functions of caregiving rather than concrete behavioral manifestations (Sroufe & Waters, 1977) and leave little room for what has been labeled context specificity (Bornstein, 1995). Ainsworth's organizational approach actually leaves room for a variety of different ways of being a sensitive caregiver across cultural contexts.

Manifestations of Sensitivity

Let us consider the example of an infant sitting on its mother's lap, twisting its head to face a different direction. A sensitive Western mother would most likely respond by smiling and saying something like "Hey sweetheart, what are you looking at? Can you see the trees over there? Do you like the big trees?" in a high-pitched musical tone of voice known as motherese. However, there are also less extraverted and less verbal ways to respond to an infant's head turning, in the form of physical facilitation, focus following, and tempo adjustments, fitting with the more proximal nature of caregiver-infant interactions outside of the Western world (Jung & Fouts, 2011; Kärtner, Keller, & Yovsi, 2010). For example, detailed analyses of Gusii parenting have shown that holding and touching were common responses to infant signals (Richman, Miller, & LeVine, 1992), and that smooth and regular modulation characterizes mother-infant interactions (Dixon, Tronick, Keefer, & Brazelton, 2014; Tronick, 2007). The sensitivity observations among the Dogon in Mali also emphasized the physical nature of appropriate responding, and maximum scores were described in terms of physical contact and supportive holding (True et al., 2001). Furthermore, mothers in rural Sri Lanka have been described as being acutely aware of and responding promptly to very subtle infant elimination signals, putting the infant in a place where they can empty their bowels (Chapin, 2013). These patterns are likely to relate to customs regarding infant proximity to their caregivers. In communities where infants are generally held close (e.g., in a sling on a caregiver's back or front), verbal signaling may be less necessary, because physical signs are more easily picked up by the caregiver than when the infant is for example in a stroller or baby seat. The nonverbal nature of interactions in the examples from non-Western communities as described above are easy to miss and, if noticed, often fail to be recognized as manifestations of sensitive responsiveness. This issue was already noted more than 40 years ago by Caudill and Schooler (1973) in an observational study of mother-infant interactions in the United States and Japan. This study showed that meeting the infant's needs during routine caregiving using physical contact is more important in Japanese families but may go unnoticed if one is mostly looking for the highly verbal interaction style that is more typical in the United States.

Our own observations confirm this subtle and nonverbal pattern of sensitive responsiveness. Consider, for example, the following interaction between a 7-month-old infant, her mother, and her aunt observed in the Dimasalansan Agta forager community in the Philippines:

An infant is sitting on her aunt's lap and next to her mother. The infant turns her head (apparently to look at some children who are passing by. Aunt, without speaking or looking at the infant, moves the infant's position so that she is now facing the children. The infant stretches her hand towards the children walking past. The aunt looks at the infant, waves her arm and says 'bye bye' in the direction of the children. Infant turns her head to face her aunt. Aunt changes her hold of the infant so that she is now facing her. Infant moves head to look at the children again. Aunt changes her hold of the infant so that she is now facing the children again. (. . .) The infant reaches towards her mother. Aunt hands the infant to mother. The infant looks around a little and then reaches towards her aunt. Mother hands her over to aunt. Infant makes fussy sounds, aunt hands infant back to mother. (. . .) Infant turns her head towards mother's chest. Mother changes the infant's position and offers her breast. Infant drinks.

The behaviors described above occurred within a time span of 10 min. The infant was actually handed back and forth between mother and aunt several more times, following the infant's physical and vocal indications that she wanted to move. During these exchanges, mother and aunt rarely spoke and often did not even look at the infant, let alone smile at her. However, the infant's intentions were noticed and the adults adapted their behaviors according to these intentions. In other words, they were sensitively responsive but without showing the typical Western pattern of responding to infants that is far more extraverted and verbal. Whereas warmth in the form of smiling, kissing, or cuddling was less prominent than seen on average in Western cultures, this does not imply emotional coldness or a lack of affection for the infant. Continuous physical closeness and prompt responsiveness to infant fussing reflect close attention to the infant and his or her needs, which in itself is indicative of emotional involvement. Similar interactions were observed in the videos of the Mbendjele foragers in the ROC, as illustrated by the following observation:

The 13-month-old infant is standing on the path crying, holding a big piece of cloth. Mother is a few yards away in the background, and starts walking towards the infant. As soon as the infant sees the mother she starts walking towards her, and when the infant reaches her, she hands the cloth to mother, and then puts both of her arms around mother's legs. The infant reaches upwards with her arms, indicating that she wants to be picked up. Mother in the meantime ties the cloth into a carrying sling, lifts up the infant, and puts her in the sling on her hip. The infant stops crying.

Sensitive responsiveness by caregivers in forager populations has been noted in other studies, describing the forager parenting style as responsive and indulgent (Hewlett, Lamb, Leyendecker, & Schölermerich, 2000; Marlowe, 2005). But what about caregivers in rural farmer communities where parenting has been described as more demanding and focused on discipline rather than warmth? The following example is from a Fulani mother and her 12-month-old infant in the agrarian village of Nokara, Mali.

Mother is busy making little packages of spices to be sold in the village, the infant is sitting next to her, playing with the plastic wrapping. The following sequence is repeated several times: the infant is content playing, then gets bored, starts fussing, mother stops her work, pays the infant some attention, and finds something else for him to play with so she can continue working. Mother's interventions increase in intensity and duration commensurate to the infant's level of fussiness. After the infant's interest in the fourth distraction object has waned, he fusses more intensely than before. Mother takes him onto her lap for the first time, talks to him a little, gives him something to play with and when he is intently focused on the object, mother puts him back on the floor. When after a few minutes the infant starts fussing again, making louder vocalizations than before, mother takes him onto her lap again, and when distractions fail, starts to nurse him. The infant drinks.

Again, very little talking and some of the physical interventions (putting the infant back into sitting position by hoisting him up by only one arm) may seem rough to Western eyes, and the interactions seem more indicative of socialization toward not being a nuisance rather than of sensitivity. However, there is clear monitoring of the infant's signals, and responding in a way that fits the infant's needs

within the constraints of mother having to complete a task. Especially sensitive is the fact that mother adapts the intensity of her responses to the intensity of the infant's signals, thus matching her behavior to his needs. These manifestations of sensitive responsiveness are also easy to miss because of the intervals in between these sensitive episodes during which the mother all but ignores the playing infant, and her seemingly nonchalant handling of the infant at times. However, from the perspective of the balance between attachment and exploration, a contently playing infant does not necessarily need a lot of overt attention, just some monitoring when an intervention is actually needed (Ainsworth & Bell, 1970).

It appears that the question is not whether sensitive responsiveness can be observed in non-Western contexts but rather what it looks like in different cultures. Apparently, previous studies have tried to find the Western extraverted variety of sensitive responsiveness in non-Western communities. It appears that contemporary conceptualizations of sensitivity have unwittingly created cross-discipline misunderstandings about the nature of sensitive responsiveness as originally intended. We certainly acknowledge that the newer more affective and verbal incarnations of sensitivity are harder to find, although they are not absent. Both our own observations and the ethnographic literature show many instances of positive affect and vocal exchange between caregivers and infants (e.g., Keller, Voelker, & Yovsi, 2005; Meehan & Hawks, 2013, 2015), but these appear to be less predominant in interaction than in Western samples, at least on average. There is, however, a more subtle and physical non-Western variety of the original notion of sensitive responsiveness that bestows some form of agency onto the infants whose intentions are met with (nonverbal and unsmiling) physical acts of facilitation. Because infant distress is universally met with soothing efforts, the notion of a responsive caregiver as a safe haven when things get scary or otherwise unpleasant is certainly not a Western invention. The ways in which caregivers respond and soothe, however, depend on the cultural context and appear to be consistent with the general styles of social engagement. Thus, where verbal communication is the most salient form of interaction (e.g., in societies with early verbal instruction-based schooling), sensitive responsiveness to infants is also likely to be more verbal. Where physical closeness is an integral part of social life, sensitive responsiveness to infants is likely to be more physical.

Sensitivity and Nonmaternal Caregivers

We now turn to the question of whether others than mothers show sensitive responsiveness to infants in multiple caregiver contexts. Evolutionary theory would suggest that they do, given that the whole point of shared caregiving is that others provide care when mother cannot, and in the case of infants this invariably means being on the lookout for signs of hunger or distress to make sure the infant stays well fed, quiet, clean, and protected.

Several ethnographic accounts describe distressed infants being soothed by others than the mother. Qualitative observations of sensitive responsiveness by nonmaternal caregivers can be found in, for example, rural Sri Lanka (Chapin, 2013), the Hadza foragers in Tanzania (Marlowe, 2005), the Aka and Bofi foragers in Congo (Fouts, 2008), and the Yucatec Mayans (Gaskins, 2013). In a very valuable study among the Aka foragers in the Congo Basin Rain Forest, Meehan and Hawks (2013, 2015) showed that mothers and alloparental (i.e., nonmaternal) caregivers, including juvenile caregivers, show similar latency times in responding to infant distress and were also equally effective in soothing the infants.

First, we would like to illustrate how sensitive responsiveness is also evident in fathers in rural non-Western communities, as shown by a video transcript from the Agta in the Philippines. In the absence of mother, the father is minding his 18-month-old daughter while he is working on a fishing instrument, first standing up with the infant strapped to his back and later sitting down next to the infant at the entrance of their wooden dwelling. For about 20 min there is very little interaction. The infant is awake but does not make any bids for attention, and father does not initiate interaction. Then the following happens:

The infant starts to make little vocal bids towards father, accompanied by arm and hand movements in his direction, almost touching him. Father stops his work, goes inside the dwelling and comes back with a packet of crackers and gives it to the infant without speaking, and he then resumes his work. The little girl tries to open the packet with her teeth and when that doesn't work she holds it up to father, who takes it from her, opens it and gives it back to her. The infant starts eating. After a while the infant finishes her crackers and starts making vocal bids again, waving her arm and hand at her father. Father gets up, walks away, and comes back

with a cup of water that he holds to her mouth so she can drink.

In ethnographic descriptions, this type of interaction is often described as routine caregiving or even simply child minding, but the father's behavior clearly reflects each of the sensitivity elements: He is close by and notices his infant's signals, he appears to interpret these signals correctly as evidenced by his daughter's satisfied response when he promptly fetches her food, helps her open the package, and then brings her a drink, each time in clear response to her signaling.

Alloparenting was also observed in our videos of the farmer community of the Fulani in Mali, as was sensitive responsiveness by alloparents, as shown in the following example:

A 12-month-old infant and his grandmother are sitting on a mat outside. The infant vocalizes playfully. Grandmother looks at him, smiles, and starts singing a (funny) song, leaning towards the infant for emphasis. The infant is attentive. Then after the first verse, she leans back, looking and smiling at the infant while he laughs. Grandmother then leans closer to the infant again, and sings the next verse. She then leans back again, smiling, while the infant vocalizes in response. This pattern is repeated a few times.

What this example shows is that very common interactions, such as a grandmother singing to her grandchild, also contain sensitive responsiveness. Grandmother carefully times her singing to leave room for her grandson's laughter and vocal input, monitors his input, and then only resumes singing when the infant has had his turn. This vocal turn-taking is accompanied by physical turn taking as she literally makes space for the infant by leaning back to indicate that it is his turn, and leaning forward when he is finished and it is thus her turn. The infant experiences the effects of behavior in this interaction: When he is done laughing or vocalizing, grandmother will start singing again.

Interestingly, juvenile alloparents had also been observed in many small-scale societies. Evolutionary theory predicts that children helping to take care of siblings (or other young kin) would have evolved within the context of food sharing and the division of labor that is characteristic of human evolution (Kramer, 2011). Juvenile investment in taking care of infants lowers the demands on parental care, allowing for investment in multiple juveniles at the same time and thus shorter birth

intervals, increasing mother's reproductive success without affecting infant survival rates. Juvenile caregivers are indeed common in many societies (e.g., Ivey et al., 2005; Weisner & Gallimore, 1977), and juvenile alloparents were even found to be equally sensitive as adult alloparents in the study among the Aka foragers (Meehan & Hawks, 2013, 2015). This is consistent with our own experiences, as illustrated by the following observation of an Agta infant and her older cousin:

The Agta infant and her female cousin (about 10 years old) are swinging in a hammock. There are no others within view, although every now and again other voices are heard and one child walks in and out of view of the camera. The infant is holding a plastic object that she handles playfully. Every time the infant drops it or gets it stuck in the hammock netting, the cousin immediately retrieves it for her and hands it back to her. When the infant tries to sit up, the cousin moves to a more upright position, facilitating the infant's movements. When the infant reaches for a piece of fruit that the cousin is holding, the cousin gives her little pieces to eat.

Just 8 min of video, but it is filled with significant and subtle acts of sensitive responsiveness of a young child who is obviously used to "reading" her infant cousin's signals and adapting her behavior accordingly.

In the Mbendjele videos, the focus infant was tended to not only by her mother but also by her grandmother, several aunts, uncles, siblings, and cousins. Clear sensitive responsiveness was observed in the grandmother and one uncle in particular. This uncle, however, was not an adult but a 3-year-old child. One video of him and the target infant was especially noteworthy:

The Mbendjele infant is standing beside her toddler uncle who is sitting on the floor. The infant is scared by something out of view of the camera and starts to cry. Her uncle looks up at her immediately, stretches out his arms towards her, looks back to see what might have upset her, and takes his niece into his arms. She stops crying immediately, while her uncle continues to hold her. The infant then focuses on the dead animal that they were playing with before the scary incident. She touches the skin of the animal and vocalizes. Her uncle looks to where she is touching the animal and copies her vocalization. He then also touches the animal and says "skin."

The most striking thing about this video is that the young uncle showcases perfect responsiveness to his infant niece's signals. Not only does he respond to her distress by soothing her, but he also follows her focus of attention, responds to her vocalizations, and elaborates on them. A pretty impressive feat for a 3-year-old, who is also seen accompanying his niece in several little adventures and is clearly used to looking out for her, paying attention to her signals, and adapting his behavior to make sure she is okay. It appears that the role of caregiver, even for one so young, triggers this type of paying attention and sensitive responding. This kind of behavior observed in such young ages points to a developmental adaptation for sensitive responsiveness in humans, indicating a strong selective pressure for caregiving across all ages and irrespective of degrees of relatedness. It also seems likely that the young uncle has frequently observed other caregivers showing this type of responsiveness and is simply doing what seems to be the norm in his community.

In sum, a focus on maternal sensitive responsiveness would certainly be too narrow in communities where infant care is shared extensively with many alloparental caregivers. The prominence of responsive care provided by others than the mother in many parts of the world (Hrady, 2009) and within recent migrant groups in North America and Europe deserves a far more central place in attachment research. However, it is also important to note that even in high-density alloparental contexts, and even when wet nursing is practiced, mothers do play a unique role in the infant's care. First, infants in rural non-Western communities almost always sleep with their mothers (e.g., Jenni & O'Connor, 2005; Konner, 2005; Morelli & Tronick, 1991). It is therefore likely that nighttime responsiveness is almost exclusively and consistently the mother's task, and there is growing evidence that nighttime responsiveness is very important in attachment formation (Ding, Xu, Wang, Li, & Wang, 2012; Higley & Dozier, 2009; Sagi, Koren-Karie, Gini, Ziv, & Joels, 2002). The special status of mothers in most cultures is also illustrated by the fact that intense crying in infants very often leads to the infant being handed back to mother, or mother herself retrieving the infant (e.g., Marlowe, 2005). We should therefore not be too hasty in relegating mothers to the rank of "just one of many caregivers" when it comes to early social-emotional development and recognize both the mother's unique role and the huge contribution of other caregivers in providing sensitive care to infants.

Discussion

Sensitive responsiveness may very well be the most suitable construct for building bridges between attachment researchers and scholars adopting a more cultural-contextual perspective to caregiver-infant interactions. Regarding its assessment, the original Ainsworth scale appears to be particularly suitable for the observation of sensitivity across cultural contexts, because (in contrast to some newer instruments) it leaves room for culture-specific behavioral manifestations that serve the universal function of making sure that infants receive what they need to survive and become adaptive members of their community. The specific expression of this function can vary widely depending on the physical and social context, and relatedly the cultural beliefs about the best way to deal with infants' needs. For example, the common breastfeeding on demand in rural non-Western communities will make other interactions such as keeping the infant happy while waiting for the next feeding irrelevant, whereas the focus on eliciting infant talking in urban Western cultures (where parents often cannot wait for their infant to speak their first word) will foster extensive verbal rather than physical responsiveness. The Maternal Behavior Q-Sort (Pederson et al., 1990) might be particularly helpful in uncovering culture-specific behavioral manifestations of sensitivity, given that it covers a wide range of specific behaviors relevant to the construct.

The more recent incarnations of sensitivity definitions appear to be less suitable for use in rural non-Western communities where on average positive affect and verbal interaction seem to be less frequent in caregiver-infant interactions than in the Western world. Instead, far more subtle sensitive responsiveness can be observed in the form of physical facilitation, focus following, and tempo adjustment, by mothers as well as a range of non-maternal caregivers. This is not to say that all caregivers in these communities showed sensitive responsiveness equally or that all mothers within a community showed equal levels of sensitivity but neither do those in Western countries. Unfortunately, a case study of insensitive parenting in a community off the beaten track can easily lead to the conclusion that sensitivity is irrelevant in that context, whereas it may merely reflect one end of a continuum just as found in Western samples. In fact between-individual variations in the level of sensitive responsiveness have been reported by Ainsworth in her Uganda study (1967). Others have shown that sensitivity in non-Western contexts

relates meaningfully to infant development including attachment security (e.g., Gojman et al., 2012; True et al., 2001) as well as to maternal characteristics also found to be associated with variations in sensitivity such as the quality of maternal education (Valenzuela, 1997), depression and partner support (Tomlinson et al., 2005), and maternal attachment representations (Gojman et al., 2012). These findings provide evidence for the validity of the sensitivity construct in non-Western cultures. However, just like our own discussion of sensitivity in non-Western communities, studies to date have been limited because the complexities of interrelated variables that define the cultural context as well as the expression of sensitive caregiving is difficult to capture. Similarly, secure attachment may not be the most adaptive style in all cultural contexts (Simpson & Belsky, 2016), which makes a contextualized account of caregiver–infant interactions and their relation to attachment patterns crucial. It is thus imperative that future studies attempt to gather data that do justice to such complexities so that the why and how of sensitive responsiveness can be more fully understood.

We conclude that the debate about the usefulness of the notion of sensitive responsiveness in infant caregiving has suffered from conceptual confusion about the sensitivity construct. The attachment research community has not taken enough time to conduct extensive field studies to look for non-Western behavioral manifestations of sensitive responsiveness and to understand sensitivity in multiple caregiving contexts. In addition, the critics of the sensitivity construct have mistaken the Western variety of responsiveness for the only one to look for, citing only the modern conceptualizations and ignoring the versatility of the original construct. Unfortunately, the debate about culture and attachment theory has been unnecessarily polarized and can clearly benefit from open-minded multidisciplinary collaborations among attachment researchers, anthropologists, and non-Western scholars of child development in general. Scientific debates can either paralyze the field or foster progress. We contend that progress can follow paralysis if attachment researchers commit to looking beyond the boundaries of the Western world and into groups of recent non-Western migrants within Western countries, to sharpen their understanding of sensitive responsiveness, and if scholars well versed in cross-cultural work commit to recognizing the versatility of the original sensitivity construct. Then, genuine collaborations and valuable exchanges of expertise can catapult the field into a fruitful future

in which there is room for universality without uniformity.

References

- Ainsworth, M. D. S. (1967). *Infancy in Uganda: Infant care and the growth of love*. Baltimore, MD: Johns Hopkins University Press.
- Ainsworth, M. D. S., Bell, S. M., & Stayton, D. J. (1974). Infant–mother attachment and social development. In M. P. Richards (Ed.), *The introduction of the child into a social world* (pp. 99–135). London, UK: Cambridge University Press.
- Ainsworth, M. D. S., Blehar, M. C., Waters, E., & Wall, S. (1978). *Patterns of attachment: A psychological study of the strange situation*. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Ainsworth, M. D. S., & Marvin, R. S. (1995). On the shaping of attachment theory and research. In E. Waters, B. E. Vaughn, G. Posada, & K. Kondo-Ikemura (Eds.), *Caregiving, cultural, and cognitive perspectives on secure-base behavior and working models. Monographs of the Society for Research in Child Development, 60*(2-3, Serial No. 244), 3–21.
- Bakermans-Kranenburg, M. J., Van IJzendoorn, M. H., & Juffer, F. (2003). Less is more: Metaanalyses of sensitivity and attachment interventions in early childhood. *Psychological Bulletin, 129*, 195–215. doi:10.1037/0033-2909.129.2.195
- Beebe, B., Jaffe, J., Markese, S., Buck, K., Chen, H., Cohen, P., . . . Feldstein, S. (2010). The origins of 12-month attachment: A microanalysis of 4-month mother–infant interaction. *Attachment & Human Development, 12*, 3–141. doi: 10.1080/14616730903338985
- Bernier, A., Carlson, S. M., & Whipple, N. (2010). From external regulation to self-regulation: Early parenting precursors of young children's executive functioning. *Child Development, 81*, 326–339. doi:10.1111/j.1467-8624.2009.01397.x
- Biringen, Z. (2008). Emotional availability (EA) scales manual (4th ed.): Part 1. Infancy/Early Childhood version (child aged 0–5 years). Unpublished manuscript.
- Biringen, Z., Derscheid, D., Vliegen, N., Closson, L., & Easterbrooks, A. E. (2014). Emotional availability (EA): Theoretical background, empirical research using the EA Scales, and clinical applications. *Developmental Review, 34*, 93–188. doi: 10.1016/j.dr.2014.01.002
- Bogin, B. (1997). Evolutionary hypotheses for human childhood. *American Journal of Physical Anthropology, 104*, 63–90. doi:10.1002/(SICI)1096-8644(1997)25+<63::AID-AJPA3>3.0.CO;2-8
- Bornstein, M. H. (1995). Form and function: Implications for studies of culture and human development. *Culture and Psychology, 1*, 123–137.
- Bowlby, J. (1969). *Attachment and loss* (Vol. 1). New York, NY: Basic Books.
- Bretherton, I. (2013). Revisiting Mary Ainsworth's conceptualization and assessments of maternal sensitivity-

- insensitivity. *Attachment & Human Development*, 15, 460–484. doi:10.1080/14616734.2013.835128
- Caudill, W. A., & Schooler, C. (1973). Child behavior and child rearing in Japan and the United States: An interim report. *Journal of Nervous and Mental Disease*, 157, 323–338.
- Chapin, B. (2013). Attachment in rural Sri Lanka: The shape of caregiver sensitivity, communication, and autonomy. In N. Quinn & J. M. Mageo (Eds.), *Attachment reconsidered: Cultural perspectives on a Western theory* (pp. 143–163). New York, NY: Palgrave MacMillan.
- Cheah, C. S. L. (2016). Commentary: Charting future directions for research on Asian American child development. *Child Development*, 87, 1055–1060. doi:10.1111/cdev.12580
- Cheung, H. S., & Elliott, J. M. (2016). Measuring maternal sensitivity: Cultural variations in the measurement of emotional availability. *Child Development*, 87, 898–915. doi:10.1111/cdev.12519
- Cissé, I. A. H. (2014). *Développement phonético-phonologique en fulfulde et bambara d'enfants monolingues et bilingues: étude du babillage et des premier mots [Phonetic-phonological development among Fulfulde and Bambara monolingual and bilingual infants: A study of babbling in the first months.]*. Utrecht, the Netherlands: Netherlands Graduate School of Linguistics.
- Crittenden, P. M. (2001). *CARE-index manual*. Miami, FL: Family Relations Institute.
- De Wolff, M. S., & Van IJzendoorn, M. H. (1997). Sensitivity and attachment: A meta-analysis on parental antecedents of infant attachment. *Child Development*, 68, 571–591. doi:10.1111/j.1467-8624.1997.tb04218.x
- Ding, Y., Xu, X., Wang, Z., Li, H., & Wang, W. (2012). Study of mother-infant attachment patterns and influence factors in Shanghai. *Early Human Development*, 88, 295–300. doi: 10.1016/j.earlhumdev.2011.08.023
- Dixon, S., Tronick, E., Keefer, C., & Brazelton, T. B. (2014). Mother-infant interaction among the Gusii of Kenya. *Culture and Early Interactions (Psychology Reviews)*, 149–169.
- Emmen, R. A. G., Malda, M., Mesman, J., Ekmekci, H., & Van IJzendoorn, M. H. (2012). Sensitive parenting as a cross-cultural ideal: Sensitivity beliefs of Dutch, Moroccan, and Turkish mothers in the Netherlands. *Attachment and Human Development*, 14, 601–619. doi: 10.1080/14616734.2012.727258
- Fouts, H. N. (2008). Father involvement with young children among the Aka and Bofi foragers. *Cross-Cultural Research*, 42, 290–312. doi: 10.1177/1069397108317484
- Fraley, R. C., Roisman, G. I., & Haltigan, J. D. (2013). The legacy of early experiences in development: Formalizing alternative models of how early experiences are carried forward over time. *Developmental Psychology*, 49, 109–126. doi:10.1037/a0027852
- Gaskins, S. (2013). The puzzle of attachment: Unscrambling maturational and cultural contributions to the development of early emotional bonds. In N. Quinn & J. M. Mageo (Eds.), *Attachment reconsidered: Cultural perspectives on a Western theory* (pp. 33–64). New York, NY: Palgrave MacMillan.
- Gewirtz, J.L., & Pelaez-Nogueras, M. (1992). B.F. Skinner's legacy to infant behavior and development. *American Psychologist*, 47, 1411–1422. doi:10.1037/0003-066X.47.11.1411
- Gojman, S., Millán, S., Carlson, E., Sánchez, G., Rodarte, A., González, P., & Hernández, G. (2012). Intergenerational relations of attachment: A research synthesis of urban/rural Mexican samples. *Attachment & Human Development*, 14, 553–566. doi:10.1080/14616734.2012.727255
- Curven, M., & Walker, R. (2006). Energetic demand of multiple dependents and the evolution of slow human growth. *Proceedings of the Royal Society of London B: Biological Sciences*, 273, 1558.
- Hallers-Haalboom, E.T., Mesman, J., Groeneveld, M.G., Endendijk, J.J., Van Berckel, S.R., Van der Pol, L.D., & Bakermans-Kranenburg, M.J. (2014). Mothers, fathers, sons, and daughters: Parental sensitivity in families with two children. *Journal of Family Psychology*, 28, 138–147. doi:10.1037/a0036004
- Henrich, J., Heine, S. J., & Norenzayan, A. (2010). The weirdest people in the world? *Behavioral and Brain Sciences*, 33, 61–135.
- Hewlett, B. S. (1996). *Diverse contexts of human infancy*. Upper Saddle River, NJ: Prentice Hall.
- Hewlett, B., Lamb, M., Leyendecker, B., & Schölmerich, A. (2000). Internal working models, trust, and sharing among foragers. *Current Anthropology*, 41, 287–297. doi:10.1086/300135
- Higley, E., & Dozier, M. (2009). Nighttime maternal responsiveness and infant attachment at one year. *Attachment & Human Development*, 11, 347–363. doi: 10.1080/14616730903016979
- Hrdy, S. B. (2009). *Mothers and others: The evolutionary origins of mutual understanding*. Cambridge, MA: Harvard University Press.
- Henry, P. I., Morelli, G. A., & Tronick, E. Z. (2005). Child caretakers among Efe foragers of the Itruri Forest. In B. Hewlett & M. E. Lamb. (Eds.). *Hunter gatherer childhoods: evolutionary, developmental, and cultural perspectives*, (pp. 191–213). New Brunswick, NJ: Transaction.
- Jenni, O. G., & O'Connor, B. B. (2005). Children's sleep: An interplay between culture and biology. *Pediatrics*, 115(Suppl.), 204–216.
- Jin, M. K., Jacobvitz, D., Hazen, N., & Jung, S. H. (2012). Maternal sensitivity and infant attachment security in Korea: Cross-cultural validation of the Strange Situation. *Attachment and Human Development*, 14, 33–44. doi:10.1080/14616734.2012.636656
- Jung, M. J., & Fouts, H. N. (2011). Multiple caregivers' touch interactions with young children among the Bofi foragers in Central Africa. *International Journal of Psychology*, 46, 24–32. doi:10.1080/00207594.2010.507766
- Kärtner, J., Keller, H., & Yovsi, R. D. (2010). Mother-infant interaction during the first 3 months: The emergence of culture-specific contingency patterns. *Child*

- Development*, 81, 540–554. doi: 0009-3920/2010/8102-0011
- Keller, H. (2013). Attachment and culture. *Journal of Cross-Cultural Psychology*, 44, 175–194. doi:10.1177/0022022112472253
- Keller, H. (2015). Introduction: Understanding relationships—What we would need to know to conceptualize attachment as the cultural solution of a universal developmental task. In H. Otto & H. Keller (Eds.), *Different faces of attachment* (pp. 1–24). Cambridge, UK: Cambridge University Press.
- Keller, H., Voelker, S., & Yovsi, R. D. (2005). Conceptions of parenting in different cultural communities: The case of West African Nso and Northern German Women. *Social Development*, 14, 158–180. doi: 10.1111/j.1467-9507.2005.00295.x
- Kochanska, G., Barry, R. A., Aksan, N., & Boldt, L. J. (2008). A developmental model of maternal and child contributions to disruptive conduct: The first six years. *Journal of Child Psychology and Psychiatry*, 49, 1220–1227. doi:10.1111/j.1469-7610.2008.01932.x
- Konner, M. (2005). Hunter-gatherer infancy and childhood: The !Kung and others. In M. E. Lamb & B. S. Hewlett (Eds.), *Hunter-gatherer childhoods: Evolutionary, developmental, and cultural perspectives* (pp. 19–64). New Brunswick, NJ: Transaction Publishers.
- Kramer, K. L. (2011). The evolution of human parental care and recruitment of juvenile help. *Trends in Ecology and Evolution*, 26, 533–540. doi: 10.1016/j.tree.2011.06.00
- Lancy, D. F. (2015). *The anthropology of childhood. Cherubs, chattel, changelings*. Cambridge, UK: Cambridge University Press.
- Leerkes, E. M., Blankson, A. N., & O'Brien, M. (2009). Differential effects of sensitivity to infant distress and non-distress on social-emotional functioning. *Child Development*, 80, 762–775. doi: 10.1111/j.1467-8624.2009.01296.x
- LeVine, R. A. (2004). Challenging expert knowledge: Findings from an African study of infant care and development. In U. P. Gielen & J. Roopnarine (Eds.), *Childhood and adolescence: Cross-cultural perspectives and applications* (pp. 149–165). Westport, CT: Praeger.
- Lohaus, A., Keller, H., Lissmann, I., Ball, J., Borke, J., & Lamm, B. (2005). Contingency experiences of 3-month-old children and their relation to later developmental achievements. *Journal of Genetic Psychology*, 166, 365–383.
- Lucassen, N., Tharner, A., Van IJzendoorn, M. H., Bakermans-Kranenburg, M. J., Volling, B. L., & Verhulst, F. C., . . . Tiemeier, H. (2011). The association between paternal sensitivity and infant father attachment zsecurity: A meta-analysis of three decades of research. *Journal of Family Psychology*, 25, 686–992. doi:10.1037/a0025855
- Marlowe, F. W. (2005). Who tends Hadza children? In M. E. Lamb & B. S. Hewlett (Eds.), *Hunter-gatherer childhoods: Evolutionary, developmental, and cultural perspectives* (pp. 19–64). New Brunswick, NJ: Transaction Publishers.
- McElwain, N. L., & Booth-LaForce, C. (2006). Maternal sensitivity to infant distress and nondistress as predictors of infant–mother attachment security. *Journal of Family Psychology*, 20, 247–255. doi: 10.1037/0893-3200.20.2.247
- Meehan, C. L., & Hawks, S. (2013). Cooperative breeding and attachment among the Aka foragers. In N. Quinn & J. M. Mageo (Eds.), *Attachment reconsidered: Cultural perspectives on a Western theory*. New York, NY: Palgrave Macmillan.
- Meehan, C. L., & Hawks, S. (2015). Multiple attachments: Allomothering, stranger anxiety, and intimacy. In H. Otto & H. Keller (Eds.), *Different faces of attachment. Cultural variations on a universal human need* (pp. 113–140). Cambridge, UK: Cambridge University Press.
- Mesman, J., & Emmen, R. A. G. (2013). Mary Ainsworth's legacy: A systematic review of observational instruments measuring parental sensitivity. *Attachment and Human Development*, 15, 485–506. doi:10.1080/14616734.2013.820900
- Mesman, J., Minter, T., & Angged, A. (2016). Received sensitivity: Adapting Ainsworth's scale to capture sensitivity in a multiple-caregiver context. *Attachment and Human Development*, 18, 101–114. doi:10.1080/14616734.2015.1133681
- Mesman, J., Van IJzendoorn, M.H., & Bakermans-Kranenburg, M.J. (2012). Unequal in opportunity, equal in process: Parental sensitivity promotes positive child development in ethnic minority families. *Child Development Perspectives*, 6, 239–250. doi:10.1111/j.1750-8606.2011.00223.x
- Mesman, J., Van IJzendoorn, M. H., Behrens, K., Carbonell, O. A., Carcamo, R., et al. (2016). Is the ideal mother a sensitive mother? Beliefs about early childhood parenting in mothers across the globe. *International Journal of Behavioral Development*, 40, 385–397. doi:10.1177/0165025415594030
- Mesman, J., Van IJzendoorn, M. H., & Sagi-Schwartz, A. (2016). Cross-cultural patterns of attachment: Universal and contextual dimensions. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (3rd ed., pp. 852–877). New York, NY: Guilford.
- Morelli, G. A., & Tronick, E. Z. (1991). Efé multiple caretaking and attachment. In J. L. Gewirtz & W. M. Kurtines (Eds.), *Intersections with attachment* (pp. 41–52). Hillsdale, NJ: Erlbaum.
- Otto, H. (2015). Don't show your emotions! Emotion regulation and attachment in the Cameroonian Nso. In H. Otto & H. Keller (Eds.), *Different faces of attachment* (pp. 215–229). Cambridge, UK: Cambridge University Press.
- Pederson, D. R., Moran, G., Sitko, C., Campbell, K., Ghesquire, K., & Acton, H. (1990). Maternal sensitivity and the security of infant-mother attachment: A Q-sort study. *Child Development*, 61, 1974–1983. doi:10.1111/j.1467-8624.1990.tb03579.x
- Posada, G., Jacobs, A., Richmond, M., Carbonell, O. A., Alzate, G., Bustamante, M. R., et al. (2002). Maternal

- caregiving and infant security in two cultures. *Developmental Psychology*, 38, 67–78. doi:10.1037/0012-1649.38.1.67
- Richman, A. L., Miller, P. M., & LeVine, R. A. (1992). Cultural and educational variations in maternal responsiveness. *Developmental Psychology*, 28, 614–621. doi:10.1037/0012-1649.28.4.614
- Sagi, A., Koren-Karie, N., Gini, M., Ziv, Y., & Joels, T. (2002). Shedding further light on the effects of various types and quality of early child care on infant–mother attachment relationship: The Haifa study of early child care. *Child Development*, 73, 1166–1186. doi:10.1111/1467-8624.00465
- Sear, R., & Mace, R. (2008). Who keeps children alive? A review of the effects of kin on child survival. *Evolution and Human Behavior*, 29, 1–18. doi: 10.1016/j.evolhumbehav.2007.10.001
- Simpson, J. A., & Belsky, J. (2016). Attachment theory within a modern evolutionary framework. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (3rd ed., pp. 91–116). New York, NY: Guilford.
- Sroufe, L. A., & Waters, E. (1977). Attachment as an organizational construct. *Child Development*, 48, 1184–1199. doi:10.2307/1128475
- Takada, A. (2005). Mother-infant interactions among the!Xun: analysis of gymnastic and breastfeeding behaviors. In B.S. Hewlett & M.E. Lamb (Eds.), *Hunter-gatherer childhoods: evolutionary, developmental, and cultural perspectives*, (pp. 289–308). New Brunswick, NJ: Transaction.
- Tamis-LeMonda, C. S., Bornstein, M. H., & Baumwell, L. (2001). Maternal responsiveness and children's achievement of language milestones. *Child Development*, 72, 748–767. doi:10.1111/1467-8624.00313
- Tarabulsky, G. M., Tessier, R., & Kappas, A. (1996). Contingency detection and the contingent organization of behavior in interactions: Implications for socioemotional development in infancy. *Psychological Bulletin*, 120, 25–41.
- Tomlinson, M., Cooper, P., & Murray, L. (2005). The mother–infant relationship and infant attachment in a South-African peri-urban settlement. *Child Development*, 76, 1044–1054. doi: 0009-3920/2005/7605-0008
- Tronick, E. Z. (2007). *The neurobehavioral and social-emotional development of infants and children*. New York, NY: Norton.
- Tronick, E., Morelli, G. A., & Ivey, P. K. (1992). The Efe forager infant and toddler's pattern of social relationships: Multiple and simultaneous. *Developmental Psychology*, 28, 568–577. doi: 0012-1649/92/J3.00
- True, M. M., Pisani, L., & Oumar, F. (2001). Infant–mother attachment among the Dogon of Mali. *Child Development*, 72, 1451–1466. doi: 0009-3920/2001/7205-00012
- Valenzuela, M. (1997). Maternal sensitivity in a developing society: The context of urban poverty and infant chronic undernutrition. *Developmental Psychology*, 33, 845–855.
- Van IJzendoorn, M.H., Bard, K.A., Bakermans-Kranenburg, M.J., & Ivan, K. (2009). Enhancement of attachment and cognitive development of young nursery-reared chimpanzees in responsive versus standard care. *Developmental Psychobiology*, 51, 173–185. doi:10.1002/dev.20356
- Vereijken, C. M. J. L. (1996). *The mother–infant relationship in Japan: Attachment, dependency, and amae*. Unpublished doctoral dissertation, Catholic University of Nijmegen, The Netherlands.
- Weisner, T. S. (2015). The socialization of trust: Plural caregiving and diverse pathways in human development across cultures. In H. Otto & H. Keller (Eds.), *Different faces of attachment* (pp. 263–277). Cambridge, UK: Cambridge University Press.
- Weisner, T., & Gallimore, R. (1977). My brother's keeper: Child and sibling caretaking. *Current Anthropology*, 18, 169–190. doi:10.1086/201883
- Zeifman, D. M. (2001). An ethological analysis of human infant crying: Answering Tinbergen's four questions. *Developmental Psychobiology*, 39, 265–285. doi: 10.1002/dev.1005