

## Emotional Availability: Conceptualization and Research Findings

Zeynep Biringen, Ph.D.

*The emotional availability construct (based on observations of parent-child interactions) was first reconceptualized for research in 1991 as a way to describe the quality of parent-child interactions. Since then, there has been considerable refinement of the construct. EA refers to several parental dimensions (sensitivity, structuring, nonintrusiveness, nonhostility) and two child dimensions (responsiveness to parent and involvement of parent). The EA empirical link with attachment and parent-child relationship are reviewed and avenues for future research are suggested.*

About two decades ago, Emde and Easterbrooks (1985) theorized that emotion is likely to be a sensitive barometer of the relationship between a parent and child. They stated that "emotional availability will, therefore, refer to the degree to which each partner expresses emotions and is responsive to the emotions of the other" (p. 80). Emde and his colleagues (Emde, 1980, 1983; Emde & Easterbrooks, 1985) also posited that affective attunement to a wide range of emotions—negative as well as positive—is an important facet of emotional availability. Further, it is not simply physical availability but emotional availability of the parent that promotes infant's self- and emotional expression (Sorce & Emde, 1981).

Mahler, Pine, and Bergman (1975) also theorized about emotional availability, using the term to describe a supportive maternal presence in the context of the child's exploratory forays and practice of autonomy. In their view, the mother's "quiet supportiveness" signals encouragement and acceptance of such explorations, and of the child's returns for "emotional refueling." The mother facilitates a child's explorations, and her emotional availability provides a secure base for the child. Thus, in early writings on emotional availability, emotion communication was given a preeminent role in the development of healthy adaptation.

From a different perspective, attachment theorists Bowlby and Ainsworth emphasized the importance of maternal sensitivity for the development and maintenance of a secure attachment relationship (Ainsworth, Blehar, Waters, & Wall, 1978; Bowlby, 1969, 1973). In this traditional conceptualization, geared toward infants, the construct referred to the mother's clarity of perception about the infant's signals and communications, and her prompt responsiveness to them. As judged by the wealth of studies on maternal sensitivity in both attachment and affective-interaction areas (Biringen, 1991; van IJzendoorn, 1995), the construct has proved to be a telling aspect of the parent-child relationship.

Attachment theory has also emphasized the significance of "secure base" behavior to understand the quality of the parent-child relationship (Ainsworth et al., 1978). In healthy parent-child interactions, the child is enabled to explore independently and then connect with the parent for interaction. Such moving away from, then back toward the parent indicates that the parent is being used as a secure base or haven in the relationship; moving away is possible because the child has confidence in the parent's availability, moving toward because the child is sure of the parent's acceptance and welcome. In attachment theory, the constructs of

sensitivity and secure base do not emphasize the role of emotions in the parent-child relationship.

### EMOTIONAL AVAILABILITY FRAMEWORK

The foundation for the conceptualization of emotional availability that is offered here consists of an integration of attachment (*Ainsworth et al., 1978*) and emotional availability perspectives (*Emde, 1980; Mahler et al., 1975*). Emde and Mahler and their colleagues emphasized the emotional tone of interactions as a barometer of the parent-child relationship quality; however, they did so mainly for the clinical observer.

In contrast, Biringen and Robinson (*1991*) offered a theoretical conceptualization of emotional availability (EA) geared specifically to research. In this first published account of EA, they described the importance of maternal sensitivity, structuring, nonintrusiveness, child responsiveness, and child involvement for understanding the quality of the parent-child relationship. They further described the historical underpinnings of these constructs and offered the EA scales for assessing them in research. Since then, the EA conceptualization has been refined and has come to include nonhostility, as well as distinct dimensions for structuring and nonintrusiveness. Separate versions of the scales have also been created for infancy/early childhood and for middle childhood. In the present article, the EA conceptualization, including four maternal dimensions and two child dimensions, is described and the findings of research using the EA scales is reviewed.

### Parental EA

The parental side of the EA concept encompasses parental sensitivity, structuring, nonintrusiveness, and nonhostility. The concept emphasizes the emotional features—both parental emotional signaling and parental understanding of the child's signaling—as the sine qua non of understanding the quality and health of parent-child interactions.

Assessment of parental EA is based on certain precepts. Each dimension is judged in context. The judgement is holistic and clinically sensitive, not founded on counts of discrete types of behavior; for example, amount of parental smiling is less indicative of sensitivity than is a generally calm, contented, and relaxed emotional presence. EA is a dyadic construct; although parent and child aspects are viewed in terms of separate dimensions,

it is the interaction or relationship between the two that characterizes EA—neither parent nor child can “look good” without taking the interactive partner into account. Thus, a parent overwhelmed by a child's lack of clarity in emotional signaling (e.g., parents of children with autism or Down's Syndrome) may be viewed as less emotionally available in this system, because the construct is dyadic, not individual. On the other hand, a parent who copes well with such challenges to dyadic emotional communication should not be viewed as individually less emotionally available merely because the child is, for example, autistic.

### Parental Sensitivity

The dimension of parental sensitivity in EA, inspired by Mary Ainsworth's conceptualization of sensitivity (*Ainsworth et al., 1978*), is based on a clinically sensitive view of the relationship; it takes contextual cues into account and emphasizes the importance of such qualities as clarity of perception and prompt responsiveness vis-à-vis the child's signals and communications, awareness of timing, and flexibility.

The EA view of sensitivity, however, is broader, in that it also emphasizes affective interactions and negotiation of conflict and dyssynchronous interactions. It views a relaxed climate with respect to interactional conflict and dyssynchronies, including the successful repair of such situations (*Biringen, Emde, & Pipp-Siegel, 1997; Tronick & Cohn, 1989*), as a significant aspect of sensitivity. The most critically important aspect of EA sensitivity, though, is the role of emotion (appropriate emotional expression and reception). How parents not only pick up children's emotional signals but also emit their own is central. For example, a parent acting very warmly can be viewed as highly sensitive only if, in informed clinical judgment, the parent's affect is perceived as genuinely positive, rather than pseudo- or forced-positive, referred to as “apparently sensitive” (*Biringen, 1998*). Thus, sensitivity includes both physical and emotional responsiveness to children's physical and emotional signals and communications.

A key aspect of the EA concept is that parental sensitivity, as well as the other EA qualities, can be observed in parents of children at any age. For this reason, a middle childhood (focusing on 5–10 years) version of the EA scales (*Biringen et al., 1998*) has been devised, and an adaptation for adolescents is envisioned.

### Parental Structuring

In the original conceptualization of EA, structuring and intrusiveness were conceived as a single, curvilinear construct (*Biringen & Robinson, 1991*) that ranged from unstructuring to inconsistently structuring to optimal to overstructuring/intrusive behavior.

In the third edition of EA (*Biringen, Robinson, & Emde, 1998*), structuring and intrusiveness have been separated. Parental structuring refers to the ability of the parent to support learning and exploration without overwhelming the child's autonomy and in a way to which the child is receptive. It involves providing rules, regulations, and a framework for interactions. Because EA is a dyadic construct that takes emotional signaling and its reception into account, structuring is adequate only if the parent's bids or attempts at support are successful. The parent can only structure in the "zone of proximal development" (*Rogoff, 1990; Vygotsky, 1962*) by attending to the child's cues, and it is the interaction, not the parent's individual or discrete behavior, that is taken into account. EA structuring, therefore, is not a means of evaluating the cognitive-growth fostering, quality of teaching, or quality of stimulation offered to the child. Optimal structuring in the context of interactions refers to an appropriate degree of support that allows for the child's reactions to the support. Parents whose structuring is optimal seem to provide consistent (but not excessive) clues and suggestions, as well as framework, rules, regulations, and expectations for the child and for the relationship.

### Parental Nonintrusiveness

In contrast to parental structuring—the parent's ability to set limits and establish rules, regulations, and a framework for interactions—parental nonintrusiveness refers to the ability to be available to the child without being interfering, overprotective, or overwhelming. The quality of emotionally "being there" and available when needed is indicative of nonintrusiveness. In the early years, important aspects of nonintrusiveness include the parent's ability to be emotionally present, both verbally and nonverbally, without taking charge; to use indirect and diversionary, rather than direct, techniques to control behavior and instill obedience; and to interact at a moderate level that neither abandons nor overpowers the child with parental initiations for contact. As the child grows older, nonintrusiveness comes to include the ability to listen with an emo-

tional presence rather than "filling in" or talking for the child, and to grant some autonomy in making important daily decisions. At all ages, when children experience difficult or challenging moments, nonintrusive parents are less prone to "rescue" and more likely to allow the children to discover their own solutions. Parental nonintrusiveness has to do with patience and allowing children to experience the world, particularly its challenging aspects, with confidence that they are equipped to meet the challenge.

### Parental Nonhostility

Nonhostility, covert or overt, refers to ways of talking to or behaving with the child that are generally patient, pleasant, and harmonious. Although the definition is clearly tipped toward the positive, nonhostile parents can nevertheless be assertive when necessary and appropriate, express anger in a titrated and appropriately controlled fashion, and manage aggressive impulses. With younger children, nonhostile parents are able to remain calm and suitably controlled, even in such challenging conditions as the sleep deprivation characteristic of children's earliest months. As children grow older, nonhostile parents are able to reason and explain rather than "act out" their frustrations. Thus, the nonhostile parent's emotion regulation is context-appropriate, and takes the child into account.

When parental hostility is displayed, it may be directed toward the child, the self, or objects in the environment. Children who witness a parent punching walls, breaking furniture, or physically abusing a sibling, are apt to find it as hostile and frightening as if the abuse were directed at them (*Osofsky & Fenichel, 1996*).

### Child EA

Children's emotional availability to parents may also be viewed in terms of attachment and emotional frameworks. It is manifest in children's affective interactions with parents and in their secure base behavior, a term used here much as it is in attachment theory, in that it takes into account the child's balance between connection and autonomy. Whereas Ainsworth's (*Ainsworth et al., 1978*) use of the term referred predominantly to children's physical exploration away from followed by return to the parent, here the term refers to the balance of emotional connection and emotional autonomy between parent and child. Connection and autonomy may be shown through physical

proximity-seeking and distancing, visual contact with the parent followed by independent activity, or topics in conversation and play. The interaction between parent and child is then judged in terms of relatedness and autonomy.

#### *Child Responsiveness*

Child responsiveness to the parent refers to children's age- and context-appropriate ability to explore on their own and to respond to the parent in an affectively available way. A balance between connection and autonomy, plus emotional responsiveness to the parent, are the best indications of this quality and, presumably, of good adjustment in the context of the parent-child relationship. In younger children, such responsiveness might take the form of a happy demeanor in interaction and a balanced connection with the parent. As children grow older, their emotional availability to the parent is also manifested in more symbolic ways. For instance, they may take the lead in creating intersubjective relatedness (Stern, 1985), expressing joint attention, laughing or smiling as if child and parent shared a memory of experiences, as well as present interactive connectedness. In narrating themes of play, children may show clear positivity, in both nonverbal affect and the verbal domain. In play, they depict parental figures as kind and loving, while separation experiences are resolved warmly and promptly. The child views the world as safe, secure, and benevolent. To be considered responsive in this framework, a child would show appropriate emotional connection with the parent, and responsiveness that was balanced with autonomy, rather than excessive.

#### *Child Involvement of the Parent*

Children's emotional availability to the parent can also be expressed by involving the parent in interaction. Optimally, this would entail initiating eye contact, asking questions, narrating a storyline, or showing and demonstrating materials to the parent in a comfortable, nonurgent, and positive manner. The child would also "socially reference" (Klennert, Emde, Butterfield, & Campos, 1986) the parent in times of uncertainty, such as novel or stressful situations. The balance of involving behavior and independent activities indicates secure base behavior. In the early years, the child involves the parent by visually, behaviorally, or vocally "checking in" with the parent. In the older child, optimal involvement is manifest through

a balance between seeking out the parent and independent activity. In pretend activities, the child may assign a particular role to the parent, or space silences skillfully enough to give the parent the role of respondent. Optimally, the level of involvement of the parent would be at the "golden mean," and would not entail over- or under-involving styles of interaction.

#### RESEARCH FINDINGS

Theoretical conceptualizations require empirical verification. The studies discussed below, some conducted by the author and her colleagues, provide construct validity for the concept of EA. Extant and growing evidence suggests that parental and child EA are related to attachment, as well as to other meaningful aspects of the parent-child relationship.

Research that examines the link with attachment is reviewed first, followed by research examining EA in other contexts. Studies in the first group are those that included the Strange Situation procedure, which entails two separations and two reunions (Ainsworth *et al.*, 1978), or the Adult Attachment Interview (AAI), which assesses parental representations of early attachment relationships in the parent's family of origin (George, Kaplan, & Main, 1985). Information on the validity of these constructs may be found in Ainsworth *et al.* (1978), Cassidy and Berlin (1994), Waters, Vaughn, Posada, and Kondo-Ikemura (1995), and van Ijzendoorn (1995).

Briefly, the Strange Situation assessment yields two insecure and one secure categories. Insecure/avoidant involves age-inappropriate nonchalance about being separated from the parent, and disinterest/avoidance when the parent returns after the separation. Insecure/ambivalent involves excessive dependence and neediness about separation, combined with inconsolability when the parent returns. Both insecure categories represent clear strategies of attachment organization. In contrast, the secure category involves an infant distressed by separation but easily soothed by the parent's return, suggesting confidence in the parent's availability. A fourth category—disorganized/disoriented—is additionally assigned to infants showing atypical or bizarre behavior suggesting a lack of attachment strategy organization (Main & Solomon, 1986, 1990).

In the AAI categories, participants are classified as preoccupied, dismissing, or autonomous/secure.

The preoccupied individual shows significant anger and resistance regarding attachment figures, with little attempt to resolve or integrate related memories or feelings. The dismissing individual defensively ignores issues relevant to attachment experiences. The autonomous/secure individual shows balanced, integrated attachment relationships. A fourth category, unresolved, may be assigned to individuals showing signs of confusion, disorganization, or unresolved mourning (*Main & Solomon, 1986, 1990*). The AAI was developed to differentiate adult mental representations of attachment in parents whose infants had been judged to show different patterns of attachment. Empirical evidence suggests impressive concordance between the AAI and Strange-Situation classifications (*van IJzendoorn, 1995*).

### EA and Attachment

*Robinson and Spieker, 1996.* This study of adolescent mothers and their children examined the relation between EA at age four and earlier indices of attachment and risk. The dyads were observed in a ten-minute, laboratory playroom, free-play session. Various types of toys—blocks, toy cars, coloring books, crayons, a Fisher-Price dollhouse—were available for use. Interrater reliability, assessed as Pearson correlations on previous data, was more than .80. Lower maternal sensitivity at age four was predicted if, when the infant was one year old, the mother displayed depressive symptoms and had poorer scores on the Nursing Child Assessment Teaching Scale (NCATS) (*Barnard, 1979*) in the fostering of socioemotional growth. A high level of maternal hostility at age four was predicted if the mother had a history of childhood sexual abuse and had lower NCATS scores on fostering socioemotional growth. The relationship pattern was clearest for boys. Curiously, a secure attachment predicted nonoptimal involvement, usually of the overinvolving type, for the boys, whereas an insecure attachment predicted nonoptimal involvement for the girls, suggesting that over-relatedness for boys in a risk sample may be a protective factor.

*Ziv, Sagi, Gini, Karie-Koren, and Joels, 1996.* The relation between EA and attachment also appears to hold in a different culture, that of Israel. Ziv and colleagues examined the relation between EA and attachment, and reported the highest number of insecure/ambivalent babies in the literature. The session included a six-minute free-play situa-

tion with infants aged 12 months. Interrater reliability was more than .80. Mothers of insecure/ambivalent infants were found to be lower in sensitivity and less than optimal in structuring/intrusiveness, while the infants were lower in responsiveness and involvement. The higher socioeconomic status (SES) group appeared to be significantly more sensitive than the lower, and the lower SES group significantly more hostile than the higher. It is particularly interesting that the lower SES mothers of secure babies scored higher on sensitivity than did higher SES mothers of insecure babies. Such findings indicate that even though a minimum level of EA was sufficient for security of attachment to develop, mothers from higher SES backgrounds created a more emotionally available climate for the child than did those from lower SES backgrounds. It thus seems that EA has "extra" qualities that differentiate it from attachment. Maternal hostility did not differentiate the two groups in this sample.

*Ziv, Gini, Guttman, and Sagi, 1997.* In a separate report on the same sample, this group examined the relation between EA in ten minutes of free play at six months of age, six minutes of free play at 12 months, and six minutes of free play at 20 months. The Strange Situation was assessed at 12 months, after the free-play session. Considerable stability was evident across the three time points. Correlations ranged from .24 to .77, with the greatest stability for sensitivity and structuring/intrusiveness between six and 12 months. Further, sensitivity and structuring/intrusiveness at six months predicted child EA (both responsiveness and involvement) at 12 and 20 months.

*Aviezar, Sagi, Joels, and Ziv, 1999.* In a more recent study by this group, kibbutz dyads were examined on three components of the attachment transmission model: infant attachment, EA, and adult attachment representations. Security of infant attachment (Strange Situation classifications) and adult attachment representations (AAI) were both found to be related to EA, particularly maternal sensitivity, with secure infants and autonomous mothers more likely to display greater EA during interactions than insecure infants and nonautonomous mothers. Maternal structuring/intrusiveness was related only to adult attachment representations. In home-sleeping arrangements only, secure infants had mothers with greater EA (structuring and sensitivity), and autonomous mothers had infants who were more responsive. Such rela-

tions between EA and infant-parent attachment or adult attachment representations were absent for those in the collective-sleeping arrangement of the kibbutz. These findings suggest that the relations between attachment and EA are conditional on the ecological context of child care. Additional findings from this project are available elsewhere (Ziv, Aviezar, Gini, Sagi, & Koren-Karie, *in press*).

Swanson, Beckwith, and Howard, *in press*. In the UCLA FOCUS Project, an intervention study, Swanson and colleagues examined the relation between maternal nonintrusiveness and attachment, as assessed in the Strange Situation, in infants prenatally exposed to drugs. The infants were observed in a ten-minute play situation in the laboratory for approximately five minutes of structured play with toys at a table, followed by a five-minute teaching situation in which the mother was asked to teach the infant how to use several materials. In some cases, the infants were observed with their foster mothers. Interrater reliability on maternal nonintrusiveness, assessed as Pearson correlations, was more than .80. As mentioned above, this study used the current version of EA, which separates the structuring and nonintrusiveness dimensions. Maternal intrusiveness was found to be related to the disorganized form of attachment. This suggests that maternal intrusiveness may lead to disorganization, particularly in drug-exposed infants who, typically, are easily overstimulated. However, such attribution of directionality must be modified by the possibility that an infant who is disorganized (due to neurological immaturity, cocaine use during pregnancy, or other reasons) increases the mother's anxiety so that her behavior toward the baby may be more intrusive.

Carter, Little, and Garrity-Rokous, 1998. This study of a group of four-month-old infants adapted the EA scales for young infants and examined relations among maternal psychopathology, EA, and attachment. The context was before and after still-face, three-minute play segments. Interrater reliability, assessed as intraclass correlations, ranged from .76 to .92 for maternal sensitivity, .88 to .93 for maternal structuring/intrusiveness, .84 to .97 for maternal hostility, and .75 to .78 for child responsiveness. The study found that maternal depression in the presence of child unresponsiveness predicted attachment at 12 months (as assessed via the Strange Situation). Also consistent with expectations, EA was significantly associated with discrete codings of infant and maternal behavior,

such as infant negativity, infant positivity, mother positivity, and mutual positivity. Analyses conducted with the structuring/intrusiveness scale used as categorical qualities (optimal structuring, inconsistent structuring, or intrusive parenting), found that infants of inconsistent mothers were more affectively negative than were infants of optimally structuring or intrusive mothers. Dyads with inconsistent mothers were also significantly different than those with optimal mothers on the variables of infant positivity, maternal positivity, and mutual positive expressions. Interestingly, mothers and infants showed only moderate stability across stress-free and stressful contexts (the initial play and recovery play periods of the still-face situation).

Easterbrooks, Lyons-Ruth, Biesecker, and Carpenter, 1996. With a high-risk sample of very low-income mothers, these researchers used the Strange Situation during infancy to assess attachment, and the middle childhood version of the EA scales to examine the relation between EA and attachment at ages seven and eight. At age seven, they observed a five-minute child-mother reunion following an hour-long separation. At age eight, child-mother free play, as well as child-mother reunion, were observed. Interrater reliability, assessed as kappa coefficients, ranged from .95 to 1.00. Dichotomous impaired/appropriate measures were created for each of the EA variables, with "impaired" indicating maladaptive scores (i.e., those below the median or any above it considered maladaptive), and "appropriate" indicating scores above the median. Findings for this high-risk sample were that securely attached infants and their parents showed greater EA at child age seven than in infancy; parents were more sensitive and optimal in structuring/intrusiveness, and children more optimally responsive and involving of their parents, if attachment had been secure during infancy. Interestingly, the results held mainly for sons. When examined for type of insecure attachment, data indicated that those with disorganized attachment patterns in infancy displayed more impaired functioning than did those whose patterns had been avoidant (the number of insecure/ambivalent infants was too small to include in analyses). Thus, EA in both free play and reunion episodes was predicted by early attachments, as assessed in the Strange Situation.

Easterbrooks et al. (1996) also found that maternal depression in infancy predicted impaired EA in

parent-child dyads at child age seven, regardless of whether the mothers were still displaying depressive symptoms. Both maternal sensitivity and child involvement were impaired when mothers had higher depressive symptoms during infancy. When the presence of an insecure attachment or of maternal depression during infancy was combined into a single risk score, the composite predicted impairments in maternal sensitivity, structuring/intrusiveness, child responsiveness, and involvement at age seven. Again, the findings were most clear for the boys.

*Easterbrooks, Biesecker, and Lyons-Ruth, 1998.* These researchers examined the relation between atypical maternal behavior (role-confusion, withdrawal, affective communication errors, and disorientation) in the Strange Situation, and EA during a five-to-ten-minute child-mother reunion after a one-hour separation at age seven. They found that frequency and seriousness of the atypical maternal behavior during infancy was related to both maternal and child EA at age seven. Further information on these findings is available elsewhere (*Easterbrooks, Biesecker, & Lyons-Ruth 1999*).

*Siri-Oyen, 1997.* This is one of two studies that have used the AAI (*George et al., 1985*) in conjunction with EA scales. It investigated the relation between the EA and AAI in a sample of multirisk parent-toddler dyads from low-income, single-parent families in high-risk neighborhoods. The children were aged 18–42 months, with an equal distribution of boys and girls. Observation was in the home for 30 minutes of free play. Interrater reliability, within one-point agreement, was 92% for the sensitivity and hostility scales, 83% for the child responsiveness scale, and 58% for structuring/intrusiveness. The low reliability on structuring/intrusiveness means that these findings should be interpreted with caution. (The maladaptive upper boundary for structuring/intrusiveness was combined in analyses with the lower nonoptimal scores.) Secure mothers were found to be more sensitive and optimally structuring/intrusive, and their children more optimally responsive and involving of them. Insecure parents as a group were less sensitive (the preoccupied parent group had the lowest sensitivity ratings) and less optimally structuring/intrusive, and their children less responsive, than the secure parent group. Interestingly, maternal hostility did not significantly differentiate the secure and insecure mothers, even in this low-income sample, perhaps because most

mothers were able to modulate their aggressive impulses during the relatively short videotaped interactions.

*Biringen, Bartholomew, Brown, Donaldson, Krcmarik, and Lovas, in press.* This second study examining AAI-EA linkages used the third and most recent version of the EA Manual (*Biringen et al., 1998*), employing AAI classifications and AAI continuous scales in analyses. Multiple regression analyses indicated that with the exception of nonintrusiveness and nonhostility, each of the EA scales was predicted by the AAI classification and/or AAI scales, with the strongest prediction being for maternal sensitivity.

In sum, the results on EA and attachment linkage are suggestive. The EA approach, particularly, opens up the possibility of examining combinations of sensitivity and moderate intrusiveness or sensitivity and low responsiveness (nonconcordance in parental and child scores occurs in cases of foster or adoptive homes) in predicting attachment. The differentiation of the parental structuring and nonintrusiveness dimensions in the current version of the EA scales also opens up the possibility of examining the combined and differential effects of these dimensions on attachment. Given the recent debate about the modest effect sizes in predicting attachment from maternal sensitivity (*van IJzendoorn, 1995*), the EA approach may provide context for a more multifaceted look at the interactional correlates of attachment.

#### **EA and Other Parent-Child Relationship Aspects**

Two research reports have indicated intriguing patterns of relations between EA and discrete affect- and control-related aspects of interaction.

*Robinson, Little, and Biringen, 1993.* The first of these reported on 70 mother-toddler dyads during semistructured play in their homes at both 18 and 24 months. Interrater reliabilities, assessed as Pearson correlations, were more than .80. Greater maternal sensitivity was found to predict less maternal negative affect and greater maternal matching of affects for sons, particularly at 18 months. Lower maternal structuring/intrusiveness predicted more positive child affect for sons, but not for daughters; thus, sons appeared more positive when the mother was less directive or involved in play, whereas this pattern was not seen for daughters. Finally, the child's creation of shared affect states (i.e., the child's matching of maternal affects) covaried with maternal sensitivity for daughters,

but not for sons. Thus, in the context of greater sensitivity, daughters, not sons, appeared to play a more active role in the regulation of the relationship.

*Biringen, Robinson, and Emde, 1994.* In this separate report based on the same sample, the relation between maternal sensitivity and initiation and maintenance of interaction was examined. Findings indicated that more sensitive interactions between mothers and sons were generally associated with sons leading the flow of interactions, while more sensitive interactions between mothers and daughters were associated with greater maternal control of the interactional flow. More sensitive interactions between mothers and sons also involved greater mutual control and elaboration, with interactive partners sharing in interaction maintenance. These data suggest that sensitivity in mother-daughter interactions in toddlerhood runs somewhat counter to traditional notions of sensitivity, which involve maternal responsiveness to child's signals and communications (*Ainsworth et al., 1978*). Sensitivity during mother-son exchanges, however, is more consistent with tradition.

*Rethazi, Landy, and Menna, 1996.* This study examined the relation between EA and the mother's representations of the child, using the Working Model of the Child Interview (WMCi) (*Zeanah, Benoit, & Barton, 1993*). EA was rated with a sample of aggressive preschoolers and their mothers in a ten-minute, free-play situation in the laboratory. Reliability, assessed as intraclass correlations, was found to be high for all scales: .98 for maternal sensitivity, .96 for maternal structuring/intrusiveness, .85 for maternal hostility, .84 for child responsiveness, and .94 for child involvement. Maternal representations were classified as balanced, unbalanced/disengaged, or unbalanced/distorted. "Disengaged" referred to avoidant and affectively distant representations, and "distorted" to confused, confusing, and preoccupied representations. Mothers with balanced representations were significantly more sensitive in interaction than were those with disengaged representations, but no difference was apparent between mothers with balanced and distorted representations. Mothers with distorted representations scored significantly higher in sensitivity than did those with disengaged representations, and were significantly more optimally structuring/intrusive than were mothers with disengaged representations. Thus, in a low-stress, free-play context, there seemed to be few differences between mothers with balanced

and distorted perceptions, but both groups apparently differed from those with disengaged representations.

Other research, using the Parent Attachment Interview (*Bretherton, Biringen, Ridgeway, Maslin-Cole, & Sherman, 1989*), has also shown a relation between maternal representations of the child and EA (*Biringen, Matheny, & Bretherton, 1998, in press*).

*Kogan and Carter, 1996.* In a low-income sample, these researchers examined the relation between EA and four-month-old infants' reengagement with their mothers after the still-face situation, which involves play for five minutes, presentation by the mother of a motionless and affectless face for two minutes, and "reunion" play for three minutes. EA is rated in the initial five minutes of free play, and infant reengagement during the reunion, using scales of avoidance, resistance, and attention-seeking/maintenance developed by Kogan and Carter. Interrater reliability, assessed as intraclass correlations, was .90 for sensitivity, .70 for structuring/intrusiveness, .78 for hostility, and .94 for child responsiveness. Infants of less sensitive mothers were rated as more likely to display high levels of avoidant and resistant reengagement behavior, while infants of more sensitive mothers were less likely to display such behavior.

*Sagi, Tirosh, Ziv, Guttman, and Lavie, 1998.* Sleep patterns at six months (e.g., wakefulness, number of times awake, and the longest period of uninterrupted sleep) predicted EA at 12 months. Similar patterns were found for the other EA dimensions; for example, the longest period of uninterrupted sleep at six months predicted child responsiveness at 12 months. These findings suggest that early styles of biobehavioral regulation in the mother-infant dyad may affect the development of EA. It would be interesting to see if such relations between EA and sleep-wake patterns hold for different children in the same family.

*Robinson and Little, 1994.* EA in mothers' interactions with their twins has also been studied in the context of the MacArthur Longitudinal Twin Study, in which Robinson and Little found that mothers of dizygotic and monozygotic twins were highly similar in their sensitivity and structuring/intrusiveness with each twin; the heritability estimate was only modest. However, there was very little similarity in twins' responsiveness to and involvement of the mother. These findings suggest that within the same family, children manifest clear-



ly different styles of relatedness to the mother, despite similar maternal EA. Such findings have been integral to the conceptualization of EA as a relational, not an individual, quality.

*Zimmerman and McDonald, 1995.* Observing EA in a day-care context over time, this study of a small middle-class sample indicated that EA in each relationship (mother/child, day-care provider/child) was unique and not related only to the nature of the infant's relationships with their mothers; i.e., the individual caregiver's sensitivity was associated with the child's emotional availability to that caregiver. Zimmerman is now conducting extensive observations of EA in further pursuit of these early findings.

*Biringen, Emde, Campos, and Appelbaum, 1995.* This study investigated EA in relation to infant age and achievement of upright locomotion in a middle-class sample. Hour-long naturalistic observations were conducted in the home at several points between ages nine and 14 months. Interrater reliability, calculated as Pearson correlations, was more than .80. Earlier (but not later) walkers showed an increase in affective expression (a measure including positive affective indices and child responsiveness to the mother) across the shift to upright locomotion. A dramatic increase in mothers' sensitivity also was evident with increasing infant age. Thus, mothers of older infants were observed to be more sensitive than mothers of younger infants.

*Pressman, Pipp-Siegel, Yoshinaga-Itano, Kubicek, and Emde, 1999.* In this study, EA was examined in a group of deaf and hard-of-hearing infants, and in a group of hearing infants, all living at home. Interrater reliability, assessed as Pearson correlations, was more than .80. Maternal, but not child, EA (particularly sensitivity) was found to predict expressive language gains, both spoken and, in the case of the deaf/hard-of-hearing infants, sign. Higher maternal sensitivity predicted greater language gains. Interestingly, child EA and maternal EA were not significantly different in the two groups.

## DISCUSSION

The findings on EA reported here are thought-provoking. They suggest that the construct not only has a role in the prediction of attachment, but also in the prediction or correlation of aspects of the child's development, e.g., language gains for deaf and hard-of-hearing infants, sleep patterns for normally developing infants. Given the significant

and meaningful associations between EA and discrete affective indices of parent-child interaction, EA also appears to be a global way of summarizing the overall quality of the affective relationship.

## Directions for Research and Intervention

Parental and child EA scales provide a means to characterize the global emotional quality of the parent-child relationship. The primary use of the EA scales thus far has been for research in the areas of attachment and parent-child interaction, although several studies, among them that of Pressman and colleagues (1998), have also examined the role of EA in predicting other aspects of child development.

In addition to basic research, EA is now being used in several intervention projects as a way to assess the affective quality of the parent-child relationship pre- and post-intervention. For example, Robinson, Emde, and their colleagues (Robinson, Emde, & Korfmacher, 1997; Robinson & Glaves, 1996) described the use of EA in the Home Visitation 2000 and early Head Start programs in groups of very low-income, ethnically diverse mothers and their infants. EA will be used to measure the impact of these programs on the quality of the parent-child relationship.

Can interventionists change EA through prenatal and early childhood home visitation or other types of clinical or therapeutic services? The answer to this question is important, since EA is a way of understanding the attachment-relevant, affective experience between a parent and child. It may be more possible to measure EA than attachment on repeated occasions, and to measure EA with a variety of caregivers in a variety of settings. More systematic investigation of the malleability of EA is needed through early delivery of prevention, intervention, and clinical/therapeutic services to children and families.

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