ment theory and research offer compelling evidence not only about the influence of the infant-parent relationship but also about the contribution of the parent—and of parenting—to individual differences in the quality of this relationship. Attachment theorists and researchers, in fact, emphasize the influence of parenting on the development of the infant-parent attachment. Viewed in the larger scheme of nature and nurture arguments, that is, attachment theory and research emphasize nurture and have contributed importantly to the understanding of parenting.

In this chapter, the contributions of attachment theory and research to understanding parenting are considered. The chapter begins with a brief overview of Bowlby's attachment theory, focusing on its predictions about parenting. Next, attachment research on the associations between parenting behavior and individual differences in infant-parent attachment is considered. Finally, attachment-related influences on parenting are discussed. Throughout this review, we aim to examine the extent to which attachment research supports the claims of the theory. We also aim to identify pressing questions and to suggest next steps for advancing the understanding of parenting.

A Brief Overview of Attachment Theory and Its Predictions about Parenting

The Attachment Behavioral System

According to attachment theory, the infant-parent attachment relationship is an evolutionarily adaptive relationship whose principal function is the protection of the child. Bowlby argued that all people are genetically predisposed to form enduring and preferential relationships with principal caregivers because, in humans' earliest environments, such relationships were evolutionarily advantageous. Beginning in early infancy, instinctive behaviors such as crying and reaching for help draw caregivers' ministrations. By the middle of the first year, infants begin to direct these behaviors toward specific people. By the end of the first year, the infant's attachment behavioral system is fully developed.

Bowlby (1969/1982) maintained that the attachment behavioral system is one of several species-specific control systems that have evolved to facilitate protection, survival, and ultimately, reproductive fitness. According to Bowlby, behavioral systems are goal-corrected systems, which operate to keep the individual in a stable, equilibrious state. Each system's output varies depending on the degree to which the system is activated. The degree of activation of the attachment system is thought to depend on the condition of the child, the condition and location of the parent, and the state of the environment. The corresponding output of the attachment behavioral system consists of discrete attachment behaviors, behaviors which have the predictable outcome of increasing proximity to attachment figures. The greater the activation of the attachment system, the more likely the deployment of attachment behaviors.

Bowlby argued that the attachment behavioral system functions in tandem with

other behavioral systems, including the exploratory system, sociability system, and fear/wariness system. Ainsworth (1963; Ainsworth, Bell, & Stayton, 1971) argued further that the attachment and exploratory systems have a special relation to one another in that they are complementary yet mutually inhibiting. Specifically, the physical or psychological availability of the attachment figure is thought to facilitate exploration by providing the child a "secure base from which to explore" (Ainsworth, 1963). At the same time, there exists an attachment-exploration balance (Ainsworth et al., 1971). The activation of the attachment system reduces the activation of the exploratory system, and the activation of the exploratory system reduces the activation of the attachment system.

Internal Working Models

Bowlby was concerned not only with all human infants' attachment systems but also with differences between individuals. At the heart of Bowlby's thinking about individual differences is the notion of internal working models. Specifically, Bowlby argued that individuals draw on their earliest experiences to create cognitive maps or internal working models (also called representational models; 1969/1982, 1973) to facilitate the goal-corrected functioning of each behavioral system. The term *working model* is intended to stress the potentially flexible and dynamic nature of these cognitive representations. Whereas working models are forged in particular environments, they are most efficient if they can guide behavior across different environments. Working models include information not only about the environment but also about the individual's capabilities within the environment. They guide people's expectations, attention, interpretations, and memories. These processes, in turn, guide behavior. With continual use, internal working models become "overlearned" (Bowlby, 1980, p. 55), and they come to operate automatically and unconsciously. Over time, individuals are more likely to define their experiences using existing working models than to modify their representations to accommodate new, possibly inconsistent information. Thus, internal working models can be viewed as operating in a self-fulfilling manner.

Internal working models, however, are not considered to be immutable. As environments and individuals change and develop, working models are likely to require updating. Major changes in the environment and/or in the person require the reformulation of internal working models. Such factors as traumas, losses, and new attachments may well alter internal working models.

In discussing the development of internal working models of the attachment behavioral system, Bowlby (1973) emphasized parents' contributions. Specifically, Bowlby asserted that repeated daily transactions between the infant and the parent—especially those in which the parent is interpreting and responding to the infant's signals—lead the infant to develop expectations about the parent's caregiving. These expectations, in turn, are gradually organ-

ized into internal working models of the caregiver and of the self in relation to this caregiver. Sensitive caregiving potentiates the development of an internal working model of the caregiver as trustworthy and helpful and of the self as deserving of the caregiver's sensitive treatment. Conversely, insensitive caregiving leads to working models of the caregiver as unavailable and untrustworthy and of the self as unworthy of the caregiver's benevolent treatment.

Conditional Behavioral Strategies

A consideration of Main's (1990) concept of conditional behavioral strategies reveals even more specific predictions about the associations between caregiving behaviors and the quality of the infant-parent attachment. Main asserted that in addition to their adaptive propensity to form attachments, infants are equipped with biologically based abilities to tailor the output of the attachment behavioral system to particular caregiving contexts. These tailoring abilities, which function to garner as much parental protection as possible, are attachment strategies. Attachment strategies can also be viewed as unconscious plans, guided by internal working models of relationships, which in turn guide cognition and behavior. In sensitive caregiving environments, attachment strategies allow for a relatively direct relation between the activation of the attachment system and its output. For example, in a sensitive environment, a frightened baby will cry for her parent. In insensitive caregiving environments, strategies dictate that the output of the attachment system be manipulated and tailored to the particular demands of the caregiver.

Main (1990) proposed two general types of insensitive caregiving environments: one in which the caregiver exaggerates the importance of independence and one in which the caregiver exaggerates the importance of dependence. When the caregiver exaggerates the importance of independence, the output of the attachment system will be minimized. Thus, a frightened baby will suppress fear and not cry for her parent or will cry as little as possible. When the caregiver exaggerates the importance of dependence, the output of the attachment system will be maximized. Thus, if a baby is afraid or anticipates becoming afraid, she will exaggerate her fear and cry as much and as loudly as possible. In each of these cases, the baby's attachment strategies allow her to obtain as much parental protection as possible in her particular caregiving context.

In summary, attachment theory emphasizes the adaptive nature of the infant-parent relationship. Both the proclivity to form attachments and the flexibility to organize attachment behaviors in response to particular caregiving environments are understood to be biologically based and adaptive features of the attachment behavioral system. According to attachment theory, it is caregivers' (parents') responses to the infant's signals that play the largest role in shaping the infant's working models of attachment and attachment-based strategies and, in turn, guide subsequent behavior and development.

Associations between Parenting Behavior and Individual Differences in the Infant-Parent Attachment

Beginning with Ainsworth's pioneering Baltimore study (Ainsworth et al., 1978), a large number of investigations have addressed the associations between parenting behavior and individual differences in the infant-parent attachment. This body of work indicates considerable correspondence between specific patterns of parenting behavior and the quality of the infant-parent attachment. A review of this work also highlights unanswered questions for future attachment theory and research pertaining to the role of parenting in the development of the infant-parent attachment.

Individual Differences in Infant-Parent Attachment

Ainsworth's development of the laboratory Strange Situation procedure galvanized the systematic identification and investigation of individual differences in infant-parent attachment (Ainsworth & Wittig, 1969; Ainsworth et al., 1978). This 20-minute assessment involves a 12- to 20-month-old infant, her parent, and an unfamiliar female "stranger" in seven increasingly stressful episodes. There are two brief infant-parent separations when the infant remains in a laboratory playroom with a selection of age-appropriate toys. Based largely upon the infant's response to the parent in the two reunion episodes, the Strange Situation's accompanying classification system distinguishes three main patterns of infant-parent attachment: secure (Group B), insecure-avoidant (Group A), and insecure-ambivalent (Group C).

Approximately 65 percent of infants in most nonpathological samples are classified secure (Ainsworth et al., 1978; Campos, Barrett, Lamb, Goldsmith, & Stenberg, 1983; see also van IJzendoorn & Kroonenberg, 1988, for evidence of generally similar cross-national distributions). During the separations, secure infants generally reduce their exploration of the toys and may become distressed. During the reunions, these infants actively seek interaction, proximity to, and/or contact with their parent. Comforted by their parent's return, secure infants then return to play. In their ability to seek and receive comfort from their parent and then resume exploration, secure infants are thought to use their parent as a secure base from which to explore.

Approximately 20 percent of infants in most nonpathological samples are classified insecure-avoidant (Ainsworth et al., 1978; Campos et al., 1983; see also van IJzendoorn & Kroonenberg, 1988). Infants classified as avoidant are unlikely to cry during the separations. During the reunions, these infants actively avoid interaction with the parent and may appear to ignore their parent completely.

Approximately 15 percent of infants in most nonpathological samples are classified insecure-ambivalent (Ainsworth et al., 1978; Campos et al., 1983; see also van IJzendoorn & Kroonenberg, 1988). Infants classified as insecure-ambivalent are highly likely to express distress during the

separations. During the reunions, however, these infants appear to derive little comfort from their parent's return. These infants demonstrate ambivalence about interacting with the parent that is frequently accompanied by angry, resistant behavior. In their inability to be soothed by their parent, ambivalent infants appear less able than secure infants to use their parent as a secure base from which to explore.

More recently, a fourth group, insecure-disorganized (Group D), has been identified (Main & Solomon, 1986, 1990). Disorganized, disoriented, and frightened reunion behaviors characterize the infants in this group. When a coder classifies an infant as disorganized, the coder also identifies which of the three principal patterns (secure, insecure-avoidant, or insecure-ambivalent) appears to coexist with or underlie the infant's disorganization. Subsequently, infants who are classified disorganized are also assigned a best-fitting, "forced" classification (of secure, insecure-avoidant, or insecure-ambivalent). When all four classifications are used, the proportion of insecure-disorganized infants in the sample varies with the extent of social and/or psychological risk (i.e., poverty, child maltreatment, parental psychopathology; see Lyons-Ruth, 1999, and van IJzendoorn, 1999, for reviews). For example, one study of child maltreatment found 82 percent of the maltreated infants to be insecure-disorganized compared to 18 percent of the (nonmaltreated) control group (Carlson, Cicchetti, Barnett, & Braunwald, 1989), a proportion that is typical of low-risk samples. A recent meta-analysis focusing on the insecure-disorganized group suggests that this classification may be more closely associated with the insecure-ambivalent pattern than any other. Across over 1,200 cases, 14 percent of the insecure-disorganized infants received forced classifications of secure, 34 percent received forced classifications of insecure-avoidant, and 46 percent received forced classifications of insecure-ambivalent (van IJzendoorn et al., 1999; see Ainsworth & Eichberg, 1991, for further discussion of the association between the insecure-ambivalent and disorganized classifications).

Evidence of the Strange Situation's predictive validity has come from a large body of research that has demonstrated associations between the quality of infant-parent (usually infant-mother) attachment and the child's subsequent socioemotional functioning (see Belsky & Cassidy, 1994, and Thompson, 1999, for reviews). In brief, children classified as secure in infancy generally appear more socially competent than children who were classified as insecure.

The Attachment Q-Sort (AQS; Waters & Deane, 1985; see Waters, Vaughn, Posada, & Kondo-Ikemura, 1995) is another, more recently developed measure of individual differences in infant-parent attachment security. Designed to tap key features of the infant attachment, exploratory, and fear behavioral systems, the Q-Sort involves the infant's parent or a trained observer sorting 90 cards (items) into a fixed distribution. The resulting distribution is compared to (correlated with) a predetermined sort of a prototypically secure infant, which then yields a continuous meas-

ure of attachment security. Although both mother- and observer-sorted AQS scores have been found to relate to theoretically predictable aspects of children's subsequent development (e.g., Park & Waters, 1989; Teti & Ablard, 1988), some recent findings suggest that Q-sort data, especially that generated by parents, should be interpreted with caution. In addition to being correlated with socially desirable responses (Belsky & Rovine, 1990) mothers' sorts also yield less evidence of discriminant and convergent validity than observers' sorts (van IJzendoorn, Vereijken, & Riksen-Walraven, in press).

Ainsworth's Baltimore Study

Ainsworth's Baltimore study of 23 white, middle-class dyads included extensive narrative records of four-hour naturalistic home observations made every three weeks during the infants' first year. These data yielded painstakingly detailed information of a magnitude that has yet to be replicated. They also set the stage for the ensuing 20 years of investigation of the associations between parenting behavior and infant-parent attachments.

In synthesizing these narrative records, Ainsworth and her colleagues paid careful attention to mothers' responses to their infants' cues along the full spectrum of the attachment-exploratory balance, examining mothers' responsivity not only to their infants' attachment behaviors but also to their infants' bids for autonomous action and exploration (Ainsworth et al., 1978). Specifically, Ainsworth and her coworkers examined discrete maternal behaviors as well as more global characterizations. Discrete behaviors included mothers' responsiveness to infants' crying and mothers' behavior relevant to separation and reunion, close bodily contact with their infants, face-to-face interaction, infant obedience, and feeding.

There were also four global scales that reflected these discrete behaviors: (1) "sensitivity-insensitivity to the baby's signals and communications," defined as the extent to which the mother took the infant's perspective, accurately perceived the infant's cues, and promptly and appropriately responded to these signals, or did not take action, if that was appropriate; (2) "acceptance-rejection," defined as the mother's feelings about her infant and her ability to balance the positive and negative emotions that parenting evokes; (3) "cooperation-interference," defined as the mother's controlling and intrusive behaviors; and (4) "accessibility-ignoring," defined as the mother's emotional availability to her infant. These global characterizations can be condensed further into two broad interrelated dimensions: The first, as embodied by the acceptance scale, centers on the mother's feelings about being a mother and the second, as embodied by the sensitivity, cooperation, and accessibility scales, refers to the mother's ability to read and respond to the infant's cues and to follow the infant's "agenda." The low ends of the cooperation and accessibility scales (interference and ignoring, respectively) can be viewed as tapping different types of *in*sensitivity.

Ainsworth and her colleagues went on to uncover a range of associations between

the Baltimore mothers' behavior toward their infants across the first year of life and the three principal patterns of infant-mother attachment observed in the Strange Situation at 12 months. Analyses of both first- and fourth-quarter parenting behaviors indicated mothers of secure infants to be significantly more likely than mothers of avoidant infants as well as mothers of ambivalent infants to behave sensitively and to serve as a secure base to their infants. For example, during the first three months, mothers of infants classified as securely attached at 12 months were significantly more likely than mothers of infants classified as insecure to hold their infants carefully and tenderly and to time their interactions according to the infant's signals and significantly less likely to be unresponsive to their infants' crying and to handle their infants in a routine manner. Global characterizations of maternal behavior in the fourth quarter of the infant's life were especially revealing. Specifically, mothers of secure infants were significantly more sensitive, accepting, cooperative, and accessible to their babies than mothers of avoidant or ambivalent infants.

In reflecting on these findings, Ainsworth emphasized maternal sensitivity as both a pervasive aspect of caregiving behavior and a key influence on the quality of infant-mother attachment. Ainsworth wrote, "The most important aspect of maternal behavior commonly associated with the security-anxiety dimension of infant attachment is manifested in different specific ways in different situations, but in each it emerges as sensitive responsiveness to infant signals and communications" (Ainsworth et al., 1978, p. 152). Ainsworth emphasized maternal sensitivity not only to infants' attachment signals but also to infants' bids for autonomous exploration. She noted, "Among a child's behavioral cues are those indicating that he enjoys the adventures of exploring, he dislikes being interrupted when absorbed in autonomous activity, and he is gratified when he masters a new skill or problem on his own. A parent cannot be truly sensitive to a child's cues if she ignores these" (Ainsworth, 1984, p. 568).

The majority of Ainsworth's analyses on the associations between parenting behavior and infant attachment quality were devoted to differences between securely and insecurely attached infants. Ainsworth's small sample size prohibited rigorous comparison of the two insecure groups (six avoidant infants and four ambivalent infants). Some initial information on the caregiving behaviors of mothers of avoidant and ambivalent infants did, however, emerge. This information centers on the nature of these mothers' insensitivity. In particular, mothers of avoidant infants appeared rejecting and controlling. In the first quarter, mothers of avoidant infants received significantly higher scores on the scale for aversion to physical contact than mothers of ambivalent infants on this scale. Mothers of avoidant infants were also more significantly more likely than mothers of secure infants to be lacking in emotional expression and to behave rigidly and/or compulsively. In the fourth quarter, mothers of avoidant infants were significantly more likely than mothers of secure infants to pick up their babies in an abrupt and in-

terfering manner and to use physical interventions to elicit infant obedience.

Different behaviors characterized mothers of ambivalent infants. These mothers appeared inconsistent and inept. In the fourth quarter, these mothers took significantly longer than mothers of secure infants to respond to their infants' cries. They also demonstrated significantly less skill in handling their infants and significantly less affection when picking up their babies than mothers of secure infants (see Cassidy & Berlin, 1994). Unlike mothers of avoidant infants, however, these mothers were not perceived as averse to close physical contact, "affording some comforting experience when in close bodily contact, albeit inconsistently" (Ainsworth, 1984, p. 582). Mothers of ambivalent infants also appeared to interfere with their infants' initial exploratory forays. These mothers were significantly more likely than mothers of secure infants to be "occupied with routines," while holding their infants, frequently holding their infants to feed them, and tending to "resist any effort the baby made to feed himself" (Ainsworth et al., 1978, p. 146).

In summary, Ainsworth's Baltimore study yielded not only the now classic Strange Situation procedure for assessing individual differences in infant-parent attachment but also the first data on the associations between parenting behavior and patterns of attachment. Mothers of infants later classified as secure were characterized as warm, sensitive, and clearly attuned to their infants' signals, especially in comparison to the mothers of infants later classified as insecure. Mothers of insecure-avoidant and insecure-ambivalent infants were both characterized as less sensitive than mothers of secure infants, with their insensitivities seeming to take different forms. Mothers of avoidant infants appeared harsh and controlling, whereas mothers of ambivalent infants appeared inconsistent and inept.

Parenting Behavior and Individual Differences in the Infant-Parent Attachment: Finer Distinctions

Since the Baltimore study, there have been over 70 longitudinal and cross-sectional investigations addressing the associations between infant-parent (usually infant-mother) interactions observed both in the home and in the laboratory and the quality of the infant-parent attachment assessed with the Strange Situation or the Attachment Q-Sort (see Belsky & Cassidy, 1994, and Belsky, 1999, for reviews). These inquiries have been conducted in several countries, including the United States, Germany, Great Britain, the Netherlands, Japan, Israel, and Canada, and have included both middle- and low-income families. This body of research has yielded data that both parallel and extend Ainsworth's original findings. Specifically, the data have continually revealed associations between parental sensitivity in relation to both attachment and exploration and infant-parent attachment quality (although see Seifer, Schiller, Sameroff, Resnick, & Riordan, 1996, and Schneider-Rosen & Rothbaum, 1993, for nonsignificant findings). Finer distinctions, moreover, among the behaviors of parents of secure, insecure-

avoidant, insecure-ambivalent, and insecure-disorganized infants have emerged. These data suggest particular internal working models of attachment and attachment-based strategies for each of the four attachment groups.

PARENTING BEHAVIOR ASSOCIATED WITH THE SECURE PATTERN OF ATTACHMENT

Inquiries into the associations between parenting behavior and infant-parent attachment have confirmed and extended Ainsworth's initial characterization of parents of securely attached infants. Specifically, studies have consistently linked parental sensitivity—and/or various aspects of parental sensitivity—to a secure infant-parent attachment. For example, in the first replication of the Baltimore study, conducted in Northern Germany at two and six (but not ten) months, mothers of secure infants received significantly higher scores on a composite measure of sensitivity than mothers of insecure-avoidant and insecure-ambivalent infants (Grossmann, Grossmann, Spangler, Suess, & Unzner, 1985; see also Miyake, Chen, & Campos, 1985, and Nakagawa, Lamb, & Miyake, 1992, for partially convergent findings from studies conducted in Japan). More recently, a multisite study of infant child care including over 1,100 infants found maternal "sensitivity in the home" at six and fifteen months to distinguish secure and insecure infants. Moreover, mothers of securely attached infants received higher scores than mothers of insecure-avoidant infants on both "sensitivity in the home" and "sensitivity in play" (NICHD Early Child Care Research Network, 1997; see also Isabella, 1993, and Pederson & Moran, 1996). Another investigation found "dyadic distress management," a measure of mothers' responsiveness to their infants' fussing and crying, to distinguish secure and insecurely attached infants (Del Carmen, Pederson, Huffman, & Bryan, 1993; see also Crockenberg, 1981). Still another inquiry yielded positive correlations between mothers' and fathers' "positive interaction" and "physical affection" and infants' attachment security scored on a continuous scale (Cox, Owen, Henderson, & Margand, 1992; see also Bates, Maslin, & Frankel, 1985). Consistent findings have emerged from a study using (observer) Q-sort techniques to assess not only attachment but also maternal sensitivity, defined as involving "an openness to signals in the context of the need to attend to other competing events" (Pederson et al., 1990, p. 1976), a definition bound to resonate with many parents. Pederson and his colleagues discerned a significant correlation of .52 between maternal sensitivity and infant attachment security (see also Moran, Pederson, Pettit, & Krupka, 1992, and Vereijken, Riksen-Walraven, & Kondo-Ikemura, 1997). Consistent findings have also emerged from the Minnesota Mother-Child Project of low-income mothers and their infants. For example, in both feeding and play sessions at six months, mothers of infants later classified secure were rated as more sensitive than mothers of insecure-avoidant and insecure-ambivalent infants (Egeland & Farber, 1984; see also Susman-Stillman, Kalkoske, Egeland, & Waldman, 1996). Studies addressing clinical issues such as maternal depression (Teti,

Gelfand, Messinger, & Isabella, 1995) and mothers' prenatal alcohol consumption (O'Connor, Sigman, & Kasari, 1992) have also linked maternal sensitivity to infant attachment security.

Further insight into the practices of parents of secure infants comes from considering the extent of these parents' involvement with their infants. Specifically, Belsky has argued that in their *contingent* responsiveness to their infants' signals, parents of secure infants should show neither uniformly high nor uniformly low levels of involvement with their infants but rather intermediate levels of involvement, relative to the parents of insecure-avoidant and insecure-ambivalent infants (Belsky, Rovine, & Taylor, 1984). Invoking Aristotle's golden mean, Belsky emphasized, "it would be inappropriate to conclude that more maternal involvement and interaction with the infant is synonymous with sensitive care. Indeed . . . too much involvement and interaction can be as insensitive as too little involvement, given its potential for overstimulating the infant. . . . " (Belsky et al., 1984, p. 719). Belsky and his colleagues uncovered a significant linear trend in which, at nine months, mothers of secure infants received intermediate scores on an aggregate rating of involvement with their infants. There were similar, albeit nonsignificant trends at one and three months (Belsky et al., 1984; see also Isabella & Belsky, 1991, and Isabella, Belsky, & von Eye, 1989).

As discussed earlier with respect to the attachment-exploration balance and the parent's provision of a secure base from which the infant can explore, sensitive caregiving is expected to maximize the infant's opportunities to explore his environment and to contribute to the infant's emerging sense of himself as an independent person. Bowlby (1973) associated a "stable and self-reliant personality" (p. 322) with "not only . . . unfailing parental support when called upon but also . . . steady yet timely encouragement towards increasing autonomy. . . . " (pp. 322–323). Thus, the sensitive caregiving found to characterize mothers of secure infants should be viewed as contributing not only to the infant's emotional security but also to his or her developing autonomy. Moreover, the studies associating parenting behavior and infant-parent attachment characterize parents of secure infants as more sensitive not only to their infants' attachment behaviors but also to their infants' bids for autonomy than parents of insecure infants. For example, in Miyake et al.'s (1985) investigation, at 7½ months, mothers of secure infants were significantly less likely than mothers of insecure-ambivalent infants to intrude by "interrupting the baby's ongoing activity without a bid from the baby" (p. 292). Additionally, in Egeland and Farber's (1984) investigation, in the six-month feeding session, mothers of secure infants were rated as significantly more cooperative (i.e., less intrusive) than mothers of insecure-avoidant and insecure-ambivalent infants. In the six-month play session, mothers of secure infants were rated as significantly more cooperative than mothers of insecure-avoidant infants. Finally, in a 1985 laboratory-based study, although there were no contemporaneous associations between maternal behavior and in-

fant-mother attachment quality, both stability of attachment from 12 to 20 months and change (between 12 and 20 months) from an insecure to a secure infant-mother attachment were associated with greater maternal sensitivity as well as greater maternal "support for [the infant's] autonomy" (Frodi, Grolnick, & Bridges, 1985).

Thus, the studies of the associations between parenting behavior and infant-parent attachment portray mothers of secure infants as warm, sensitive, moderately involved with their babies, and supportive of their infant's initial striving toward autonomy. These parenting behaviors can be viewed as communicating the message that the infant's signals will be acknowledged and that the infant's needs will be fulfilled. Barring mitigating circumstances (e.g., a trauma), this type of parenting behavior is expected to result in the infant developing internal working models of her parent as available and supportive and of herself as deserving of sensitive and supportive care. These internal working models, in turn, inform the infant's conditional behavioral strategy, which in this case is thought to involve a direct relation between the activation of the attachment system and its output. Attachment figures are sought in times of stress, and opportunities for exploration are optimized. This strategy stands in stark contrast to that of insecure infants, which is discussed next.

PARENTING BEHAVIOR ASSOCIATED WITH THE INSECURE-AVOIDANT PATTERN OF ATTACHMENT

Ainsworth's Baltimore study tentatively portrayed mothers of insecure-avoidant infants as rejecting and controlling. Since then, theory and research pertaining to parenting behavior and attachment have both supported and extended this portrait (see Cassidy & Kobak, 1988, and Main, 1981, for reviews; see also Main, 1990). Drawing on the work of Ainsworth and her colleagues, two studies have examined maternal rejection vis-à-vis mothers' physical contact with their infants. Belsky et al. (1984) found no differences between mothers of avoidant and secure infants in the frequency of mothers' "holding outside of the context of feeding." Egeland and Farber (1984), however, found mothers of insecure-avoidant infants to exhibit significantly lower rates of "nonfunctional handling" than mothers of secure and insecure-ambivalent infants. Whereas more data on mothers' handling of their infants is required, some additional hints into the possibly rejecting behaviors of mothers of avoidant infants have come from two studies focusing on mothers' responses to their infants' affective expressions. In the first, mothers of avoidant infants were more likely than mothers of secure infants to ignore their babies' emotional signals. Additionally, these mothers participated in their infants' play until the infants expressed negative affect, at which point these mothers withdrew (Escher-Graub & Grossmann, 1983). Connections between the insecure-avoidant pattern and mothers' tendencies to downplay their infants' negative affect have also been suggested by an investigation wherein infants and their mothers participated in face-to-face interactions several times during the infants' first year (Malatesta, Culver, Tesman, &

Shepard, 1989). Mothers' surprise in response to their infants' angry expressions—which can be viewed as an intimation that the infant's anger is inappropriate—was associated with infants' suppressed anger in the Strange Situation, an expression that was most characteristic of avoidant infants.

Research has also characterized mothers of avoidant infants as both controlling and overstimulating. For example, in Egeland and Farber's (1984) study, in the six-month feeding session, mothers of insecure-avoidant infants were rated as significantly less cooperative (i.e., more intrusive) than mothers of secure and insecure-ambivalent infants. In the six-month play session, mothers of insecure-avoidant infants were rated as significantly less cooperative than mothers of secure infants. In Belsky et al.'s (1984) study, the linear trend analyses portrayed mothers of avoidant infants as the most attentive, vocal, and stimulating (see also Lewis & Feiring, 1989). Two follow-up inquiries with additional cohorts illuminated the extent to which these types of behaviors were noncontingent and insensitive. Mothers of avoidant infants were revealed to vocalize to their infants, "almost without regard to what the baby was doing but rarely in response to the baby's own vocalizations" (Isabella et al., 1989; see also Isabella & Belsky, 1991). Several laboratory investigations are also relevant. In one, mothers of avoidant infants scored significantly higher than mothers of secure and insecure-ambivalent infants on intrusiveness (Smith & Pederson, 1988). In another, mothers of avoidant infants were rated as significantly more controlling than mothers of secure infants (Vondra, Shaw, & Kevinedes, 1995). Finally, in Malatesta et al.'s (1989) inquiry, infants who had experienced "extremely high rates" (p. 76) of maternal contingent facial responding were significantly more likely to be classified avoidant at 22 months.

Taken together, these studies portray mothers of insecure-avoidant infants as distancing and perhaps also rejecting, in response to their infants' attachment signals as well as controlling and overly stimulating of their babies. These parenting behaviors can be viewed as communicating the message that the infant's attachment signals are illegitimate and will not be acknowledged, that the infant's own agenda cannot be executed, and that dyadic harmony can be achieved by the infant's withdrawal. These parenting behaviors, moreover, are expected to result in the infant developing internal working models of her parent as consistently unavailable and of herself as unworthy of sensitive and supportive care. These internal working models, in turn, inform a strategy whereby both the activation and output of the attachment behavioral system are minimized (Main, 1990). This strategy precludes the deployment of attachment behaviors that the infant anticipates will be met with further repudiation and, in so doing, allows the infant to maintain as much contact with her parent as possible. This strategy involves not only minimization of attachment but also exaggeration of the importance of independence. Emphasizing independent exploration helps the infant minimize attachment as well as circumvent

the parents' excessively controlling behaviors.

It is important to note that although insecure-avoidant infants may explore more than secure infants, this exploration in the absence of a secure base is likely to result in costs to the individual. For example, one team of researches measured infants' heart rates during the Strange Situation and adrenocortisol levels 15 and 30 minutes after the Strange Situation (Spangler & Grossmann, 1993). Despite the typical diverse behaviors among the different attachment groups, heart rate assessments did not distinguish the insecure-avoidant group from the secure group (the one infant in this study classified insecure-ambivalent was omitted from analyses). Specifically, although the avoidant infants were less likely to become upset and more likely to explore than the secure infants, their heart rates indicated that they were as aroused as their clearly upset, securely classified counterparts. The cost of greater exploring for these avoidant infants, thus, appears to have been suppressed arousal and/or emotion. Suppression of emotion, moreover, has been linked to health problems in both adults and children (see, e.g., Pennebaker & Beall, 1986).

PARENTING BEHAVIOR ASSOCIATED WITH THE INSECURE-AMBIVALENT PATTERN

Ainsworth's Baltimore study suggested that the mothers of the insecure-ambivalent infants were inconsistent and inept. Since then, theory and research pertaining to parenting behavior and attachment have both supported and refined this view (see Cassidy & Berlin, 1994, for an extensive review of the insecure-ambivalent pattern; see also Main, 1990). Specifically, studies have suggested that mothers of insecure-ambivalent infants are inconsistently and/or insufficiently responsive to their infants' attachment signals yet, at the same time, interfering with their infants' efforts at exploration. In Belsky et al.'s (1984) study, the linear trend analyses portrayed mothers of ambivalent infants as the least attentive, vocal, and stimulating; in the second cohort, dyads containing insecure-ambivalent infants were observed to exhibit "relatively few" (p. 18) mutual and reciprocal exchanges (Isabella et al., 1989; see also Isabella & Belsky, 1991). Crockenberg (1981) found a significant positive correlation between mothers' latency to respond to their infants' crying and these infants' resistant behavior in the Strange Situation, a behavior most characteristic of infants classified insecure-ambivalent (see also Egeland & Farber, 1984, and Lewis & Feiring, 1989). Laboratory data tell a similar story. One investigation indicated that, compared to both other groups of mothers at six months, mothers of infants later classified ambivalent initiated the fewest number of interactions with their infants (Kiser, Bates, Maslin, & Bayles, 1986). In Smith and Pederson's (1988) investigation, compared to both other groups of mothers, mothers of ambivalent infants received significantly more "insufficient" ratings and significantly fewer "appropriate" ratings (see also Vondra et al., 1995).

Curiously, although mothers of insecure-ambivalent infants appear less responsive than other mothers to their infants' attachment signals, these mothers

have also been characterized as interfering with their infants' bids for autonomy. As discussed earlier, Ainsworth described mothers of ambivalent infants as interfering with their babies' efforts to feed themselves. A similar pattern emerged from Isabella and Belsky's (1991) investigation. Mothers of insecure-ambivalent infants were described as attempting to initiate interaction when their infants were "otherwise involved or seemingly unwilling to interact" (Isabella & Belsky, 1991, p. 975). Finally, in Miyake et al.'s (1985) investigation, at 7½ months, mothers of ambivalent infants were significantly more likely than mothers of secure infants to interfere by "interrupting the baby's ongoing activity without a bid from the baby" (p. 292). Like the mothers of avoidant infants, thus, the mothers of ambivalent infants behave intrusively. But whereas the mothers of avoidant infants appear consistently controlling and overstimulating, the intrusiveness of the mothers of ambivalent infants takes a subtler form. These mothers appear to interfere selectively, in response to their infants' bids for exploration.

These studies portray mothers of insecure-ambivalent infants as both underresponsive to their infants' attachment signals and interfering with their infants' developing autonomy. Taken together, these parenting behaviors can be viewed as communicating the message that the infant should remain engaged with the parent: The infant's attachment signals must be amplified to be heard, and the infant's interest in exploring will not be recognized. This type of parenting behavior is expected to result in the infant developing internal working models of her parent as both unreliable and interfering and of herself as a person who will receive only intermittent care and whose attempts to explore autonomously will not succeed. These internal working models, in turn, inform a strategy whereby both the activation and output of the attachment behavioral system are maximized (Main, 1990). Amplifying attachment signals serves to draw the attention of the caregiver who otherwise may or may not be available and allows the infant to maintain as much contact with her parent as possible. The insecure-ambivalent strategy involves not only emphasizing attachment but also deemphasizing exploration. Diminished exploration keeps the infant's attention focused on the parent and prevents the infant from developing skills that will increase her independence and individuation.

PARENTING BEHAVIOR ASSOCIATED WITH INSECURE-DISORGANIZED ATTACHMENT

As we discussed earlier, there is a direct, positive correlation between family risk and insecure-disorganized attachment. Risk factors associated with the insecure-disorganized category include poverty and/or low socioeconomic status, documented child maltreatment, maternal psychopathology, and maternal prenatal alcohol consumption. There is also some evidence of an association between the severity of family risk and disorganized infants' forced classifications, with more severe and/or chronic problems going hand in hand with forced classifications of insecure (see Lyons-Ruth & Jacobvitz, 1999,

and Lyons-Ruth et al., 1991). Thus, parental risk can contribute not only to infants' developing a disorganized attachment but also to the pattern of attachment underlying the infant's disorganization.

Information about the particular parenting behaviors that underlie the association between parental risk status and a disorganized infant-parent attachment is just becoming available (see Lyons-Ruth & Jacobvitz, 1999, and van IJzendoorn et al., in press, for reviews). Main and Hesse (1990) argued that the infant's disorganization results from being frightened by the parent. They suggested further that a parent may frighten her infant via direct assaults, as in the case of a maltreating parent, or by being frightened herself, as in the case of a clinically depressed, anxious, or traumatized parent. Frightening and frightened behaviors are speculated to include unusual vocal patterns, speech content, and movements, such as looming at the infant or expressing extreme timidity in handling the infant (Main & Hesse, 1990). Preliminary evidence of associations between these types of behaviors and the insecure-disorganized pattern has come from two recent studies. In one study, home observations of mothers' frightening behaviors toward their 10- to 11-month-old infants discriminated disorganized infants from nondisorganized infants at 14 to 15 months. Mothers of disorganized infants received higher scores for frightening behaviors than mothers of nondisorganized infants (Schuengel, Bakermans-Kranenburg, & van IJzendoorn, in press). In a second investigation, frightening or frightened maternal behaviors not only discriminated disorganized from nondisorganized infants but also appeared to be part of a larger pattern of "disrupted affective communication" (Lyons-Ruth, Bronfman, & Parsons, in press).

The practices of parents of insecure-disorganized infants forecast bleak consequences with respect to these infants' internal working models and attachment strategies. In particular, these parenting behaviors are expected to result in the infant developing internal working models of her parent as a source of disorganization and/or hostility and of herself as a target of aggression and/or source of fear. As Main and Hesse (1990) have so poignantly noted, the disorganized infant is faced with an "irresolvable paradox wherein the haven of safety is at once the source of the alarm" (p. 180). This conflict, in turn, leaves the infant unable to create a coherent strategy with which to guarantee even a measure of parental protection. The disorganized infant, in fact, has been characterized by his *lack* of a coherent strategy (Main & Solomon, 1986).

SUMMARY

Since the Baltimore study, the many investigations addressing the associations between infant-parent interaction and the quality of the infant-parent attachment have both parallelled and extended Ainsworth and her colleagues' findings of the associations between maternal sensitivity in relation to both attachment and exploration and infant-mother attachment. This body of research has not only illustrated the sensitivity of the parents (principally mothers) of secure infants but also

delineated the *in*sensitivities of the parents (mothers) of insecure infants. The parenting behaviors associated with each pattern of attachment, moreover, have direct implications for the infants' developing working models and attachment-based strategies, especially vis-à-vis the attachment-exploration balance. The sensitive behaviors of parents of secure infants allow the infants to develop a strategy of using the parent as a secure base. The parents of insecure-avoidant infants appear harsh and controlling, resulting in their infants developing a strategy of minimizing attachment. Independent exploration is emphasized, although this exploration may be compromised and/or exact costs to truly healthy functioning. The parents of insecure-ambivalent infants appear both underresponsive and interfering, resulting in their infants developing a strategy of maximizing attachment. Independent exploration is minimized, and barring changes to the infant-parent relationship, the child's increasingly limited autonomy is likely to contribute to an increasing overdependence on the parent. Both the insecure-avoidant and insecure-ambivalent patterns, thus, reflect disruptions to the attachment-exploration balance: The avoidant pattern is imbalanced in the direction of exploration, and the ambivalent pattern is imbalanced in the direction of attachment. Both the avoidant and ambivalent patterns, however, allow the infant to maintain a measure of proximity to the parent and presumably to gain at least basic protection from the parent in the face of danger. Within the insecure-disorganized pattern, the infant cannot find a way to maintain proximity to the parent. Rather, the infant is left in a state of fear and confusion in which he can move neither toward nor away from the parent.

Parenting Behavior and Individual Differences in the Infant-Parent Attachment: Additional Perspectives

Whereas the studies of infant-parent interaction and infant-parent attachment have been enormously valuable in delineating the parenting behaviors associated with each of the four attachment patterns, it is also helpful to gain additional perspectives on—and perhaps even a broader view of—this body of research. In this section three additional perspectives are considered. One perspective comes from a recent meta-analysis of the "parenting antecedents" of infant-parent attachment. A second perspective comes from considering intervention studies of infant-parent attachment. Finally, fathering and the infant-father attachment is discussed. Examination of these three additional perspectives reveals additional evidence of an association between parental sensitivity and infant-parent attachment quality.

A META-ANALYSIS OF THE PARENTING ANTECEDENTS OF INFANT-PARENT ATTACHMENT

The meta-analysis of the association between parenting behavior and infant-parent attachment drew on data from 66 studies and included over 4,000 infant-mother pairs (De Wolff & van IJzendoorn, 1997). Each study included at least one assessment of the mother's behavior toward

her infant and of infant-mother attachment quality. In light of concerns about the validity of mother-sorted attachment Q-sets, studies based on these data were excluded.

Based on their examination of the relevant studies, De Wolff and van IJzendoorn (1997) created nine categories of maternal behavior to examine in relation to infant-parent attachment: (1) *sensitivity* and (2) *cooperation,* defined according to Ainsworth, et al. (1978); (3) *contiguity of response,* defined as the frequency of the mother's response to the infant's signals; (4) *synchrony,* defined as reciprocal and mutually rewarding interaction; (5) *mutuality,* defined as harmonious and mutually satisfying exchanges; (6) *support,* defined as the extent to which the mother is attentive and supportive; (7) *positive attitude,* defined as a balance of positive and negative emotions; (8) *stimulation,* defined as any maternal action directed toward the infant; and (9) *physical conctact,* including all constructs referring to quantity and quality of physical contact. Infant-parent attachment was examined along the secure-insecure dichotomy. After some collapsing across both maternal and attachment variables (e.g., in cases in which there were multiple assessments), each of the nine sets of maternal behavior was examined in relation to infant-parent attachment. Controls were built into the analysis to assess such factors as quality of the studies and the extent to which findings might be attributable to published versus unpublished data. The authors also examined key features of the studies' samples and designs such as the socioeconomic status of the participants, the extent to which the participants were in any way special (e.g., having mental or physical disabilities), the age of the child at each assessment, the type of attachment assessment, and the location of the assessment of maternal behavior. Of particular concern was the association between maternal sensitivity and infant-mother attachment.

The meta-analysis revealed significant associations between maternal behavior and infant-mother attachment for each of the nine sets of caregiving behavior. Effect sizes ranged from .09 for physical contact to .32 for mutuality. The mean effect size was .18. The effect size for the association between maternal sensitivity and infant-mother attachment was .22, considered to indicate a "moderately strong" association (De Wolff & van IJzendoorn, 1997). When examining only the 30 studies that used Ainsworth's original sensitivity scale, the effect size was .24. Applying a binomial effect size display (BESD) approach to this effect yields another view of the data. Specifically, the BESD describes an effect size in terms of the improvement rate that is attributable to the predictor variable. For the 30 studies using Ainsworth's sensitivity scale, the BESD indicates that infants with more sensitive mothers improve their chances of becoming securely attached from 38 to 62 percent. Infants whose mothers are less sensitive decrease their chances of becoming securely attached from 62 to 38 percent.

There was also some indication, for some of the caregiving behaviors, that aspects of the studies' samples and designs moderated the association between care-

giving and attachment quality. For example, for sensitivity, the older the child at the time of both (maternal and attachment) assessments, the stronger the effect. The effect size also increased as the time interval between these assessments decreased. Of particular interest is the finding that for the studies that used Ainsworth's scale to assess sensitivity, participants' socioeconomic status moderated the association between sensitivity and infant-mother attachment. The effect was significantly stronger in middle-class samples (r = .27) than lower-class samples (r = .15). Thus, maternal sensitivity appeared to have less of an influence on infant-mother attachment among infant-mother dyads of lower socioeconomic status than among infant-mother dyads of higher socioeconomic status. Additionally, for the domains of cooperation and positive attitude, participants' membership in a special group (i.e., being mentally or physically disabled) decreased the association between caregiving and attachment quality. There were no effects of the type of attachment assessment used, although most (86 percent) of the studies included used the standard Strange Situation procedure.

In summary, De Wolff and van IJzendoorn's meta-analysis indicates consistent, albeit low to moderate, associations between several aspects of mothers' caregiving and infant-mother attachment. Although the authors interpret their findings as indicating that "sensitivity cannot be considered to be the exclusive and most important factor in the development of attachment" (p. 585), we offer a somewhat different interpretation. First, we differ on the operationalization of sensitivity. De Wolff and van IJzendoorn distinguished maternal sensitivity from "other" aspects of caregiving such as cooperation, emotional support, and quality of physical contact. They interpreted associations between these types of behaviors and infant-parent attachment as detracting from the association between sensitivity and attachment. We view behaviors such as cooperation, emotional support, and quality of physical contact as *aspects* of maternal sensitivity/insensitivity (see also van den Boom, 1997). Therefore, we view associations between these behaviors and infant-mother attachment as buttressing the association between sensitivity and attachment. Secondly, De Wolff and van IJzendoorn did not test the differences between the effect sizes for the various parenting behaviors examined and cannot claim that other maternal behaviors are more strongly related to attachment than is sensitivity. Thus, we view the findings as emphasizing the contribution of sensitivity to the development of the infant-mother attachment. Although we agree that sensitivity is not the exclusive factor in the development of attachment, we suggest that it is premature to conclude that sensitivity is not the most important factor in the development of the infant-parent attachment.

INTERVENTION STUDIES OF INFANT-PARENT ATTACHMENT

Further evidence of an association between parenting behavior and infant-parent attachment has come from experimental intervention studies aiming to en-

hance maternal sensitivity and/or infant-mother attachment (e.g., Jacobson & Frye, 1990; van den Boom, 1994, 1995). Data from these studies on the associations between experimentally manipulated sensitivity and infant-parent attachment are especially valuable because they are less susceptible than nonexperimental findings to "third variable" explanations for the associations between maternal sensitivity and infant-parent attachment (the explanation, for example, that an infant's easy temperament accounts for both sensitive parental behavior and a secure infant-parent attachment). Particularly informative data have emerged from a Dutch study of low-income mothers and their temperamentally irritable infants (van den Boom, 1994). In this study, home visitors targeted maternal sensitivity by coaching mothers to recognize and respond to their infants' cues. Intervention group mothers were subsequently found to be significantly more sensitive and significantly more likely to have securely attached infants than control group mothers. A follow-up study indicated that these differences persisted into the children's preschool years (van den Boom, 1995). The findings from this sample of irritable infants are particularly compelling because they directly rebut the most frequently offered alternative explanation for the association between parental sensitivity and infant-parent attachment, that an infant's easy temperament accounts for both sensitive parenting and a secure infant-parent attachment.

In addition to van den Boom's compelling findings, it is also important to consider the results of a recent meta-analysis of 12 attachment-based intervention studies including almost 900 infant-mother pairs (van IJzendoorn, Juffer, & Duyvesteyn, 1995). This meta-analysis (which included van den Boom's 1994 data) indicated a significant medium to strong effect (d = .58) of these interventions on maternal sensitivity. The meta-analysis also revealed a weak (d = .17) although significant effect of these interventions on infant-mother attachment examined along the secure-insecure dichotomy. Taken together, these effects indicate that although intervening in maternal sensitivity can affect the infant-parent attachment, increasing sensitivity does not necessarily lead to a secure infant-parent attachment. These meta-analyses, thus, illuminate the importance of understanding the *limits* of the association between sensitivity and attachment and/or the constraints of the existing assessments of sensitivity and attachment quality.

FATHERING AND INFANT-FATHER ATTACHMENT

So far, our discussion of the associations between parenting and infant-parent attachment has been based almost exclusively on studies of mothers and their infants. Compared to the studies of mothers' parenting, there are both fewer and less consistent studies of fathering. Although fathers typically are less likely than mothers to be their children's principal caretakers, fathers generally do serve as an attachment figure to their child as well as to their child's mother (Bowlby, 1958; see also Parke, 1995). Understanding fathering and the infant's bond to his or her father, thus,

are important tasks, especially as mothers' labors become increasingly divided between child rearing and work outside of the home.

Some insight into fathering and the infant-father attachment has come from a recent meta-analysis of the association between parenting behavior and infant-father attachment (van IJzendoorn & De Wolff, 1997). This meta-analysis drew on data from eight studies and included 545 infant-father pairs. The meta-analysis revealed significant associations between paternal behavior and infant-father attachment, with estimated correlations between .13 and .20. At the same time, the association between fathering and infant-father attachment was found to be significantly weaker than the association between mothering and infant-mother attachment. As in the case of mothers, fathers' sensitive parenting predicted the quality of their infants' attachments. Yet the meta-analysis also suggests that factors other than sensitivity may shape the infant-father attachment and perhaps interact differently than in the infant-mother attachment. Preliminary support for this perspective has come from Cox et al.'s (1992) inquiry (discussed earlier) in which both mothers' and fathers' interactive behaviors were associated with infants' attachment security. Fathers' self-reported attitudes about the infant and about parenting added significantly to the prediction of infant-father attachment whereas, mothers' same self-reports did not.

Clearly, considerably more data on fathering and on the infant-father attachment are required. As these data accumulate, it will be especially interesting to examine the interactions among fathering, mothering, and the development of the infant's attachments. For example, fathering may influence mothering in a number of ways. The mother may model the father's parenting behavior and/or the mother may (consciously or unconsciously) act to challenge or compensate for the father's parenting behavior. The father's behavior toward the infant may also influence the ways in which the infant behaves toward the mother which, in turn, influences the mother's parenting behavior. Fathers' parenting behaviors, thus, may influence the quality of the infant-mother attachment. Similarly, mothers' parenting behaviors may influence the quality of the infant-father attachment. These dynamics may well be magnified in families in which an infant's parents behave quite differently (e.g., in cases in which one parent's behavior is principally sensitive and the other parent's behavior is principally insensitive).

SUMMARY

Beginning with Ainsworth's pioneering Baltimore study (Ainsworth et al., 1978) wherein individual differences in infant-parent attachment were first identified, many inquiries have addressed the associations between parenting behavior and the quality of the infant-parent attachment. This research has offered increasingly specific information on the links between parenting behaviors and the four categories of infant-parent attachment. Van IJzendoorn's meta-analytic work has not only provided evidence of the association between parenting behavior—especially sen-

sitivity/insensitivity—and attachment but also illustrated the parameters of this association. In particular, whereas the meta-analysis of parenting and attachment indicates robust evidence of a moderate association between maternal sensitivity and infant-mother attachment, by definition, the moderate association suggests that there is still considerable variance in infant-parent attachment that remains unexplained. Moreover, the evidence of such factors as socioeconomic status and special group membership (i.e., being mentally or physically disabled) moderating the association between sensitivity and attachment suggests that the influence of maternal sensitivity on infant-mother attachment may not be equally important for everyone (see also Belsky, 1997). Finally, fathering and the infant-father attachment are issues ripe for further inquiry. The quality of the infant-father attachment may even help explain variation in the association between maternal sensitivity and infant-mother attachment. We propose further that greater insight into the associations between parenting behavior and infant-parent attachment—indeed, greater insight into parenting on the whole—can come from considering attachment-related influences on parenting behavior, to which we now turn.

Attachment-Related Influences on Parenting Behavior

In the previous section of this chapter, the ways in which parenting behavior may influence infant-parent attachment were discussed. This section considers factors that influence parenting behavior. As several of the other chapters in this volume illustrate (see, e.g., Barnard & Kelley; Brooks-Gunn & McHale; Solomon & George), there are, of course, numerous factors that influence parenting. We focus on two sets of factors highlighted by attachment theory and research as key influences on parenting behavior: (1) the parent's "state of mind with respect to attachment" and (2) the parent's attachments. As will be discussed, whereas both sets of factors have been shown to contribute importantly to parenting behavior, the most insight may be gained by considering the ways in which these factors interact.

Attachment-Related Influences on Parenting Behavior: The Parent's State of Mind with Respect to Attachment

The development of the Adult Attachment Interview (AAI; George, Kaplan, & Main, 1985) initiated the systematic identification and investigation of individual differences in an adult's "state of mind with respect to attachment" (George et al., 1985). The Adult Attachment Interview is a one-hour, semistructured interview in which adults are asked to discuss early childhood experiences and the influences of these experiences on adult personality. Initially, the interviewee is asked to describe her early relationship with her parents, both generally and with specific memories to illustrate and support the generalities. Subsequent questions probe the subject's memories of

emotional upset, physical injury and illness, and separations and losses.

Although the AAI draws heavily on recollections of early attachment experiences, subsequent experiences—especially attachment relationships—are also expected to influence the individual's current state of mind. It is the ways in which the interviewee discusses her experiences that figure most importantly in the individual's classification into one of three groups that parallel the three principal infant attachment patterns: secure/autonomous, dismissing, or preoccupied. Each interviewee is also assigned scores on continuous scales measuring "probable experiences" with early attachment figures (e.g., loving, pressure to achieve, rejection) and "current state of mind" (e.g., coherent, idealizing, angry; see Bakermans-Kranenburg & van IJzendoorn, 1993, for evidence of reliability and validity).

As with the infant attachment classifications, adult attachment classifications are thought to reflect particular internal working models and conditional behavioral strategies (Main, 1990). Whereas infants' strategies operate to optimize protection from the parent, adults' strategies are thought to operate to preserve a particular state of mind (i.e., to preserve mental organization) with respect to attachment. Adults classified as secure appear to value attachment relationships and view them as influential. These adults are also notably objective about both negative and positive attachment relationships and experiences. The strategy of a secure adult, thus, is thought to involve a valuing of and openness about attachment. Individuals classified as dismissing devalue attachments and dismiss their influence. As with avoidant infants, the strategy of the dismissing adult is thought to involve minimizing both the activation and output of the attachment system. Adults classified as preoccupied appear overwhelmed by past attachment experiences. Their interviews are frequently long and confusing and may be characterized by abrupt vacillations between positive and negative evaluations. As with ambivalent infants, the strategy of the preoccupied adult is thought to involve maximizing the activation and output of the attachment system. It is these strategies that are expected to influence parenting behavior.

The adult's attachment-based strategies are expected to influence parenting behavior by contributing to the parent's attention to and interpretations of her infant's signals (Main, 1990). A secure parent is expected to be open to the full range of the infant's signals and respond in a way that establishes herself as a secure base from which her infant can explore. The strategies of insecure parents, however, dictate selective responsiveness to and/or misinterpretation of their infants' cues. The dismissing parent is expected to misinterpret and/or reject her infant's attachment behaviors. In so doing, the dismissing parent prevents the activation of painful memories of her own experiences of rejection (see Cassidy & Kobak, 1988). By definition, the preoccupied parent's self-involvement prevents her from responding sensitively to her infant's bids for both attachment and exploration. This particular pattern of insensitivity, moreover, serves not only to preserve

the preoccupied adult's fixation on her own attachment needs but also to escalate her infant's attachment behaviors (i.e., to maximize his or her focus on her; see also Cassidy & Berlin, 1994). Thus, parents' strategies are hypothesized to prescribe as well as to perpetuate both their parenting and their infants' attachment behaviors.

A burgeoning body of research has, in fact, illustrated striking associations between adults' attachment classifications and their parenting behavior (e.g., Cowan, Cohn, Cowan, & Pearson, 1996; Crowell & Feldman, 1991; Haft & Slade, 1989; see Hesse, 1999, for a review). Moreover, the data from the studies of adult attachment and parenting have recently been subjected to a meta-analysis examining approximately 400 dyads (van IJzendoorn, 1995). This meta-analysis indicated a strong association (combined effect [*d*] = .72) between adult attachment and parental responsiveness for both mothers and fathers.

Perhaps the most informative findings have emerged from a study illustrating not only the influence of adults' state of mind with respect to attachment on parenting behavior but also the importance of examining adult attachment in interaction with other attachment-related influences (Cohn, Cowan, Cowan, & Pearson, 1992). Specifically, this study included assessments of both fathers' and mothers' adult attachment classifications and parenting behaviors. Both parents' attachment classifications were found to go hand in hand with observations of more supportive parenting behaviors. The influence of the mother's state of mind with respect to attachment on her parenting behavior, however, also varied as a function of her husband's attachment security: Insecure women married to secure men received significantly higher parenting scores than insecure women married to insecure men.

Attachment-Related Influences on Parenting: The Parents' Attachments

Parents' attachments are proposed to contribute importantly to their own security and their ability to serve as a secure base (e.g., Belsky, 1984, 1996, 1999; Bowlby, 1953). Parents' attachments to their own parents and to their spouses are expected to be especially influential.

PARENTS' ATTACHMENTS TO THEIR PARENTS

Arguably the single most important set of attachments to influence parenting are those that parents have to their own parents. Understanding the influence of the parent's attachments to her parents on her parenting behavior, however, has been limited by the absence of prospective longitudinal studies. Some insight can be gained from studies using the AAI scales to illustrate links between parents' early relationships with their parents and their infants' attachments to them. For example, one study revealed a strong correlation between a mother's (AAI coder-rated) experience of rejection by her own mother and her infant's avoidance of her during the Strange Situation (Main & Goldwyn, 1984). In another study, mothers of secure infants were judged during pregnancy to have had more loving mothers than moth-

ers of avoidant infants: Notably, there were no differences associated with judgments of the parenting of these mothers' fathers (Fonagy, Steele, & Steele, 1991). Whereas neither of these studies included measures of parenting behavior per se, the existing research on the association between parenting behavior and infant-parent attachment (reviewed earlier) suggests that at least part of the variance in these infants' attachments was explained by their mothers' behavior toward them.

Perhaps the most intriguing information about the influence of parents' attachments to their parents on parenting has come from two recent studies examining the parents' early experiences with their parents in interaction with parents' current state of mind with respect to attachment. Both investigations focused on cases in which early experiences and current state of mind were discordant, and both demonstrated a greater influence on parenting of current state of mind than of the parent's early experiences of *being* parented, per se. In the first study, the researchers examined the parenting behavior of two subgroups of adults classified according to the AAI as secure. One "continuously secure" subgroup was coded as having supportive early attachments, and one "earned secure" subgroup was coded as having unsupportive early attachments (Pearson, Cohn, Cowan, & Cowan, 1994). Although the earned and continuously secure parents had different early attachment experiences, observational assessments of parenting indicated no differences in the ways that these parents behaved toward their preschool-age children. Additionally, the earned secure parents were observed to be warmer and provide more structure for their preschoolers than insecure parents.

Parallel findings emerged from another investigation of earned and continuous security in which mothers' positive parenting of toddlers was observed under varying degrees of daily parenting stress (Phelps, Belsky, & Crnic, 1998). Earned and continuously secure mothers demonstrated equally positive parenting. Moreover, under high (but not low) stress, both groups of secure mothers were more positive with their toddlers than mothers classified insecure. Thus, as Pearson et al.'s (1994) data also indicate, these findings illustrate that the quality of early attachments does not necessarily forecast later parenting and that the influence of adults' current attachment status can outweigh the influence of adults' early attachment experiences.

In addition to examining the influence of parents' *early* relationships with their parents on parenting, researchers have investigated the influence of parents' *contemporaneous* relationships with their parents. Several studies have provided preliminary evidence of concurrent links between supportive mother-grandmother relationships and a greater likelihood of a secure infant-mother attachment (Frodi et al., 1984; Levitt, Weber, & Clark, 1986; Spieker & Bensley, 1994). What is missing from these studies for our purposes, of course, are data on the extent to which the mother-grandmother relationship influenced the mother's parenting behavior. At the least, though, these studies suggest that

it would be fruitful for researchers to examine the influence of the parent's current bonds to her parents on her parenting behavior. Another contemporaneous attachment thought to influence parenting behavior, to which we now turn, is the parent's attachment to his or her spouse.

PARENTS' ATTACHMENTS TO THEIR SPOUSES

In his earliest writings, Bowlby (1953) discussed marital harmony as a key influence on parenting behavior: "By providing love and companionship [the husband] support[s] the mother emotionally and help[s] her maintain that harmonious contented mood in the atmosphere of which the infant thrives" (p. 13). Marital quality, thus, is expected to contribute importantly to the parent's own security and abilities to serve as a secure base (e.g., Belsky, 1984, 1996, 1999; Bowlby, 1953). Numerous studies have, in fact, revealed associations between marital quality and both mothers' and fathers' parenting behavior (e.g., Cox, Owen, Lewis, & Henderson, 1989; Cowan et al., 1996; Goldberg & Easterbrooks, 1984; Kerig, Cowan, & Cowan, 1993; see Wilson & Gottman, 1995, for a review). Looking across these studies, there is a hint that marital quality may have a stronger influence on fathering than on mothering (Belsky, 1990).

Especially provocative findings on the associations between marital quality and parenting come from a recent inquiry illustrating the importance of examining marital quality in interaction with adults' state of mind with respect to attachment. In this study, the effects of marital quality on infant-parent attachment were moderated by mothers' current working models of attachment. Mothers' self-reported marital quality correlated positively with children's security but only for mothers classified insecure according to the AAI (Das Eiden, Teti, & Corns, 1995). These findings are limited by both their lack of data on parenting per se and by their reliance on mother-sorted Q-set attachment data. Nonetheless, as Cohn et al.'s (1992) study also indicates, this study illustrates not only that it is critical to consider the interactions among attachment-related influences on parenting but also that mothers may be differentially susceptible to attachment-related influences on parenting. Specifically, for secure mothers, it may be that current state of mind drives marital quality and sensitive parenting, whereas for insecure mothers, current state of mind with respect to attachment is more malleable and open to the influence of the current marriage.

SUMMARY

The studies of the attachment-related influences on parenting portray a complex web. Parents' states of mind with respect to attachment influence parenting, as do early and later attachments. Understanding (1) the relations among early attachments, later attachments, and adult state of mind and (2) the relative influences of these three factors on parenting is an important task for attachment theorists and researchers. The interactions among these influences, moreover, can be different for different people.

Conclusion

This chapter discussed the contributions of attachment theory and research to understanding parenting. Beginning with Ainsworth's Baltimore study, the existing research has revealed extensive support for the notion that parents' responses to their infant's signals play a key role in shaping the infant's working models of attachment and attachment-based strategies. These existing investigations have emphasized the contribution of parental sensitivity to the development of the infant-parent attachment. Studies have linked parents' sensitivity in relation to both attachment and exploration to infant-parent attachment security and have also delineated the *in*sensitivities of the parents of insecure infants. The research to date has also illuminated pressing questions and next steps for attachment theorists and researchers studying parenting.

One pressing question concerns the magnitude of the association between parental sensitivity and infant-parent attachment, which has generally been shown to be moderate. Even as we interpret the research as emphasizing the contribution of parental sensitivity to the development of the infant-parent attachment, we acknowledge that there is considerable variance in infant-parent attachment that parental sensitivity does not explain, at least according to current methodologies. It may be that the existing measures of both attachment and sensitivity are simply not precise enough to capture the full extent of the association between sensitivity and attachment. Additionally, as De Wolff and van IJzendoorn's (1997) meta-analytic findings imply, the influence of parental sensitivity on infant-parent attachment may not be equally powerful for everyone (see also Belsky, 1997; Cowan, 1997). It is important that researchers explore the factors that may moderate the association between sensitivity and attachment. De Wolff and van IJzendoorn's (1997) findings suggested that maternal sensitivity had less of an influence on infant-mother attachment among infant-mother dyads of lower socioeconomic status than among infant-mother dyads of higher socioeconomic status. This implication of lower socioeconomic status reducing the *importance* of maternal sensitivity is especially interesting to consider in conjunction with both theory and research linking lower socioeconomic status to reduced parental sensitivity per se and/or to reduced rates of secure infant-parent attachments (see, e.g., McLoyd, 1990; NICHD Early Child Care Research Network, 1997). To the extent that social class and ethnicity overlap, however, these considerations also bring us, again, to stressing the need for researchers to examine the validity of existing measures, especially vis-à-vis the extent to which the significance of particular parenting behaviors may vary by race, ethnicity, and acculturation (see Berlin, Brooks-Gunn, Spiker, & Zaslow, 1995; Chao, 1994; Knight, Tein, Shell, & Roosa, 1992; McGuire & Earls, 1993). Another factor that may moderate the association between parental sensitivity and infant-parent attachment is the sensitivity of the other parent. Fathering, in particular, is considerably

less well understood than mothering and deserves further study both in its own right (although see the recent report of the Federal Interagency Forum on Child and Family Statistics, 1998, for recent progress in this area) and in the service of advancing the understanding of the interaction between fathering and mothering.

A second pressing question revealed by attachment theory and research on parenting concerns the interactions among attachment-related influences on parenting. Moreover, researchers addressing this question must bear in mind that in the same way that the influence of parental sensitivity on infant-parent attachment can be different for different people, the interactions among attachment-related influences on parenting are also likely to vary across individuals.

These pressing—if complex—questions only just begin to reflect the complexity of the "impossible profession" of parenting, a subject that merits further rigorous inquiry. To the extent that future studies can address these questions, they will advance the understanding of parenting on the whole.

References

Ainsworth, M. D. S. (1963). The development of infant-mother interaction among the Ganda. In B. M. Foss (Ed.), *Determinants of infant behavior: Vol. 2.* London: Methuen.

Ainsworth, M. D. S. (1984). Attachment. In N. S. Endler & J. M. Hunt (Eds.), *Personality and the behavioral disorders: Vol. 1* (pp. 559–602). New York: Wiley.

Ainsworth, M. D. S., Bell, S. M., & Stayton, D. J. (1971). Individual differences in Strange Situation behavior of one-year-olds. In H. R. Schaffer (Ed.), *The origins of human social relations* (pp. 17–57). London: Academic.

Ainsworth, M. D. S., Blehar, M. C., Waters, E., & Wall, S. (1978). *Patterns of attachment.* Hillsdale, NJ: Erlbaum.

Ainsworth, M. D. S., & Eichberg, C. G. (1991). Effects on infant-mother attachment of mother's unresolved loss of an attachment figure or other traumatic experience. In P. Marris, J. Stevenson-Hinde, & C. Parkes (Eds.), *Attachment across the life cycle.* New York: Routledge.

Ainsworth, M. D. S., & Wittig, B. (1969). Attachment and exploratory behavior of one-year-olds in a strange situation. In B. M. Foss (Ed.), *Determinants of infant behavior: Vol. 4* (pp. 111–136). London: Methuen.

Bakermans-Kranenburg, M. J., & van IJzendoorn, M. H. (1993). A psychometric study of the Adult Attachment Interview: Stability and discriminant validity. *Developmental Psychology, 29,* 870–880.

Bates, J., Maslin, C. A., & Frankel, K. A. (1985). Attachment security, mother-child interaction, and temperament as predictors of behavior-problem ratings at age three years. In I. Bretherton & E. Waters (Eds.), Growing points of attachment theory and research (pp. 167–193). *Monographs of the Society for Research in Child Development, 50*(1–2, Serial No. 209).

Belsky, J. (1984). The determinants of parenting: A process model. *Child Development, 55,* 83–96.

Belsky, J. (1990). Parental and nonparental care and children's socioemotional devel-

opment: A decade in review. *Journal of Marriage and the Family, 52,* 885–903.

Belsky, J. (1996). Parent, infant, and social-contextual antecedents of father-son attachment security. *Child Development, 32,* 905–913.

Belsky, J. (1997). Theory testing, effect-size evaluation and differential susceptibility to rearing influence: The case of mothering and attachment. *Child Development, 64,* 598–600.

Belsky, J. (1999). Interactional and contextual determinants of attachment security. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment theory and research* (pp. 249–264). New York: Guilford.

Belsky, J., & Cassidy, J. (1994). Attachment: Theory and evidence. In M. Rutter & D. Hay (Eds.), *Development through life: A handbook for clinicians* (pp. 373–402). London: Blackwell.

Belsky, J., & Isabella, R. A. (1988). Maternal, infant, and social-contextual determinants of attachment security. In J. Belsky & T. Nezworski (Eds.), *Clinical implications of attachment* (pp. 41–94). Hillsdale, NJ: Erlbaum.

Belsky, J., Rosenberger, K., & Crnic, K. (1995). The origins of attachment security: "Classical" and contextual determinants. In S. Goldberg, R. Muir, & J. Kerr (Eds.), *Attachment theory: Social, developmental, and clinical perspectives* (pp. 153–184). Hillsdale, NJ: Analytic Press.

Belsky, J., & Rovine, M. R. (1990). Q-sort security and first-year nonmaternal care. In K. McCartney (Ed.), *New directions in child development: No. 49. Child care and maternal employment* (pp. 7–22). San Francisco: Jossey-Bass.

Belsky, J., Rovine, M., & Taylor, D. G. (1984). The Pennsylvania Infant and Family Development Project, III: The origins of individual differences in infant-mother attachment: Maternal and infant contributions. *Child Development, 55,* 718–728.

Berlin, L. J., Brooks-Gunn, J., Spiker, D., & Zaslow, M. J. (1995). Examining observational measures of emotional support and cognitive stimulation in Black and White mothers of preschoolers. *Journal of Family Issues, 16,* 664–686.

Berlin, L. J., & Cassidy, J. (1999). Relations among relationships: Contributions of attachment theory and research. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment theory and research* (pp. 688–712). New York: Guilford.

Bornstein, M. H. (1995). Preface. In M. H. Bornstein (Ed.), *Handbook of parenting: Vol. 1. Children and parenting* (pp. xiii–xv). Mahwah, NJ: Erlbaum.

Bowlby, J. (1953). *Child care and the growth of love.* Baltimore, MD: Penguin Books.

Bowlby, J. (1958). The nature of the child's tie to his mother. *International Journal of Psychoanalysis, 39,* 350–373.

Bowlby, J. (1969/1982). *Attachment and loss: Vol. 1. Attachment.* New York: Basic Books.

Bowlby, J. (1973). *Attachment and loss: Vol. 2. Separation.* New York: Basic Books.

Bowlby, J. (1979). *The making and breaking of affectional bonds.* New York: Methuen.

Bowlby, J. (1980). *Attachment and loss: Vol. 3. Loss.* New York: Basic Books.

Campos, J. J., Barrett, K., Lamb, M. E., Goldsmith, H., & Stenberg, C. R. (1983). Socioemotional development. In M. M. Haith & J. J. Campos (Eds.), *Handbook of child psychology: Vol. 2. Infancy and developmental psychobiology* (pp. 783–915). New York: Wiley.

Carlson, V., Cicchetti, D., Barnett, D., & Braunwald, K. (1989). Disorganized/dis-

oriented attachment relationships in maltreated infants. *Developmental Psychology, 25,* 525–531.

Cassidy, J., & Berlin, L. J. (1994). The insecure-ambivalent pattern of attachment: Theory and research. *Child Development, 65,* 971–991.

Cassidy, J., & Kobak, R. R. (1988). Avoidance and its relation to other defensive processes. In J. Belsky & T. Nezworski (Eds.), *Clinical implications of attachment* (pp. 300–323). Hillsdale, NJ: Erlbaum.

Cassidy, J., & Shaver, P. R. (Eds.). (1999). *Handbook of attachment theory and research.* New York: Guilford.

Chao, R. K. (1994). Beyond parental control and authoritarian parenting style: Understanding Chinese parenting through the cultural notion of training. *Child Development, 65,* 1111–1119.

Cohn, D. A., Cowan, P. A., Cowan, C. P., & Pearson, J. (1992). Mothers' and fathers' working models of childhood attachment relationships, parenting styles, and child behavior. *Development and Psychopathology, 4,* 417–431.

Cowan, P. A. (1997). Beyond meta-analysis: A plea for a family systems view of attachment. *Child Development, 68,* 601–603.

Cowan, P. A., Cohn, D. A., Cowan, C. P., & Pearson, J. L. (1996). Parents' attachment histories and children's externalizing and internalizing behaviors: Exploring family systems models of linkages. *Journal of Consulting and Clinical Psychology, 64,* 53–63.

Cox, M. J., Owen, M. T., Henderson, V. K., & Margand, N. A. (1992). Prediction of infant-father and infant-mother attachment. *Developmental Psychology, 28,* 474–483.

Crockenberg, S. (1981). Infant irritability, mother responsiveness, and social support influences on the security of infant-mother attachment. *Child Development, 52,* 857–865.

Crowell, J. A., & Feldman, S. S. (1991). Mothers' working models of attachment relationships and mother and child behavior during separation and reunion. *Developmental Psychology, 27,* 597–605.

Das Eiden, R., Teti, D. M., & Corns, K. M. (1995). Maternal working models of attachment, marital adjustment, and the parent-child relationship. *Child Development, 66,* 1504–1518.

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.

Del Carmen, R., Pedersen, F., Huffman, L. C., & Bryan, Y. E. (1993). Dyadic distress management predicts subsequent security of attachment. *Infant Behavior and Development, 16,* 131–147.

Durrett, M., Otaki, M., & Richards, P. (1984). Attachment and the mother's perception of support from the father. *International Journal of Behavioral Development, 7,* 167–176.

Egeland, B., & Farber, E. (1984). Infant-mother attachment: Factors related to its development and changes over time. *Child Development, 55,* 753–771.

Escher-Graeub, D., & Grossmann, K. E. (1983). *Attachment security in the second year of life: The Regensburg cross-sectional study* (Research Report). University of Regensburg, Germany.

Federal Interagency Forum on Child and Family Statistics. (1998). *Nurturing fatherhood: Improving data and research on male fertility, family formation, and fatherhood* (Research Report). Washington, DC: Author.

Fonagy, P., Steele, H., & Steele, M. (1991). Maternal representations of attachment during pregnancy predict the organization of infant-mother attachment at one year of age. *Child Development, 62,* 891–905.

Frodi, A., Grolnick, W., & Bridges, L. (1985). Maternal correlates of stability and change in infant-mother attachment. *Infant Mental Health Journal, 6,* 60–67.

Frodi, A., Keller, B., Foye, H., Liptak, G., Bridges, L., Grolnick, W., Berko, J., McAnarney, E., & Lawrence, R. (1984). Determinants of attachment and mastery motivation in infants born to adolescent mothers. *Infant Mental Health Journal, 5,* 15–23.

George, C., Kaplan, N., & Main, M. (1985). *An adult attachment interview.* Unpublished manuscript.

Goldberg, W. A., & Easterbrooks, M. A. (1984). Role of marital quality in toddler development. *Developmental Psychology, 20,* 504–514.

Grossmann, K., Grossmann, K. E., Spangler, G., Suess, G., & Unzner, L. (1985). Maternal sensitivity and newborns' orientation responses as related to quality of attachment in northern Germany. In I. Bretherton & E. Waters (Eds.), Growing points of attachment theory and research (pp. 233–256). *Monographs of the Society for Research in Child Development, 50*(1–2, Serial No. 209).

Haft, W. L., & Slade, A. (1989). Affect attunement and maternal attachment: A pilot study. *Infant Mental Health Journal, 10,* 157–172.

Hesse, E. (1999). The Adult Attachment Interview: Historical and current perspectives. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment theory and research* (pp. 395–433). New York: Guilford.

Isabella, R. A. (1993). Origins of attachment: Maternal interactive behavior across the first year. *Child Development, 64,* 605–621.

Isabella, R. A. (1994). Origins of maternal role satisfaction and its influences upon maternal interactive behavior and infant-mother attachment. *Infant Behavior and Development, 17,* 381–387.

Isabella, R. A., & Belsky, J. (1985). Marital change during the transition to parenthood and security of infant-parent attachment. *Journal of Family Issues, 6,* 505–522.

Isabella, R. A., & Belsky, J. (1991). Interactional synchrony and the origins of infant-mother attachment: A replication study. *Child Development, 62,* 373–384.

Isabella, R. A., Belsky, J., & von Eye, A. (1989). Origins of infant-mother attachment: An examination of interactional synchrony during the infant's first year. *Developmental Psychology, 25,* 12–21.

Jacobson, J. L., & Frye, K. F. (1991). Effect of maternal social support on attachment: Experimental evidence. *Child Development, 62,* 572–582.

Kerig, P. K., Cowan, P. A., & Cowan, C. P. (1993). Marital quality and gender differences in parent-child interaction. *Developmental Psychology, 29,* 931–939.

Kiser, L., Bates, J., Maslin, C., & Bayles, K. (1986). Mother-infant play at six months as a predictor of attachment security at thirteen months. *Journal of the American Academy of Child and Adolescent Psychiatry, 25,* 168–175.

Knight, G. P., Tein, J. Y., Shell, R., & Roosa, M. (1992). The cross-ethnic equivalence of parenting and family interaction measures among Hispanic and Anglo-American families. *Child Development, 63,* 1392–1403.

Levitt, M. J., Weber, R. A., & Clark, M. C. (1986). Social network relationships as sources of maternal support and well-being. *Developmental Psychology, 22,* 310–316.

Lewis, M., & Feiring, C. (1989). Infant, mother, and mother-infant behavior and subsequent attachment. *Child Development, 60,* 831–837.

Lyons-Ruth, K., Bronfman, E., & Parsons, E. (in press). Maternal frightened, frightening, or atypical behavior and disorganized infant attachment patterns. In J. Vondra & D. Barnett (Eds.), Atypical patterns of infant attachment: Theory, Research, and Current Directions. *Monographs of the Society for Research in Child Development.*

Lyons-Ruth, K., Connell, D. B., Grunebaum, H., & Botein, S. (1990). Infants at social risk: Maternal depression and family support services as mediators of infant development and security of attachment. *Child Development, 61,* 85–98.

Lyons-Ruth, K., & Jacobvitz, D. (1999). Attachment disorganization: Unresolved loss, relational violence, and lapses in behavioral and attentional strategies. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment theory and research* (pp. 520–554). New York: Guilford.

Main, M. (1981). Avoidance in the service of attachment: A working paper. In K. Immelman, G. Barlow, M. Main, & L. Petrinovich (Eds.), *The Bielefeld interdisciplinary project* (pp. 651–693). New York: Cambridge University Press.

Main, M. (1990). Cross-cultural studies of attachment organization: Recent studies, changing methodologies, and the concept of conditional strategies. *Human Development, 33,* 48–61.

Main, M., & Goldwyn, R. (1984). Predicting rejection of her infant from mothers' representations of her own experience: Implications for the abused-abusing intergenerational cycle. *Child Abuse and Neglect, 8,* 203–217.

Main, M., & Hesse, E. (1990). Parents' unresolved traumatic experiences are related to infant disorganized attachment status: Is frightened and/or frightening parental behavior the linking mechanism? In M. T. Greenberg, D. Cicchetti, & M. Cummings (Eds.), *Attachment in the preschool years* (pp. 161–182). Chicago: University of Chicago Press.

Main, M., & Solomon, J. (1986). Discovery of a new, insecure-disorganized/disoriented attachment pattern. In T. B. Brazelton & M. Yogman (Eds.), *Affective development in infancy* (pp. 95–124). Norwood, NJ: Ablex.

Main, M., & Solomon, J. (1990). Procedures for identifying infants as disorganized/disoriented during the Ainsworth Strange Situation. In M. T. Greenberg, D. Cicchetti, & M. Cummings (Eds.), *Attachment in the preschool years* (pp. 161–182). Chicago: University of Chicago Press.

Malatesta, C., Culver, C., Tesman, J., & Shepherd, B. (1989). The development of emotion expression during the first two years of life. *Monographs of the Society for Research in Child Development, 54*(1–2, Serial No. 219).

McGuire, J., & Earls, F. (1993). Exploring the reliability of measures of family relations, parental attitudes, and parent-child relations in a disadvantaged minority population. *Journal of Marriage and the Family, 55,* 1042–1046.

McLoyd, V. C. (1990). The impact of economic hardship on Black families and development. *Child Development, 61,* 311–346.

Miyake, K., Chen, S., & Campos, J. J. (1985). Infant temperament, mother's mode of interaction, and attachment in Japan: An interim report. In I. Bretherton & E. Waters (Eds.), Growing points of attachment theory and research (pp. 276–297). *Monographs of the Society for Research in Child Development, 50*(1–2, Serial No. 209).

Moran, G., Pederson, D. R., Pettit, P., & Krupka, A. (1992). Maternal sensitivity and infant-mother attachment in a developmentally delayed sample. *Infant Behavior and Development, 15,* 427–442.

Nakagawa, M., Lamb, M. E., & Miyake, K. (1992). Antecedents and correlates of the Strange Situation behavior of Japanese infants. *Journal of Cross-Cultural Psychology, 23,* 300–310.

NICHD Early Child Care Research Network. (1997). The effects of infant child care on infant-mother attachment security: Results of the NICHD study of early child care. *Child Development, 68,* 860–869.

O'Connor, M. J., Sigman, M., & Kasari, C. (1992). Attachment behaviors of infants exposed prenatally to alcohol: Mediating effects of infant affect and mother-infant interaction. *Development and Psychopathology, 4,* 243–256.

Park, K., & Waters, E. (1989). Security of attachment and preschool friendships. *Child Development, 60,* 1076–1081.

Parke, R. D. (1995). Fathers and families. In M. Bornstein (Ed.), *Handbook of parenting: Vol. 3. Status and social conditions of parenting* (pp. 27–63). Mahwah, NJ: Erlbaum.

Pearson, J., Cohn, D. A., Cowan, P. A., & Cowan, C. P. (1994). Earned- and continuous-security in adult attachment: Relation to depressive symptomology and parenting style. *Development and Psychopathology, 6,* 359–373.

Pederson, D. R., & Moran, G. (1996). Expressions of the attachment relationship outside of the Strange Situation. *Child Development, 67,* 915–927.

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.

Pennebaker, J., & Beall, S. (1986). Confronting a traumatic event: Toward an understanding of inhibition and disease. *Journal of Abnormal Psychology, 95,* 274–281.

Phelps, J. L., Belsky, J., & Crnic, K. (1998). Earned-security, daily stress, and parenting: A comparison of five alternative models. *Development and Psychopathology, 10,* 21–38.

Schenider-Rosen, K., & Rothbaum, F. (1993). Quality of parental caregiving and security of attachment. *Developmental Psychology, 29,* 358–367.

Schuengel, C., Bakermans-Kranenburg, M. J., & van IJzendoorn, M. H. (in press). Attachment and loss: Frightening maternal behavior linking unresolved loss and disorganized infant attachment. *Journal of Consulting and Clinical Psychology.*

Seifer, R., Schiller, M., Sameroff, A., Resnick, S., & Riordan, K. (1996). Attachment, maternal sensitivity, and infant temperament during the first year. *Developmental Psychology, 32,* 12–25.

Smith, P. B., & Pederson, D. R. (1988). Maternal sensitivity and patterns of infant-mother attachment. *Child Development, 59,* 1097–1101.

Spangler, G., & Grossmann, K. E. (1993). Biobehavioral organization in securely and insecurely attached infants. *Child Development, 64,* 1439–1450.

Spieker, S. J., & Bensley, L. (1994). Roles of living arrangements and grandmother social support in adolescent mothering and infant attachment. *Developmental Psychology, 30,* 102–111.

Steele, H., Steele, M., & Fonagy, P. (1996). Associations among attachment classifications of mothers, fathers, and their infants. *Child Development, 67,* 541–555.

Susman-Stillman, A., Kalkoske, M., Egeland, B., & Waldman, I. (1996). Infant temperament and maternal sensitivity as predictors of attachment security. *Infant Behavior and Development, 19,* 33–47.

Teti, D. M., & Ablard, K. (1989). Security of attachment and infant-sibling relationships. *Child Development, 60,* 1519–1528.

Teti, D. M., Gelfand, D. M., Messinger, D. S., & Isabella, R. (1995). Maternal depression and the quality of early attachment: An examination of infants, preschoolers, and their mothers. *Developmental Psychology, 31,* 364–376.

Thompson, R. A. (1999). Early attachment and later development. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment theory and research* (pp. 265–286). New York: Guilford.

van den Boom, D. (1994). The influence of temperament and mothering on attachment and exploration: An experimental manipulation of sensitive responsiveness among lower-class mothers with irritable infants. *Child Development, 65,* 1457–1477.

van den Boom, D. (1995). Do first-year intervention effects endure? Follow-up during toddlerhood of a sample of Dutch irritable infants. *Child Development, 66,* 1798–1816.

van den Boom, D. C. (1997). Sensitivity and attachment: Next steps for developmentalists. *Child Development, 64,* 592–594.

van IJzendoorn, M. H. (1995). Adult attachment representations, parental responsiveness, and infant attachment: A meta-analysis on the predictive validity of the Adult Attachment Interview. *Psychological Bulletin, 117,* 387–403.

van IJzendoorn, M. H., & De Wolff (1997). In search of the absent father—Meta-analysis of infant-father attachment: A rejoinder to our discussants. *Child Development, 68,* 604–609.

van IJzendoorn, M. H., Juffer, F., & Duyvesteyn, M. G. C. (1995). Breaking the intergenerational cycle of insecure attachment: A review of the effects of attachment-based interventions on maternal sensitivity and infant security. *Journal of Child Psychology and Psychiatry, 36,* 225–248.

van IJzendoorn, M. H., & Kroonenberg, P. M. (1988). Cross-cultural patterns of attachment: A meta-analysis of the Strange Situation. *Child Development, 59,* 147–156.

van IJzendoorn, M. H., Vereijken, C., & Riksen-Walraven, M. (in press). Is the Attachment Q-sort a valid measure of attachment security in young children? In B. E. Vaughn & E. Waters (Eds.), *Patterns of secure-base behavior: Q-sort perspectives on attachment and caregiving.* Mahwah, NJ: Erlbaum.

Vereijken, C., Riksen-Walraven, M., & Kondo-Ikemura, K. (1997). Maternal sensitivity and infant attachment security in Japan: A longitudinal study. *International Journal of Behavioral Development, 21,* 35–49.

Vondra, J. I., Shaw, D. S., & Kevenides, M. C. (1995). Predicting infant attachment classification from multiple, contemporaneous measures of maternal care. *Infant Behavior and Development, 18,* 415–425.

Waters, E., & Deane, K. E. (1985). Defining and assessing individual differences in attachment relationships: Q-methodology and the organization of behavior in infancy and early childhood. In I. Bretherton & E. Waters (Eds.), Growing points of attachment theory and research (pp. 41–65). *Monographs of the Society for Research in Child Development, 50*(1–2, Serial No. 209).

Waters, E., Vaughn, B. E., Posada, G., & Kondo-Ikemura, K. (Eds.). (1995). Caregiving, cultural, and cognitive perspectives on secure-base behavior and working models: New growing points of attachment theory and research. *Monographs of the Society for Research in Child Development, 60*(2–3, Serial No. 244).

Wilson, B. J., & Gottman, J. M. (1995). Marital interaction and parenting. In M. H. Bornstein (Ed.), *Handbook of parenting: Vol. 4. Applied issues in parenting* (pp. 33–55). Mahwah, NJ: Erlbaum.