

# Infant–Mother Attachment

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Bowlby's (1969) ethological–evolutionary attachment theory implies that it is an essential part of the ground plan of the human species—as well as that of many other species—for an infant to become attached to a mother figure. This figure need not be the natural mother but can be anyone who plays the role of principal caregiver. This ground plan is fulfilled, except under extraordinary circumstances when the baby experiences too little interaction with any one caregiver to support the formation of an attachment. The literature on maternal deprivation describes some of these circumstances, but it cannot be reviewed here, except to note that research has not yet specified an acceptable minimum amount of interaction required for attachment formation.

However, there have been substantial recent advances in the areas of individual differences in the way attachment behavior becomes organized, differential experiences associated with the various attachment patterns, and the value of such patterns in forecasting subsequent development. These advances have been much aided by a standardized laboratory situation that was devised to supplement a naturalistic, longitudinal investigation of the development of infant–mother attachment in the first year of life. This *strange situation*, as we entitled it, has proved to be an excellent basis for the assessment of such attachment in 1-year-olds (Ainsworth, Blehar, Waters, & Wall, 1978).

The assessment procedure consists of classification according to the pattern of behavior shown in the strange situation, particularly in the episodes of reunion after separation. Eight patterns were identified, but I shall deal here only with the three main groups into which they fell—Groups A, B, and C. To summarize, Group B babies use their mothers as a secure base from which to explore in the preseparation episodes; their attachment behavior is greatly intensified by the separation episodes so that exploration diminishes and distress is likely; and in the reunion episodes they seek contact with, proximity to, or at least interaction

with their mothers. Group C babies tend to show some signs of anxiety even in the preseparation episodes; they are intensely distressed by separation; and in the reunion episodes they are ambivalent with the mother, seeking close contact with her and yet resisting contact or interaction. Group A babies, in sharp contrast, rarely cry in the separation episodes and, in the reunion episodes, avoid the mother, either mingling proximity-seeking and avoidant behaviors or ignoring her altogether.

## COMPARISON OF STRANGE-SITUATION BEHAVIOR AND BEHAVIOR ELSEWHERE

Groups A, B, and C in our longitudinal sample were compared in regard to their behavior at home during the first year. Stayton and Ainsworth (1973) had identified a security–anxiety dimension in a factor analysis of fourth-quarter infant behavior. Group B infants were identified as securely attached because they significantly more often displayed behaviors characteristic of the secure pole of this dimension, whereas both of the other groups were identified as anxious because their behaviors were characteristic of the anxious pole. A second dimension was clearly related to close bodily contact, and this was important in distinguishing Group A babies from those in the other two groups, in that Group A babies behaved less positively to being held and yet more negatively to being put down. The groups were also distinguished by two behaviors not included in the factor analysis—cooperativeness and anger. Group B babies were more cooperative and less angry than either A or C babies; Group A babies were even more angry than those in Group C. Clearly, something went awry in the physical-contact interaction Group A babies had with their mothers, and as I explain below, I believe it is this that makes them especially prone to anger.

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Ainsworth et al. (1978) reviewed findings of other investigators who had compared A-B-C groups of 1-year-olds in terms of their behavior elsewhere. Their findings regarding socioemotional behavior support the summary just cited, and in addition three investigations using cognitive measures found an advantage in favor of the securely attached.

#### COMPARISON OF INFANT STRANGE-SITUATION BEHAVIOR WITH MATERNAL HOME BEHAVIOR

Mothers of the securely attached (Group B) babies were, throughout the first year, more sensitively responsive to infant signals than were the mothers of the two anxiously attached groups, in terms of a variety of measures spanning all of the most common contexts for mother-infant interaction (Ainsworth et al., 1978). Such responsiveness, I suggest, enables an infant to form expectations, primitive at first, that moderate his or her responses to events, both internal and environmental. Gradually, such an infant constructs an inner representation—or “working model” (Bowlby, 1969)—of his or her mother as generally accessible and responsive to him or her. Therein lies his or her security. In contrast, babies whose mothers have disregarded their signals, or have responded to them belatedly or in a grossly inappropriate fashion, have no basis for believing the mother to be accessible and responsive; consequently they are anxious, not knowing what to expect of her.

In regard to interaction in close bodily contact, the most striking finding is that the mothers of avoidant (Group A) babies all evinced a deep-seated aversion to it, whereas none of the other mothers did. In addition they were more rejecting, more often angry, and yet more restricted in the expression of affect than were Group B or C mothers. Main (e.g., in press) and Ainsworth et al. (1978) have presented a theoretical account of the dynamics of interaction of avoidant babies and their rejecting mothers. This emphasizes the acute approach-avoidance conflict experienced by these infants when their attachment behavior is activated at high intensity—a conflict stemming from painful rebuff consequent upon seeking close bodily contact. Avoidance is viewed as a defensive maneuver, lessening the anxiety and anger experienced in the conflict situation and enabling the baby nevertheless to remain within a tolerable range of proximity to the mother.

Findings and interpretations such as these raise

the issue of direction of effects. To what extent is the pattern of attachment of a baby attributable to the mother's behavior throughout the first year, and to what extent is it attributable to built-in differences in potential and temperament? I have considered this problem elsewhere (Ainsworth, 1979) and have concluded that in our sample of normal babies there is a strong case to be made for differences in attachment quality being attributable to maternal behavior. Two studies, however (Connell, 1976; Waters, Vaughn, & Egeland, in press), have suggested that Group C babies may as newborns be constitutionally “difficult.” Particularly if the mother's personality or life situation makes it hard for her to be sensitively responsive to infant cues, such a baby seems indeed likely to form an attachment relationship of anxious quality.

#### *Contexts of Mother-Infant Interaction*

Of the various contexts in which mother-infant interaction commonly takes place, the face-to-face situation has been the focus of most recent research. By many (e.g., Walters & Parke, 1965), interaction mediated by distance receptors and behaviors has been judged especially important in the establishment of human relationships. Microanalytic studies, based on frame-by-frame analysis of film records, show clearly that maternal sensitivity to infant behavioral cues is essential for successful pacing of face-to-face interaction (e.g., Brazelton, Koslowski, & Main, 1974; Stern, 1974). Telling evidence of the role of vision, both in the infant's development of attachment to the mother and in the mother's responsiveness to the infant, comes from Fraiberg's (1977) longitudinal study of blind infants.

So persuasive have been the studies of interaction involving distance receptors that interaction involving close bodily contact has been largely ignored. The evolutionary perspective of attachment theory attributes focal importance to bodily contact. Other primate species rely on the maintenance of close mother-infant contact as crucial for infant survival. Societies of hunter-gatherers, living much as the earliest humans did, are conspicuous for very much more mother-infant contact than are western societies (e.g., Konner, 1976). Blurton Jones (1972) presented evidence suggesting that humans evolved as a species in which infants are carried by the mother and are fed at frequent intervals, rather than as a species in

which infants are left for long periods, are cached in a safe place, and are fed but infrequently. Bowlby (1969) pointed out that when attachment behavior is intensely activated it is close bodily contact that is specifically required. Indeed, Bell and Ainsworth (1972) found that even with the white, middle-class mothers of their sample, the most frequent and the most effective response to an infant's crying throughout the first year was to pick up the baby. A recent analysis of our longitudinal findings (Blehar, Ainsworth, & Main, Note 1) suggests that mother-infant interaction relevant to close bodily contact is at least as important a context of interaction as face-to-face is, perhaps especially in the first few months of life. Within the limits represented by our sample, however, we found that it was *how* the mother holds her baby rather than *how much* she holds him or her that affects the way in which attachment develops.

In recent years the feeding situation has been neglected as a context for mother-infant interaction, except insofar as it is viewed as a setting for purely social, face-to-face interaction. Earlier, mother's gratification or frustration of infant interest to both psychoanalytically oriented and social-learning research, on the assumption that a mother's gratification or frustration of infant instinctual drives, or her role as a secondary reinforcer, determined the nature of the baby's tie to her. Such research yielded no evidence that methods of feeding significantly affected the course of infant development, although these negative findings seem almost certainly to reflect methodological deficiencies (Caldwell, 1964). In contrast, we have found that sensitive maternal responsiveness to infant signals relevant to feeding is closely related to the security or anxiety of attachment that eventually develops (Ainsworth & Bell, 1969). Indeed, this analysis seemed to redefine the meaning of "demand" feeding—letting infant behavioral cues determine not only when feeding is begun but also when it is terminated, how the pacing of feeding proceeds, and how new foods are introduced.

Our findings do not permit us to attribute overriding importance to any one context of mother-infant interaction. Whether the context is feeding, close bodily contact, face-to-face interaction, or indeed the situation defined by the infant's crying, mother-infant interaction provides the baby with opportunity to build up expectations of the mother and, eventually, a working model of her as more

or less accessible and responsive. Indeed, our findings suggest that a mother who is sensitively responsive to signals in one context tends also to be responsive to signals in other contexts.

### *Practical Implications for Intervention*

What I have so far summarized about research findings pertaining both to contexts of interaction and to qualitative differences in infant-mother attachment has implications for parenting education, for intervention by professionals to help a mother to achieve better interaction with her baby, and for the practices of substitute caregivers. I cannot go into detail here—and indeed such detail would need to be based on much fuller reports of the relevant research than I am able to include here. Among the intervention programs with which I am familiar, some parent-child development centers have reported success in the application of our research findings in improving and sustaining the rate of development of very young children through improving the quality of mother-infant interaction (e.g., Andrews, Blumenthal, Bache, & Wiener, Note 2). Furthermore, the expert clinical interventions of Fraiberg and her associates with families at risk have focused on increasing maternal responsiveness to infant behavioral cues (e.g., Shapiro, Fraiberg, & Adelson, 1976). It may be that such intervention, although obviously expensive, provides the most effective mode of helping dyads in which the difficulty stems from deep-seated difficulties in the mother's personality, such as the aversion to bodily contact characteristic of our Group A mothers.

### *Using the Mother as a Secure Base From Which to Explore*

Attachment theory conceives of the behavioral system serving attachment as only one of several important systems, each with its own activators, terminators, predictable outcomes, and functions. During the prolonged period of human infancy, when the protective function of attachment is especially important, its interplay with exploratory behavior is noteworthy. The function of exploration is learning about the environment—which is particularly important in a species possessing much potential for adaptation to a wide range of environments. Attachment and exploration support each other. When attachment behavior is intensely activated, a baby tends to seek proximity/

contact rather than exploring; when attachment behavior is at low intensity a baby is free to respond to the pull of novelty. The presence of an attachment figure, particularly one who is believed to be accessible and responsive, leaves the baby open to stimulation that may activate exploration.

Nevertheless, it is often believed that somehow attachment may interfere with the development of independence. Our studies provide no support for such a belief. For example, Blehar et al. (Note 1) found that babies who respond positively to close bodily contact with their mothers also tend to respond positively to being put down again and to move off into independent exploratory play. Fostering the growth of secure attachment facilitates rather than hampers the growth of healthy self-reliance (Bowlby, 1973).

### *Response to Separation From Attachment Figures*

Schaffer (1971) suggested that the crucial criterion for whether a baby has become attached to a specific figure is that he or she does not consider this figure interchangeable with any other figure. Thus, for an infant to protest the mother's departure or continued absence is a dependable criterion for attachment (Schaffer & Callender, 1959). This does not imply that protest is an invariable response to separation from an attachment figure under all circumstances; the context of the separation influences the likelihood and intensity of protest. Thus there is ample evidence, which cannot be cited here, that protest is unlikely to occur, at least initially, in the case of voluntary separations, when the infant willingly leaves the mother in order to explore elsewhere. Protest is less likely to occur if the baby is left with another attachment figure than if he or she is left with an unfamiliar person or alone. Being left in an unfamiliar environment is more distressing than comparable separations in the familiar environment of the home—in which many infants are able to build up expectations that reassure them of mother's accessibility and responsiveness even though she may be absent. Changes attributable to developmental processes affect separation protest in complex ways. Further research will undoubtedly be able to account for these shifts in terms of progressive cognitive achievements.

Major separations of days, months, or even years must be distinguished from the very brief separations, lasting only minutes, that have been

studied most intensively both in the laboratory and at home. Securely attached infants may be able to tolerate very brief separations with equanimity, yet they are likely to be distressed in major separations, especially when cared for by unfamiliar persons in unfamiliar environments. Even so, Robertson and Robertson (1971) showed that sensitive substitute parenting can do much to mute separation distress and avert the more serious consequences of major separations.

Despite a steady increase in our understanding of the complexities of response to and effects of separation from attachment figures in infancy and early childhood, it is difficult to suggest clear-cut guidelines for parents and others responsible for infant and child care. So much depends on the circumstances under which separation takes place, on the degree to which the separation environment can substitute satisfactorily for home and parents, on the child's stage of development and previous experience, and on the nature of his or her relationship with attachment figures. No wonder that the issue of the separations implicit in day care is controversial. Further research is clearly needed. Meanwhile, it would seem wise for parents—if they have a choice—to move cautiously rather than plunging into substitute-care arrangements with a blithe assumption that all is bound to go well.

### *Other Attachment Figures*

Many have interpreted Bowlby's attachment theory as claiming that an infant can become attached to only one person—the mother. This is a mistaken interpretation. There are, however, three implications of attachment theory relevant to the issue of "multiple" attachments. First, as reported by Ainsworth (1967) and Schaffer and Emerson (1964), infants are highly selective in their choices of attachment figures from among the various persons familiar to them. No infant has been observed to have many attachment figures. Second, not all social relationships may be identified as attachments. Harlow (1971) distinguished between the infant-mother and peer-peer affectional systems, although under certain circumstances peers may become attachment figures in the absence of anyone more appropriate (see, e.g., Freud & Dann, 1951; Harlow, 1963). Third, the fact that a baby may have several attachment figures does not imply that they are all equally important. Bowlby (1969) suggested that

they are not—that there is a principal attachment figure, usually the principal caregiver, and one or more secondary figures. Thus a hierarchy is implied. A baby may both enjoy and derive security from all of his or her attachment figures but, under certain circumstances (e.g., illness, fatigue, stress), is likely to show a clear preference among them.

In recent years there has been a surge of interest in the father as an attachment figure, as reported elsewhere in this issue. Relatively lacking is research into attachments to caregivers other than parents. Do babies become attached to their regular baby-sitters or to caregivers in day-care centers? Studies by Fleener (1973), Farran and Ramey (1977), and Ricciuti (1974) have suggested that they may but that the preference is nevertheless for the mother figure. Fox (1977) compared the mother and the *metapelet* as providers of security to kibbutz-reared infants in a strange situation, but surely much more research is needed into the behavior of infants and young children toward caregivers as attachment figures in the substitute-care environment.

### *Consequences of Attachment*

A number of investigators, including Main (1973, Note 3), Matas, Arend, and Sroufe (1978), and Waters, Wittman, and Sroufe (in press), having assessed the quality of 1-year-olds' attachment, have followed the children through to ascertain whether this assessment bears a significant relationship to later behavioral measures in the second, third, or even sixth year of life. We (Ainsworth et al., 1978) have reviewed these investigations in some detail; only a brief summary can be given here.

In comparison with anxiously attached infants, those who are securely attached as 1-year-olds are later more cooperative with and affectively more positive as well as less aggressive and/or avoidant toward their mothers and other less familiar adults. Later on, they emerge as more competent and more sympathetic in interaction with peers. In free-play situations they have longer bouts of exploration and display more intense exploratory interest, and in problem-solving situations they are more enthusiastic, more persistent, and better able to elicit and accept their mothers' help. They are more curious, more self-directed, more ego-resilient—and they usually tend to achieve better scores on both developmental tests and measures of language development. Some studies also reported

differences between the two groups of anxiously attached infants, with the avoidant ones (Group A) continuing to be more aggressive, noncompliant, and avoidant, and the ambivalent ones (Group C) emerging as more easily frustrated, less persistent, and generally less competent.

### *Conclusion*

It is clear that the nature of an infant's attachment to his or her mother as a 1-year-old is related both to earlier interaction with the mother and to various aspects of later development. The implication is that the way in which the infant organizes his or her behavior toward the mother affects the way in which he or she organizes behavior toward other aspects of the environment, both animate and inanimate. This organization provides a core of continuity in development despite changes that come with developmental acquisitions, both cognitive and socioemotional.

This is not to insist that the organization of attachment is fixed in the first year of life and is insensitive to marked changes in maternal behavior or to relevant life events occurring later on. Nor is it implied that attachments to figures other than the mother are unimportant as supplementing or compensating for anxieties in infant-mother attachment—although too little is yet known about how various attachments relate together to influence the way in which infants organize their perception of and approach to the world. Despite the need for further research, however, the yield of findings to date provides relevant leads for policies, education in parenting, and intervention procedures intended to further the welfare of infants and young children.

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