

## Quality of Infants' Attachments to Professional Caregivers: Relation to Infant-Parent Attachment and Day-Care Characteristics

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GOOSSENS, FRITS A., AND VAN IJZENDOORN, MARINUS H. *Quality of Infants' Attachments to Professional Caregivers: Relation to Infant-Parent Attachment and Day-Care Characteristics*. CHILD DEVELOPMENT, 1990, 61, 832-837. 75 infants (mean age 15 months) were observed 3 times in the Strange Situation with their professional caregivers, mothers, and fathers. Sensitivity of these attachment figures to the infant's signals during free play, as well as a number of day-care characteristics, were assessed. Attachment classification distribution of infant-caregiver dyads did not differ significantly from infant-mother or infant-father attachment classification distributions. The quality of infant-caregiver attachment was independent of both infant-mother and infant-father attachments. About 10% of the infants had 3 insecure attachments. Professional caregivers observed with more than 1 infant did not have similar types of attachment classifications to all infants with whom they were observed. Infants who were securely attached to their professional caregivers spent more hours per week in day-care, and came from a middle-class background. Their caregivers appeared to be younger and more sensitive during free play than caregivers with whom the infants developed an insecure relationship.

In the past, a number of studies have shown that infants not only develop attachments to their mothers, but also to their fathers (Lamb, Thompson, Gardner, & Char-nov, 1985). The quality of attachment to the mother is usually independent of the quality of attachment to the father, and this independence is commonly ascribed to differences in interactional style provided by these attachment figures (Bretherton, 1985). Few studies have been carried out to assess quality of attachment to professional caregivers (Krentz, 1982; Sagi et al., 1985). Because infants' attachments to professional caregivers may influence the children's socioemotional adaptation at kindergarten age (Oppenheim, Sagi, & Lamb, 1988), discussions about the influence of day-care on quality of attachment and on later developmental outcome (Barglow, Vaughn, & Molitor, 1987; Belsky, 1988; Belsky & Rovine, 1988) should focus on the

infants' network of attachment relationships. Day-care infants may develop a network of attachment relationships both within and outside of the family (Smith & Noble, 1987), and infant-caregiver attachments may compensate for insecure infant-parent attachments (van IJzendoorn & Tavecchio, 1987).

The present study was designed to answer three questions concerning infant attachment to caregivers. First, does the distribution of infant-caregiver attachments resemble the distributions of infant-mother and infant-father attachments? Because parents seem to be more prominent in the lives of their infants than are professional caregivers, and because professional caregivers always care for three or more infants at the same time and thus cannot always be sensitively responsive to all infants, we expect to find more insecure infant-caregiver than in-

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fant-parent attachments. Second, to what extent is the security of the infant-caregiver attachment congruent with the security of the infant-parent attachment? Attachment classifications are assumed to be a reflection of the specific history of interaction within a given dyad (Ainsworth, Blehar, Waters, & Wall, 1978; Sroufe, 1985), and concordance of infant-caregiver and infant-parent attachment is hypothesized to be absent for that reason (Sagi et al., 1985). If this is the case, a secure infant-caregiver attachment may compensate for a completely insecure network of attachments within the family. Main, Kaplan, and Cassidy (1985) hypothesized that adults' internal working model of attachment determines the quality of the attachment relationship with their children. Therefore, a caregiver who interacts with two or more infants is expected to effect the same type of attachment relationship with those infants (Sagi et al., 1985). From the study of Ward, Vaughn, and Robb (1988), however, it can be derived that offspring of the same mother may either be similar or different with respect to attachment quality, depending on the qualities of mother-child interactions characterizing the dyads. Because a number of professional caregivers participated in this study with more than one infant, it is possible to explore the issue of (dis)similarity of attachment relationships between a caregiver and several different infants. Third, why do some infants develop insecure relationships to their professional caregivers, whereas other infants develop secure attachments? Characteristics of the day-care environment and of the family will be used to discriminate between insecure and secure infant-caregiver dyads. It is hypothesized that infants who are insecurely attached to their professional caregivers will more often be boys who appear to be more vulnerable to stressful circumstances (Brookhart & Hock, 1976; Goossens, 1986, 1987), will spend more time in day-care (Belsky & Rovine, 1988), and will have less sensitive caregivers with less experience caring for infants and with a greater number of infants in their care (Ainsworth et al., 1978).

### Method and Procedures

**Subjects.**—Seventy-five infants (37 females; 49 firstborn) along with their mothers, fathers, and professional caregivers ( $n = 53$ ), served as subjects in this study. The infants were all healthy and born at full term. None weighed less than 2,250 grams ( $M = 3,443.1$ ;  $SD = 476.7$ ) at birth. Infant's age at the initial time of measurement was 12.1 months ( $SD =$

.3), at the second time of measurement 14.7 months ( $SD = .4$ ), and at the final time of measurement 17.9 months ( $SD = .5$ ). All infants were the youngest in their family, and all but two (who entered the day-care center before their ninth month) had gone into day-care prior to their seventh month. They all knew their assigned caregiver for at least 3 months before their first assessment in the Strange Situation. They were recruited from 35 officially registered and subsidized non-commercial day-care centers in the vicinity of Leiden. Response percentage was 63. No differences were found between respondents and nonrespondents on a number of characteristics (marital status, professional level of both parents, family size, sex of children, and the number of working hours of either parent). All families were intact, dual-earner families, with each partner working no less than 15 hours per week.

Average age of the mothers was 31.8 years ( $SD = 3.1$ ), and fathers were on average 33.6 years old ( $SD = 3.5$ ). Professional caregivers were younger ( $M = 26.4$ ,  $SD = 4.6$ ). Socioeconomic status of families was assessed by summing up scores on 6-point rating scales (1 = low) for professional status (van Westerlaak, Kropman, & Collaris, 1975) and educational level (Meijnen, 1977) of both parents, divided by four. Mean socioeconomic status of the families was 4.9 ( $SD = 1$ ). That of the caregivers was 4.1 ( $SD = .4$ ). Mothers had been working 9.2 years ( $SD = 5.5$ ), fathers 10.2 years ( $SD = 5.1$ ), and caregivers 6 years ( $SD = 3$ ). The average working week for the mothers was 24.4 hours ( $SD = 7.2$ ), for the fathers 38.4 hours ( $SD = 3.7$ ), and for the caregivers 37.1 ( $SD = 3.8$ ).

**Overall procedure.**—Infants were observed three times, once each with their mother, father, and professional caregiver. The assessments took place 3 months apart when the infants were about 12, 15, and 18 months old, and the order in which the three adults were involved was systematically counterbalanced to control for order effects. The orders used were as follows: (1) mother-father-professional caregiver ( $n = 24$ , 11 females); (2) professional caregiver-mother-father ( $n = 25$ , 14 females); (3) father-professional caregiver-mother ( $n = 26$ , 12 females).

Immediately prior to each Strange Situation assessment, the sensitivity of the accompanying adult was assessed in a free-play situation. All observations took place in a laboratory room at the University of Leiden. The sessions were recorded on videotape.

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*Day-care characteristics.*—To assess day-care characteristics, professional caregivers completed a questionnaire concerning staff-infant ratio ( $M = .22$ ,  $SD = .04$ ), the number of years the caregivers worked in day-care, the number of hours they were employed at the center, and the nature of their vocational training and age (see above). Parents provided information on the number of hours per week their infants spent in day-care ( $M = 25.2$ ,  $SD = 7.3$ ).

*Free-play situation.*—The sensitivity of parents and caregivers was assessed during 15 min of free play with the infant. The adults were told that they were free to act as they pleased, and that they should make use of the available toys. They were informed that we were interested in seeing how infant and adult get on in a nonstressful play situation. The videotaped recordings were assessed by two independent judges using the 9-point sensitivity rating scale developed by Ainsworth, Bell, and Stayton (1974). Three scores were given, one for each period of 5 min. Final scores consisted of a summation of ratings over the episodes divided by three. Interrater reliabilities for sensitivity of the various caregivers ran from .77 (professional caregivers) to .81 (fathers) and .86 (mothers). Judges were unaware of later Strange Situation classifications.

*The Strange Situation.*—This procedure was employed in the way described by Ainsworth et al. (1978). It is a structured laboratory procedure in which the adult and infant experience two separations and two reunions in an unfamiliar setting. Infant responses to reunion with the caregiver were scored on 7-point interactive rating scales for proximity-seeking, contact-maintaining, proximity-avoiding, and contact-resisting behaviors. On the basis of these scores, infants were classified as secure (B, four subcategories), insecure-avoidant (A, two categories), insecure-resistant (C, two subcategories), or insecure-combined (A/C, no subcategories). The few infants classified as A/C, having shown avoidant as well as resistant behaviors, were combined with our smallest group of insecure infants, the C-type attached infants, whom they seemed to resemble most. The first author, who had been trained at Regensburg, scored all tapes. A second observer scored 25% of the tapes. Both observers were unaware of the sensitivity scores of the adult involved. Agreement at the level of main group classifications ranged from 93% to 100%; at the level of subgroups it ranged from 87% to 93%.

## Results

As a preliminary analysis, Fisher's exact tests were employed to determine whether there was any association between the attachment classifications and the sequences in which the infants had been observed. There were no order effects for any of the attachment classifications to any of the caregivers, nor were there any sex effects.

*Distributions.*—To test whether the distribution of infant-caregiver attachments (C and A/C combined) resembled the infant-mother and infant-father distributions, a test for multinomial distributions was carried out, in which the proportions found for the professional caregivers were taken as the expected values for either the mothers or the fathers. The distribution of infant-caregiver classifications did not differ significantly from that of the infant-mother classifications,  $\chi^2(2) = 3.50$ ,  $p = .17$ , from that of the infant-father classifications,  $\chi^2(2) = 5.23$ ,  $p = .07$ , or from that of the global distribution of 21% A, 65% B, and 14% C classifications (van IJzendoorn & Kroonenberg, 1988),  $\chi^2(2) = 2.45$ ,  $p = .29$ . Five infant-caregiver relationships were classified as A/C, whereas only one infant-mother and one infant-father relationship was classified as A/C. Comparison of insecure versus secure attachment distributions yielded essentially the same results.

*Attachment networks.*—In Table 1, each infant's attachment classification with the three adults is displayed. The classifications to mother and father were significantly related (Cohen's  $\kappa = .32$ ,  $p < .05$ ), albeit not strongly. Sixty-seven percent of the cases were classified in the same (A, B, C) attachment category. The classifications to caregiver and mother were not related (Cohen's  $\kappa = -.05$ , N.S.), nor were the classifications to caregiver and father (Cohen's  $\kappa = .13$ , N.S.). Moreover, the association between the infant's attachment classifications to both parents was significantly stronger than the concordance between infant-caregiver and either infant-mother or infant-father attachment classifications (parental concordance vs. mother-caregiver concordance:  $z = 3.80$ ,  $p < .05$ ; parental concordance vs. father-caregiver concordance:  $z = 1.84$ ,  $p < .05$ ; one-tailed tests). Using the Belsky and Rovine (1987) "temperamental" distinction in attachment classifications, the results were essentially the same. Of the 14 caregivers observed with two or more infants, in only one instance were both attachments secure; all others were combinations of secure and insecure classifications.

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TABLE 1

CLASSIFICATIONS OF INFANTS OBSERVED WITH PROFESSIONAL CAREGIVER, MOTHER, AND FATHER

OBSERVED WITH:	CAREGIVER			MOTHER		
	A	B	C+A/C	A	B	C+A/C
Mother:						
Avoidant (A) .....	5	9	2	...	...	...
Secure (B) .....	16	27	8	...	...	...
Resistant (C+A/C) .....	0	7	1	...	...	...
Father:						
Avoidant (A) .....	10	11	2	12	9	2
Secure (B) .....	9	30	9	4	38	6
Resistant (C+A/C) .....	2	2	0	0	4	0

When considering the network of attachment relationships, 21 (28%) of our infants had three B-type relationships, 32 (43%) infants had two B-type relationships, while another 15 (20%) had one B-type relationship, and 7 infants had no secure attachments. Of the 14 (19%) infants with no secure relationships at home, seven had developed a B-type relationship with their professional caregiver. In almost 10% of our cases, therefore, the professional caregiver was in a position to compensate for the insecure attachments between the children and the parents. Professional caregivers had higher sensitivity scores during free play than either mothers or fathers,  $t = 2.57$ ,  $p < .05$ , and  $t = 4.19$ ,  $p < .01$ , respectively; the difference in sensitivity during free play between mothers and fathers was not significant ( $t = 1.30$ , N.S.).

*Correlates of infant-caregiver attachment.*—To determine why some infants developed an insecure relationship to their professional caregiver while other infants developed a secure relationship, we carried out a discriminant analysis with the following predictors: sex of infant, socioeconomic status of the family (the first two were introduced at a higher inclusion level), family's attachment network (securely attached to both parents, insecurely attached to one of the parents, insecurely attached to both parents), number of hours per week in day-care, the caregiver-infant ratio at the center, age of caregivers, caregivers' years of experience in day-care, and caregivers' sensitivity during free play to the infant.

Infants who were securely attached to their professional caregiver spent more hours per week in day-care and were from a predominantly middle-class background. Their caregivers were somewhat younger and more sensitive to the infants' signals during free play as compared to caregivers with whom

the infants developed an insecure relationship (Wilks's lambda = .86,  $\chi^2[4] = 10.89$ ,  $p < .05$ ). Squared standardized canonical discriminant function coefficients were almost equal to Huberty's  $u$  (Huberty, 1984), indicating that each predictor contributed to the function when the other predictors had been controlled. The caregiver-infant ratio, network of attachment relationships within the family, sex of the infant, and caregivers' years of experience in day-care did not contribute significantly to the discriminant function.

### Discussion and Conclusion

Contrary to our expectations, professional caregivers did not have more insecure attachment relationships with the infants in their care than did parents. Although professional caregivers care for several infants at the same time, they appear to be able to compensate for their spending less time with each infant than do the parents. One explanation for this finding may be that there are not that many situations in which the caregiver is confronted with competing demands for her attention. This could be particularly the case when she does not have to look after many children (Smeets & Goossens, 1988). Another explanation is that professional caregivers give precedence to certain demands for their attention, on the basis of who most urgently needs it. Thus, they may be quicker in relieving distress (an urgent call for attention) but slower in admonishing an infant for "naughty behavior." Unequal division of attention toward infants, due to differences in the urgency of their attention-seeking behaviors, may also explain the diverging attachment relationships between the same professional caregiver and different infants (see De Ruyter, 1971). Still another possibility is that the Strange Situation, which has been validated for assessing infant-mother attachments, may

not adequately measure differences in the quality of infant-caregiver relationships. The conventional (A, B, C) classification system may fail to capture disorganized attachment patterns (Krentz, 1982; Main & Solomon, 1988) that may be especially prevalent in the infant-caregiver relationship.

Infant-caregiver attachments appear to be independent of infant-mother or infant-father attachments. This is as expected, since attachment theory assumes that infant-adult attachments reflect the quality of interactions between infants and the respective adults. Even when infants are involved in completely insecure family attachments, they may still effect a secure attachment relationship to their caregivers. Follow-up studies on the sequelae of different types of attachment network may show whether a secure relationship between infant and caregiver combined with insecure attachments at home predicts a better socioemotional adaptation than having no secure attachment relationships at all (Clarke-Stewart, 1989; Oppenheim et al., 1988). The significant though weak concordance between infant-mother and infant-father attachments may be explained by some similarity of maternal and paternal interactional styles. In dual-earner families, parents may develop more similar interactional styles than in traditional families because they tend to spend more time together interacting with their infants (Owen & Chase-Lansdale, in Lamb et al., 1985; Pedersen, Cain, Zaslow, & Anderson, 1982).

Although more time away from parents may increase the risk of an insecure relationship with the mother (Barglow et al., 1987; Belsky, 1988; Belsky & Rovine, 1988), more time in day-care appears to promote a secure relationship between infants and caregivers. Both infants and caregivers need time to adapt to each other and to learn how to decode each other's signals and behaviors. Given that they have sufficient time to interact with one another, they will have the opportunity to learn about each other. Further research into caregivers' selective sensitivity in day-care is clearly needed. A free-play situation may not be an adequate context for measuring sensitivity in the natural setting. Although caregivers with securely attached infants do not necessarily have less experience of working in day-care, they appear to be somewhat younger and may therefore be better able to cope with the exhausting requirements of their task. Infants with secure attachments to their caregivers appear to have parents from a solidly middle-class back-

ground. This may be due to the fact that educational values of state-subsidized centers (i.e., stimulation of cognitive development and promotion of well-being) are in accordance with those of their parents.

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