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Infant Day Care and Attachment Behaviors toward Mothers and Teachers

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FARRAN, DALE C., and RAMEY, CRAIG T. *Infant Day Care and Attachment Behaviors toward Mothers and Teachers*. CHILD DEVELOPMENT, 1977, 48, 1112–1116. The growing trend toward placing infants in group day care at very early ages may have serious effects on the development of the mother-child attachment bond. 23 black infant-day-care-reared children were observed in a situation designed to heighten attachment behaviors; both their mothers and an infant-day-care teacher were present. Children overwhelmingly preferred to be near and to interact with their mothers rather than their teachers, indicating that the attachment bond to the mother had indeed been formed. Moreover, they perceived their mothers as the help giver when faced with a mildly difficult problem.

Day-care placement involves separating the child for long periods from his mother. The effect of daily separations on the development of the attachment bond between mother and child must be addressed by infant-day-care practitioners and researchers. Specifically, does day-care placement in infancy affect the developing bond between mother and child so that the child forms a stronger, alternative bond to his day-care teacher? Does the child's behavior toward these two primary caregivers indicate a differential understanding of the roles they play in his life?

Evidence indicates that children do form various attachment bonds: to their fathers (Cohen & Campos 1974; Lewis, Weinraub & Ban, Note 1), to caregivers in a day-care situation (Ricciuti 1974), to their blankets (Passman & Weisberg 1975), and to relative strangers on short acquaintance (Fleener 1973). These attachment objects perform functions similar to the mother's; they serve to promote exploration in a novel environment, and the child seeks to be near them in times of stress.

The present investigation of day-care children explored the child's responsiveness

to two important attachment figures—his mother and his day-care teacher. A situation was designed to investigate the child's attachment behaviors toward each of the two people (with both present), and the same situation was used to assess his choice of a help giver when faced with a mildly difficult problem. Measures of proximity, time in contact, and initiations by the child were used as the primary indicators of attachment as they are considered more reliable and less age specific than measures of crying, smiling, and exploration in the mother's absence (Clarke-Stewart 1973; Cohen 1974; Cohen & Campos 1974; Feldman & Ingham 1975; Masters & Wellman 1974).

Method

Subjects.—Children in the study were 23 black infants and toddlers in daily attendance at a day-care center. All could locomote with ease. There were 11 males and 12 females, ranging in age from 9 to 31 months ($M = 19.5$ months; $SD = 7.3$ months).¹

Infants attending the center were selected from families of low socioeconomic status, determined by level of parental in-

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¹More detailed information on the sample is available from the authors.

come and education. Infants attended the center for approximately 6 hours per day, beginning in the second or third month of life. At 12–14 months, infants are moved from the “nursery” to the “toddler” program on a different floor of the building, where they join older children. Ten children were in the nursery program; 13 were in the toddler program. The staff-child ratio in the nursery is 1:3; in the toddler program, the ratio is 1:4. Children were not assigned to specific caretakers in either setting but had free access to all the teachers. (At the time of this study, there were a total of 13 children in the nursery and 14 in the toddler program.)

Procedure.—Children were observed in a room (3.2 m × 2.9 m) furnished with a carpet, three chairs, a wall-mounted television camera, a table lamp placed in the “blind” corner under the camera, and four toys placed in the center of the room. All sessions were videotaped.

Each child was observed for 14 min with his mother, teacher, and a stranger in the room. The stranger (a white male graduate student, unfamiliar to the children) sat directly across the room from where the child was initially placed by the experimenter; the child’s mother and the teacher sat on either side. Left-right positions of the mother and teacher were counterbalanced across subjects. (A schematic of the room is provided in fig. 1.)

Mother and teacher had been instructed not to gesture to or initiate picking up the child but were asked to respond to any overtures the child made to them. An attempt was made by the stranger and teacher to maintain conversation among the adults so that the situation would seem as natural as possible.

At the end of 12 min, the experimenter reentered the room with an attractive cookie which she showed to the child and then placed in a clear plastic “lock-top” box. The mother was instructed to open the box if the child became distressed but otherwise to let the child try alone for approximately 2 min. In all cases, the mother ended the session by opening the box for the child, either at her own initiative or at the experimenter’s instruction, and the cookie was given to the child.

The role of the teacher was played by two black female teachers from the day-care center, one from the nursery and one from the toddler program. Each was chosen because she was considered by her supervisor to have the best overall relationship with the children to be observed. Each teacher had been in her position with the center for more than 5 years prior to the study.

Data recording.—The child’s proximity to each of the three adults in the room was scored from the videotapes after the session by means of an acetate overlay placed on the monitor. This overlay divided the observation room into four quadrants: (1) the stranger side of the mother, (2) the open side of the mother, (3) the stranger side of the teacher, and (4) the open side of the teacher (see fig. 1).

Frequencies and durations of the following behaviors of the child were scored from videotapes in continuous recording: (1) the amount of time and frequency of visits in each of the four quadrants, (2) solitary play with toys, (3) extending toys—child gestures with or holds toy toward an adult, (4) sharing toys—child and adult are both in physical contact with toy, (5) physical contact with adults, (6) being held, (7) manipulating cookie box, (8) extending cookie box, and (9) sharing cookie box.

Interobserver reliability (assessed by percentage of agreement with a 2-sec criterion for onset) was established for each observational session and for each behavior. Agreement for both duration and frequency across all categories was 85% or better.

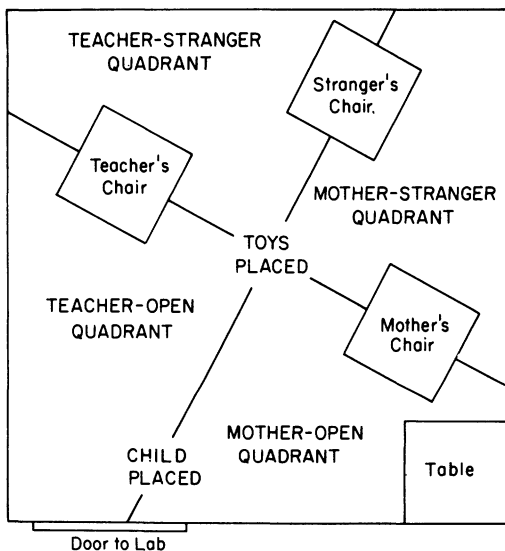


FIG. 1.—Schematic of observational room

Results

Effect of person on child's proximity behaviors.—On being placed in the room, children could move either to the mother-open or teacher-open quadrant; 17 of 23 children moved first to the mother's side of the room. This initial quadrant choice was significant by a test of proportions ($p < .01$). Children moved to the initial quadrant with an average latency of 10.8 sec. Table 1 provides a breakdown of the percentage of time spent in the four quadrants of the room.

A repeated measures multivariate analysis of variance (see McCall & Appelbaum 1973) revealed that children spent significantly more time in the mother-open quadrant than in all three other quadrants combined, $F(1,21) = 10.85$, $p < .003$. The children also stayed significantly longer on the open side of the room, $F(1,21) = 72.10$, $p < .001$, and in fact spent only 12% of the session on the side of the room near the stranger.

Comparing the halves of the room by mother's and teacher's presence, it is clear

TABLE 1
% TIME SPENT IN EACH QUADRANT
FOR 14-MIN OBSERVATION

Quadrant	Mean % Visitation	SD (%)
Mother-open.....	68.16	32.50
Teacher-open.....	19.63	27.26
Mother-stranger.....	6.77	11.02
Teacher-stranger.....	5.44	17.21

that a significantly greater percentage of time, 74.9%, was spent near the mother than near the teacher, $F(1,21) = 9.64$, $p < .005$.

Effect of person on child's behavior.—A repeated measures analysis of variance was performed on each interactive behavior, comparing (a) responses to mother and teacher and (b) responses to teacher and stranger. Children engaged in interactive behaviors significantly more with their mothers than with the teacher or stranger. Table 2 depicts the mean duration of time children spent in each interactive behavior with the three adults in the room. Children spent more time with their mothers than with their teachers extending and sharing toys; in physical contact and being held; and extending and sharing the cookie box, F 's (1,19) ≥ 4.80 , p 's $< .04$. There were no significant differences in their interactions with the teacher and stranger. These means are based on the total sample of 23 children. As the standard deviations make clear, not all children displayed each behavior. Table 2 includes the numbers of children who displayed each response.

During the cookie-box problem, 20 of the 23 children approached and manipulated the box. Of these, 15 indicated a need for help in opening it by extending the box or placing it in an adult's lap. Of these 15 children, all asked their mothers for help. No child extended the box or initiated sharing the box with the teacher or the stranger. (The sharing which did occur with teacher and stranger was at their initiation at the end of the session.)

Exploration of the room.—Seventeen children moved into two or more quadrants

TABLE 2
INTERACTIVE BEHAVIOR BY PERSON

Target	Extending Toy	Sharing Toy	Physical Contact	Held	Extending Cookie Box	Sharing Cookie Box
Mother:						
<i>M</i>	5.4[16]	85.3[16]	119.4[20]	156.5[9]	4.95[11]	14.5[19]
SD.....	7.1	134.1	142.3	288.2	9.5	16.0
Teacher:						
<i>M</i>	2.3[7]	14.4[6]	3.8[6]	8.0[2]	0.0[0]	0.04[1]
SD.....	6.3	36.8	8.7	33.6	0.0	0.91
Stranger:						
<i>M</i>	1.0[5]	3.4[4]	1.9[1]	0.0[0]	0.0[0]	0.26[2]
SD.....	2.3	11.5	5.7	0.0	0.0	0.91
Total:						
<i>M</i>	8.9[16]	104.8[16]	125.8[20]	163.4[9]	4.9[11]	14.7[19]
SD.....	12.7	151.7	138.5	286.3	9.5	15.9

NOTE.—All time given in number of seconds duration over 840 sec. Bracketed figures indicate number of children displaying the response.

during the session; 11 children visited three of the four quadrants in the room. Frequency of quadrant changes was significantly correlated with manipulating toys, $r = .47, p < .023$; with extending toys to adults, $r = .71, p < .001$; and with the number of times toys were shared, $r = .80, p < .001$.

Spending a great deal of time in the mother-open quadrant correlated negatively with all exploration measures: manipulating toys, interacting with adults, and manipulating the cookie box. The percentage of time spent in the mother-open quadrant correlated with maternal IQ, $r = -.55, p < .004$, and the maternal-involvement scale, $r = -.67, p < .001$, of the Home Observation for Measurement of the Environment (Caldwell, Wright, Honig, & Tannenbaum 1970) obtained when the children were 6 months old.

Discussion

The data from this study indicate that these 23 infant-day-care-reared children clearly displayed more attachment behavior toward their mothers than toward their teachers. These differences in behavior were present even though the children spent at least half of their waking time each day with their teachers in a pleasant, stimulating, and reinforcing environment. Therefore we conclude that these infants were more attached to their mothers than to their teachers. In addition, the children appeared to perceive their mothers as the preferred help giver in a problem situation. Although much help with daily problems was provided by their day-care teachers, when given a choice, day-care children asked their mothers for help.

The possibility that the child's day-care teacher might have been the preferred attachment figure was a plausible one for this sample of children. A majority of the children lived in an extended-family situation, some with extended families and transient family friends as well. Only nine children left the center to go home to their mothers on a daily basis; the rest went home to relatives or neighbors because their mothers worked or were in school at night or were not home for some other reason. Seventeen children had lived in three or more homes prior to the study, and one child had experienced 11 moves before she was 2½. It is precisely for this type of population that day care has been suggested as a method of preventing developmental delay. Yet no studies of attach-

ment had been conducted previously with children raised in similar circumstances. These findings therefore have both practical and theoretical implications.

In this study the stranger's presence created a mildly stressful situation for the purpose of energizing a choice among alternative attachment figures. The 23 children in this sample reacted variably to the level of stress provided. Seventeen children appeared to perceive the situation as not terribly stressful; they made contact with their mothers and then proceeded to explore the room, to play with the materials provided, and to interact with the adults in the room (particularly the mother) by inviting the adults to join in their play. During their explorations, the children maintained periodic contact with their mothers either by moving near them or physically touching them. Mothers appeared to serve as an important resource (i.e., a positive attachment figure) for them. Six of the 23 children, however, seemed to find the same situation so stressful that they stayed near or were held by their mothers for the entire observational session.

The variability in this sample did not seem to relate to any particular factor in the children themselves such as sex, age or intelligence. Rather, it appeared to be linked to factors which may describe how competent their mothers were and thus how consistent and reassuring the relationship was between mother and child. Mothers who were less involved and less intelligent had children who reacted to the situation with distress, whereas mothers who were involved and interactive with their children in the home environment had children who explored the room in this novel situation.

It is difficult to make a case for the general effects of any kind of rearing condition on the attachment bond; in all studies of different care conditions, including the present one, there is great variation among children in their responses to the measurement situation. Clearly more than day care or home rearing alone is affecting the developing bond between mother and child. What those other factors are—and, more important, how to measure them—are questions which need to be explored in greater depth.

The questions addressed in the current study were the following: (1) Do children who have been placed in day care since infancy prefer to be near and to interact more

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with their mothers or teachers when given a choice between the two? (2) To whom do these children turn when they need help with a specific problem? The answers are clearly that (1) these children are attached more intensely to their mothers than to their teachers and (2) they perceive their mothers as help givers. Moreover, for most of the children the relationship with their mothers seemed secure enough to allow them to "detach" from her to make developmentally appropriate independent explorations of a novel environment.

Reference Note

1. Lewis, M.; Weinraub, M.; & Ban, P. Mothers and fathers, girls and boys: attachment behavior in the first two years of life (ETS RB 72-60). Princeton, N.J.: Educational Testing Service, 1972.

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