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Relationship between Strange Situation Classification at Age 12 Months and Self Regulatory Functioning at Age 37 Months

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Twenty-six children's ability to resist temptation at age 37 months was measured and their relation to the quality of attachment at age 12 months was examined. Children were required to wait for several minutes in the presence of an incentive but no to touch it, and were asked not to leave the table. The results showed that C group children remained seated at the table without touching the incentives significantly longer than B group children. These results indicate that C group children more firmly controlled their behaviors in comparison with B group children.

Key words: resistance to temptation; quality of attachment

A number of studies have reported significant relationships between Strange Situation classification and later assessments of social and personality functioning (Arend, Gove & Sroufe, 1979; Bates, Maslin & Frankel, 1985; Lewis, Feiring, McGuffog & Jasker, 1985; Londerville & Main, 1981; Matas, Arend & Sroufe, 1978; Pastor, 1981; Sroufe, 1985; Ujiie, in press; Waters, Wippman & Sroufe, 1979). Several studies provided some evidence to indicate that security of attachment at age 12-18 months relates to individual differences in self-regulatory functioning in toddlerhood and in the preschool period(Arend et al., 1979; Bates et al., 1985; Erickson et al., 1985; Londerville & Main, 1981; Matas et al., 1978; Sroufe, 1983; Ujiie, in press).

Almost all of these studies examined the relationship between the security of attachment and compliance, which has been assumed to be an early stage in the development of self-regulatory functioning (Kopp, 1982). Matas et al. (1978) and Londerville and Main (1981) found that B group (securely attached) children were more compliant with their mothers in lab situations than A and C group (anxiously attached) children at age 2 years. Bates et al. (1985) also found that attachment security, which was measured by conversion of attachment classifications to a three-point scale, was related to compliance with their mothers in a lab situation at age 2 years. Sroufe (1983) found that

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B group children were more complinat with their teachers in preschool situations than A and C group children in the preschool period. Erickson et al. (1985) found that A group children were more noncompliant with their teachers than B and C group children in the preschool period. In any case, securely attached children are more compliant with agents of socialization than anxiously attached children.

Arend et al. (1979) found that C group children were impulsive and unable to delay gratification at age 4–5 years. Sroufe (1983) also found that C group children were impulsive in preschool situations. On the contrary, Erickson et al. (1985) found that A group children were impulsive in preschool situations. Either way, anxiously attached children have been found to be impulsive in the preschool period in comparison with securely attached children.

Moreover, Matas et al. (1978) reported that B group children exhibited fewer frustration behaviors and were persistant than A and C group children. These behavior patterns are interpreted as signs of ego-control functioning (Block & Block, 1980), which is closely related to self-regulatory functioning. Londerville and Main (1981) also found that B group children exhibited signs of internalized controls.

These results clearly indictate that secure attachment is advantageous to the development of self-regulatory functioning, while anxious attachment is disadvantageous to the development of self-regulatory functioning.

On the contrary, Ujiie (in press) observed 32-month-old children under instructions not to touch a toy and not to move from a table and found that C group children followed the instructions more faithfully than B group children did. The C group children did not touch the toy at all and they spent less time walking around the room and approaching the mother than B group children did. This result is contradictory to the results and conclusions obtained from the studies cited above. That is, this result indicates anxious-ambivalent attachment rather than secure attachment to be advantageous to the development of self-regulatory functioning.

However, because of a small sample size (20 B children, only 6 C children and no A children) and because a single assessment was made, the reliability of these results must be examined. Therefore, in this study, the procedures of Ujiie (in press) were repeated at age 37 months. Based on the results of Ujiie (in press), it was hypothesized that the C group children would follow the instructions more faithfully than the B group children did.

Method

Subjects Data were obtained from 26 children (10 females and 16 males) who had participated in an earlier study of the quality of attachment at age 12 months (see Ujiie & Chen, 1985) and Ujiie's (in press) study of resistance to temptation at age 32 months. Twenty-one subjects had been classified as securely attached (B group) and 5 had been classified as anxious-ambivalent (C group). The children ranged from 37.0 to 38.3 months of age and the mean age was 37.6 months.

Resistance to temptation each child was seated at a table on which a wrapped box of cake was placed as an incentive. Then an experimenter instructed the child to wait for a several minutes and not to touch the box of cake or move from the table while the

experimenter talked with his/her mother. If the child left the table to explore the room or to approach the mother, the experimenter as well as the mother requested the child to come back to the seat. This experimental session lasted approximately 6–7 minutes during which time the mother was interviewed by the experimenter. During the experimental session, the behaviors of the child were recorded on videotapes. Later, whether or not the child touched the box of cake, approached the mother, stayed near the mother, made close contact with the mother, left the table to explore the room and to play with the room equipment were scored from videotapes for each second. The measures of resistance to temptation used were (a) total time the child spent touching the box of cake; (b) total time the child spent approaching the mother and staying near the mother (excluding time of close contact with mother); (c) total time the child spent exploring the room and playing with the equipment of the room; (d) a percentage of the time the child followed the instructions.

If contact with mother lasted more than 2 minutes successively, the data from the onset of contact were excluded from analyses. This occurred in the case of 4 children (3 were B group and 1 was C group).

Results

One of the B group children was excluded from all analyses because he remained in contact with the mother throughout the experimental session. The mean scores of the resistance to temptation measures for the remaining 20 B group children and 5 C group children were compared. Since it was hypothesized that C group children would follow the instructions more faithfully than B group children, one tailed t-tests were utilized. In these tests, significant group differences were found in all variables (Table 1).

TABLE 1

Mean Scores for Attachment Group of Resistance Temptation Measures.

	Anxious Ambivalent ($N=5$)	Secure ($N=20$)
Time child touched box of cake[a]	0.12 (0.165)	0.565 (0.712)
Time child approched and stayed near mother[a]	0.457 (0.676)	1.349 (0.832)
Time child explored room[a]	0.468 (1.046)	1.339 (0.863)
Time child followed instructions[b]	73.34 (26.71)	47.31 (24.98)

Note. Numbers in parentheses were standard deviations.

[a]: Logalithmic transformed values were used.

[b]: Inverse sine transformed values were used.

(1) B group children touched the box of cake significantly longer than C group

children ($t=2.42$ $p<0.05$ using Cochran–Cox's method). Fifty-five percent of the B group children ($N=11$) touched the box of cake at least once during the experimental session. Although 40 percent of the C group children ($N=2$) touched at least once, their violations were only momentarily.

(2) B group children explored the room and played with the equipment of the room significantly longer than C group children ($t=2.08$ $p<0.05$). Sixteen B group children (80%) left the table to explore the room and to play with the equipment of the room at least once during the experimental session, while only one of C group children (20%) did.

(3) B group children approached the mothers and stayed near mothers significantly longer than C group children ($t=1.91$ $p<0.05$). Sixteen B group children (80%) approached their mothers at least once during the experimental session, while 2 C group children (40%) approached their mothers.

(4) C group children spent a significantly longer time following the instructions than C group children ($t=1.97$ $p<0.05$) (in this test, inverse sine transformed values of the percentage of time the child followed the instructions were used). That is, C group children remained seated at the table and did not touch the box of cake significantly longer than B group children.

Discussion

The purpose of this study was to replicate the results of Ujiie (in press). For that purpose, children's ability to resist temptation at age 37 months was examined in relation to quality of mother–child attachment at age 12 months.

In the procedures of this study, children were required to wait for several minutes in the presence of an incentive but not to touch it, and were asked not to leave the table. The results showed that C group children remained seated at the table without touching the incentive significantly longer than B group children. If an incentive were attractive, child had to inhibit the impulse to touch and play with it, while if the incentive were unattractive, the child had to endure boredom. In either case, these results clearly indicate that C group children more firmly controlled their behaviors in comparison with B group children.

In addition, when the children moved away from the table and approached the mother, the experimenter as well as the mother requested them to go back their seat. Nevertheless B group children moved away from the table and approached and stayed near the mother longer than C group children. Consequently, B group children were noncompliant to the agents of socialization in comparison with C group children.

This study replicated the results of Ujiie (in press), and clearly indicate that C group children have more firmly established self-regulatory functioning than B group children.

The results of this study as well as those Ujiie (in press) provide a plausible answer to the question about an interpretation of the C type attachment in Japanese infants raised by Miyake, Chen and Campos (1985). Miyake et al. (1985) argued that the behaviors of Japanese infants classified as C in the Strange Situation did not reflect anxious–ambivalent, maladaptive attachment in the sense of Ainsworth's attachment theory (Ainsworth, Blehar, Waters & Wall, 1978; Sroufe, 1985). If this assumption were correct, in a Japanese sample the children who had been classified as C could develop sound competence

in early childhood. Or at least, the C type of attachment would not be as disadvantageous to the development of social and personality functioning as Ainsworth and her followers assumed. The results of this study clearly support this interpretation.

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