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RESPONSES TO THE STRANGE SITUATION IN JAPANESE INFANTS

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The purpose of this report was to describe the behavior of Japanese infants in the Ainsworth Strange Situation and to clarify their conspicuous behavior pattern. Fifty-seven infants were observed in a standard Strange Situation at 12 months of age. Major findings : (1) In the pre-separation episodes, attachment behavior was activated ; (2) Many more mothers picked their baby up in all relevant episodes and also tended to hold their baby longer than the American mothers of Ainsworth's sample ; (3) During Episode 6, many infants experienced acute distress, such that approximately 30% of babies were not readily soothed by the return of mother and regaining of close contact with her in Episode 8 ; (4) During Episode 8, about 20% babies showed relatively strong resistance to mother. However, they did not necessarily manifest aggressive or rejective behavior. Rather, some of them continued crying for a long time and also increased the intensity of their crying. These tendencies were interpreted as indicating the infant's intense need to ensure close physical contact with mother rather than the existence of an ambivalent feeling towards mother.

Key words : Strange Situation, Japanese infants, Attachment behavior.

INTRODUCTION

The purpose of this report is to describe the behaviors of Japanese infants in the Strange Situation in a comparable way to that of Ainsworth (Ainsworth et al, 1978), and to reconsider the meaning of individual differences as observed in the Strange Situation.

We are at present proceeding with a longitudinal study of socio-emotional development during the early years, using a sample of Japanese infants. As a part of this study, at 12 months of age, the Strange Situation was conducted and the quality of attachment was measured using the ABC classification according to Ainsworth's criteria (Ainsworth et al, 1978). As reported earlier by Miyake, et al (in press), we found that for Japanese infants, the proportion of "C" infants was very high when compared with American infants. What does this result mean ? According to Ainsworth's assumption of ABC classification (Ainsworth et al, 1978), this result would be interpreted to show that there

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were more insecurely attached infants in the Japanese sample. Or, this result might be due to procedural error. In this report, however, the following alternative possibility will be examined. The meaning of attachment behaviors shown by Japanese infants could be qualitatively different from that shown by American infants, even though their behaviors may be isomorphic. Clearly, there are several pieces of evidence to suggest that the attachment established by Japanese infants has a different morphology and function from that established by American infants.

Some recent studies on the patterns of attachment in non-American infants have also found different distributions of ABC classification. As examples, Grossmann et al (1981) reported many more "A" infants in Germany ; Lamb et al (1982) reported fewer "C" infants in Sweden ; and Sagi et al (1982) reported many more "C" infants in Israel, than have been typically found in American middle class samples (Ainsworth et al, 1978). These findings seem to suggest that our finding, which has shown a different distribution of ABC classification from that of America, is not the result of procedural error. Moreover, they seem to suggest that cultural factors constrain the assessment of attachment using Strange Situation, a point also argued by Miyake et al (in press).

Strange Situation procedure is supposed to qualify effectiveness of the attachment figure as a secure base for coping with stress. For Japanese infants, the effects of procedural stress which the infants experienced in the Strange Situation would not be negligible for the following two reasons : Firstly, there is some evidence to suggest that Japanese infants are not resilient to the stress caused by unfamiliar situations or unfamiliar incentives (Kagan et al, 1978 ; Ohyama et al, 1982). Secondly, many researchers have reported that the Japanese mother-infant relationship is primarily characterized by close physical contact and infrequent separation (Azuma et al, 1981 ; Caudill and Weinstein, 1969 ; Takahashi, 1982) These facts may lead to the expectation that Japanese infants will express strong distress even during pre-separation episodes : that they will be very anxious throughout the Strange Situation ; and they will very often seek proximal contact. They will also express strong resistance to being separated from their mothers. According to Ainsworth et al (1978), these behavior patterns would be recognized as those showing the existence of insecure attachment. However, for Japanese infants and their mothers, as characterized above, these behavior patterns would not necessarily be idiosyncratic to insecure attachment. Therefore, if this speculation were true, Japanese infants would rarely react to their mothers angrily or ambivalently during the reunion episode, even if they were expressing a highly negative mood, for example, crying and seeking contact very earnestly. In addition, it would be expected that the Japanese mothers will tend to prefer proximal rather than distal patterns of behavior in the Strange Situation, especially during the reunion episodes. They will hold their babies more frequently and longer, than the American mothers.

METHOD

Subjects Data was obtained from sixty-four mother-infant pairs living in Sapporo, the infants being 12 months of age. Data from 57 pairs (28 from Cohort 1, 29 from Cohort 2) was analyzed. Missing data was due to problems of video recording (N=6) and failure to continue the procedure due to infant's unusually strong resistance to being separated

from mother (N=1).

Procedures Assessments were conducted following the procedures described in Ainsworth et al (1978), in the laboratory of the Research and Clinical Center for Child Development. Four senior unmarried female students majoring in developmental psychology alternately took the role of stranger. Episodes 4, 6 and 7 were curtailed if distress upon separation lasted for more than two minutes. In addition, Episode 6 was skipped if the infants strongly resisted mother's withdrawal and if mother was reluctant to leave the room after Episode 5.

Prior to the Strange Situation procedure, the mother was given detailed written instructions about it. The Strange Situation assesment was recorded using three cameras.

Rating of interactive behaviors and coding of classifications were conducted by 3 independent raters. In addition, some specific discrete behaviors were coded : exploration (including exploratory locomotion and manipulation) ; crying ; directed smiling ; directed vocalization ; approaching ; touching ; resistance to mother ; and avoidance of mother. *Exploratory locomotion* referes to locomotion that is clearly useful for the purpose of getting to the toys or some other aspect of the physical environment, in order to explore it ; or that seems to have been undertaken for the mere sake of the activity itself. Similarly, *exploratory manipulation* refers to hand movements that are clearly exploratory or manipulative in play. The category of *crying* includes screaming and fussing as well as crying. *Resistance* refers to pushing away from, striking out at, or squirming to get down from an adult who has offered contact, or pushing away, throwing away, or otherwise rejecting toys through which an adult attempts to mediate interaction.

In order to analyze these specific discrete behaviors ; 1) incidence of these behaviors in specific episodes indicated by the percentage of infants who manifested each ; 2) frequency measures ; and 3) special scores for dimensions of interactive behavior, were used.

RESULTS AND DISCUSSION

Descriptive account of behavior in each episode

a) Episode 1 and 2

Most infants accepted being put down by their mothers in the unfamiliar situation during Episode 1. Eighty-seven percent began manipulative exploration immediately. However, 3 babies immediately started to cry and 4 babies did not begin manipulative play.

Sixty-four percent engaged in active manipulative behavior during Episode 2. This percentage is apparantly low in comparison with Ainsworth's results, which show that 94% of the sample engaged in active manipulative behavior. Meanwhile, the number of infants who manifested cry, approached and made contact with their mother is apparently more than that for Ainsworth's sample : Ten babies (18%) cried at some time during Episode 2 ; 27 babies (49%) approached the mother ; 23 babies (42%) actually achieved physical contact with their mother ; 10 of them were in contact for less than 30 seconds, whereas 9 were held for over 60 seconds.

Twenty babies (36%) displayed alarm behavior. They anxiously stared at video-

cameras which were tracking them automatically and noisily.

According to Ainsworth's results, those who manifested mild disturbance in reaction to the Strange Situation were few, and for the great majority of one-year-olds, the unfamiliar situation activated exploratory rather than attachment behavior. Indeed, in her results, only 14% of the sample approached their mothers and only 13% made contact with their mothers. Ninety-four percent engaged in active manipulative behavior. However, the results of this study indicate that for the Japanese one-year-olds, the strange situation does not necessarily activate exploration. Rather, contrary to Ainsworth's results, attachment behavior was activated in nearly half the sample, even before the stranger appeared and the mother left.

b) Episode 3

When the stranger first entered, only 2 babies (4%) cried or fussed, although 13 babies (23%) displayed some distress at some time during Episode 3. Eight of them fussed or cried as a delayed response to the stranger's entry, and 3 of them cried when the stranger actually approached them in the third minute of the episode.

Six babies (11%) greeted the stranger with a smile or vocalization and 4 of them approached the stranger and initiated interaction, while 2 of them approached mother. Twenty-six babies (46%) continued to manipulate toys, but 24 babies (42%) did not engage in active play during the first 2 minutes of Episode 3. Seven babies (12%) only looked at the stranger when she entered, 2 of them averted their gaze and 1 of them fussed and approached mother. Fourteen babies (25%) approached their mothers as a response to the stranger's entrance and all of them actually made contact with mother. Moreover, 9 babies (16%) were in contact with mother when the stranger entered. Twenty-three babies (40%) thus responded with physical contact, to the stranger's first entrance.

During the first 2 minutes of Episode 3, seven babies (12%) showed some tendency to approach the stranger, 5 (9%) actually approached and touched her, and 18 (32%) smiled at her.

During Episode 3, twenty-six babies (46%) approached mother and 10 babies (18%) were in close proximity to mother at the beginning of this episode. Thus, 63 percent of babies sought proximity with mother or were already in proximity with her. Twenty-seven babies (47%) actually achieved physical contact with mother; 11 were in contact for less than 30 seconds, whereas 13 were in contact for over 60 seconds. Eight babies (14%) stayed in continuous proximity to mother throughout most of Episode 3.

These results indicate that in this study, the strange situation and the entrance of the stranger activated attachment behavior more strongly than was the case with Ainsworth's sample. Although 44% approached mother and 30% actually achieved physical contact with mother in Ainsworth's sample, the majority engaged in manipulative behavior, as it were, even though the amount of such behavior diminished substantially. On the other hand, over 60 percent of this sample sought proximity with mother and about half the sample actually made contact with mother. Moreover, nearly half the sample could not engage in manipulative behavior during the first 2 minutes of Episode 3. These results imply that, in comparison with Ainsworth's sample, many infants retreated to the mother from the stranger and also from the strange situation for assurance. However, their wariness to the stranger or to the situation could not readily become weak enough

to allow exploration to commence. Thus, the descriptions of pre-separation episodes support the expectation of this study.

c) Episode 4

Seventeen babies (30%) cried immediately after mother left, and no more than 31 (55%) cried at any time during this episode. Fifteen babies (27%) continued crying throughout Episode 4.

Nineteen babies (34%) tried to go to the door at some time during the episode ; 10 babies (18%) followed the mother to the door when she left. Seventeen (30%) followed mother and cried ; 2 (4%) followed mother but did not cry ; 14 (25%) cried but did not follow mother ; 7 (13%) showed no form of search behavior.

In this episode, the Japanese babies were more distressed by the departure of mother than was the case with Ainsworth's sample. The proportions of babies who cried immediately after mother left and who tried to follow mother, are higher than those of Ainsworth's sample.

d) Episode 5

During the first 15 seconds following the mother's entrance, 66% of the sample greeted her by approaching, reaching, smiling, vocalizing, or indeed by crying. Nineteen babies (34%) made an approach towards mother ; 13 (23%) greeted mother from a distance by smiling or vocalization ; 11 (20%) responded with crying or fussing.

According to Ainsworth's result, 42 percent of babies were crying when mother returned, but most of them stopped crying with relatively little delay. In contrast to that, in our sample, 25 babies (45%) were crying when the mother returned, but 7 of them stopped crying with substantial delay. Twenty-seven babies (48%) cried at some time during the episode, and 15 (27%) cried frequently or for longer than 60 seconds.

Forty-three babies (75%) achieved contact with mother at some time during the episode, whereas in Ainsworth's sample, only 37% achieved contact with mother. Thirty-five percent of those who were picked up, were held for less than 30 seconds and 21% were held for over 120 seconds. However, in Ainsworth's sample, 74% were held for less than 30 seconds and only 7% were held for over 120 seconds. Thus, there were many more mothers who held their babies and also, who tended to hold them longer than the mothers in Ainsworth's sample.

As far as Episode 5 is concerned, the striking difference when compared to Ainsworth's result, is mother's behavior immediately after the entrance. According to Ainsworth's description, not all mothers responded to their baby's signaling desire for contact by picking baby up. However, within the first 15 seconds, 33% of the babies had actually achieved contact. Contrary to that finding, in our sample, 24 mothers (43%) picked up their baby within the first 15 seconds as a response to the baby's (approaching, reaching and directed cry) requests for contact. Twenty-two babies were crying when mother picked them up. On the other hand, twenty-nine mothers (52%) went to their chairs immediately after entering the room, and 3 mothers (52%) attempted to engage their baby in play with toys. Forty-two babies (74%) achieved contact with mother at sometime during the episode.

These results are apparently congruous with the expectations of this report. That is, there were a substantial number of babies who were extremely distressed by the

absence of mother, such that they were not easily soothed even after they regained close physical contact with her. Moreover, the findings with respect to the mother's behavior are congruous with our knowledge of the Japanese mother-infant relationship as characterized by the mother's permissiveness of close physical contact. More mothers held babies who were displaying distress and tended to do so for longer when compared with American mothers.

e) Episode 6

In contrast with Ainsworth's sample, distress was much more evident in our subjects during Episode 6. All babies cried at some time during the episode, compared to 78% in Ainsworth's sample. Forty-one babies (77%) cried immediately when mother left the room and 46 babies (81%) were so distressed that the episode was curtailed (N=42) or skipped (N=4). However, in Ainsworth's sample, only 45% cried immediately after mother's departure and curtailment was necessary for only 53%. Moreover, although in Ainsworth's sample 62% engaged in exploratory manipulation at least briefly and 24% were too acutely distressed to explore even visually; in this sample only 28% (N=15) engaged in exploratory manipulation at least briefly and 51% (N=27) were too strongly distressed to explore even visually.

f) Episode 8

At the beginning of Episode 8, forty-one babies (73%) were crying. Fifty-four percent of them (N=22) stopped crying soon after being picked up, but 41% of them (N=17) were not soothed by holding. Forty-nine babies (86%) cried at some time during the episode, and 53% of them (N=26) were crying frequently or for over 60 seconds. In contrast to that, in Ainsworth's sample, 53% of babies cried at the beginning of the episode, though most of them stopped with little delay. Thus there were many more babies who were so acutely distressed that they were not easily soothed even if they regained close physical contact with their mother. This is congruous with expectations derived from knowledge of temperamental characteristics of Japanese infants.

All but one of the mothers picked up their babies at the beginning of the episode. Only one mother went to her chair and did not pick up her baby throughout the entire episode. Of those who were picked up, only 16% (N=9) were held for less than 30 seconds and 67% (N=38) were in contact for over 60 seconds (27 were in contact for over 120 seconds). Of 38 mothers who held their babies for over 60 seconds, 63% (N=24) attempted to put their babies down. Of these babies, 15 (39%) cried in protest at being put down, and 4 (11%) sought contact immediately after being put down. Three babies (8%) got down from mother spontaneously. These results show that, as was the case with Episode 5, there were many more mothers who held their babies and who also tended to hold them longer, than there were in Ainsworth's sample. Also, these results support the expectation that a Japanese mother tends to prefer the proximal mode of interaction when her baby is displaying distress.

Normative trends of crying, resistant behavior and avoidant behavior

a) Crying

The frequency measure of crying was based on the 15-second time intervals into which the narrative records were divided. The score was the sum of the time intervals.

If an episode was either longer or shorter than 3 minutes, the frequency scores were prorated to make them equivalent to those obtained from 3-minute episodes.

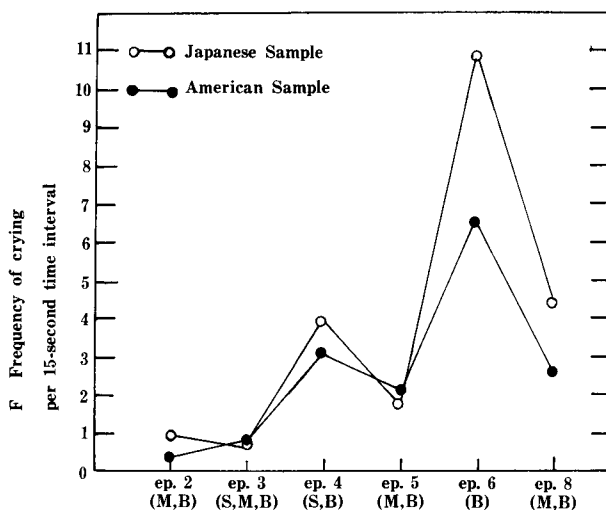


FIGURE 1. Mean incidence of crying in each episode.

The trends in amount of crying across episodes are shown in figure 1. Crying was minimal during the pre-separation phase (Episodes 2 and 3) ; it increased during the first separation episode (Episode 4) ; decreased again during the reunion (Episode 5) ; reached a peak during Episode 6, when the baby was left alone ; and again decreased during the reunion (Episode 8).

TABLE 1

Mean incidence of crying in each episode.

	Ep. 2	Ep. 3	Ep. 4	Ep. 5	Ep. 6	Ep. 8
Japan	0.91	0.67	3.89	1.74	10.94	4.42
America	0.40	0.70	3.08	2.08	6.69	2.64

As figure 1 shows, the profile is similar for both samples. However, there are two differences : in Episode 6, the mean incidence of crying for our sample was much higher than that of Ainsworth's sample (10.94 for our sample vs 6.69 for Ainsworth's sample) ; and in Ainsworth's sample, when the mother returned (Episode 8) crying declined to about the same level as for the first reunion, whereas in our sample, crying was more frequent than during Episode 4. These results suggest that separation from the mother in an unfamiliar environment tends to be more distressful for Japanese infants, such that many of them are not easily soothed by their mother's return and the regaining of contact with her (Episode 8).

There were no differences between mean incidences of crying for Episodes 2, 3, 4,

and 5 between the two samples. These results are not congruent with the expectation that Japanese infants would be more strongly distressed throughout the Strange Situation procedure. However, these results are interpretable if one considers the fact that even during the pre-separation Episodes 2 and 3, the baby tended to activate the proximal mode of attachment behavior and also, the mother tended to accept the baby's requests for close physical contact. During Episode 5, as described earlier, 75% of mothers picked the babies up, and 35% of mothers held their babies for over 60 seconds, thus the level of distress was to some extent alleviated.

Moreover, the length of Episodes 3 and 5 were extended by about 30% and 50% respectively. Many of the incidences of crying actually occurred during these prolonged times and they would seem to indicate the existence of resistance to separation from mother. However, these incidences of crying were partialled out from the calculation of mean score of crying. Therefore, although the mean scores for crying in Episodes 3 and 5 seemed to be lower than expected, they still indicate the existence of resistance to separation from mother.

b) Resistant behavior

Table 2 shows the frequency of various degrees of strength of resistant behavior directed towards the mother during Episodes 5 and 8. As shown in table 1, there were no differences between the two samples. However, although 25 babies were rated as displaying some resistant behaviors during Episode 8, about 30% of them did not display aggressive or rejective behaviors overtly. They continued their crying for a long time, and they were not readily soothed even when mother held them close. Frequently, they increased the intensity of crying when mother attempted to : stimulate them ; sit down on the floor while holding baby ; and even when mother attempted to change the position of her infant in her arms. These behaviors (by the mother) seemed to trigger the baby's anticipatory defence responses to possible separation from mother, since during preceding episodes, these behaviors immediately preceded her departure. Thus, a substantial number of behaviors which were rated as resistant, could be interpreted as expression of the intense need to ensure close contact with mother rather than as the expression of any ambivalent feeling. Furthermore, this interpretation is congruent with the expectation that the Japanese infants would be distressed but not resistant.

TABLE 2

Percentage of infants who exhibited resistant behavior to the mother

Strength of Resistance	Japan		America	
	Ep. 5	Ep. 8	Ep. 5	Ep. 8
6-7	0	2	6	6
4-5	3.5	19	6	16
2-3	17.5	23	15	21
1	79	56	73	57

c) Avoidant behavior

Table 2 shows the percentage of infants who showed various intensities of avoidance to mother during Episodes 5 and 8. During Episode 5, thirty-three babies showed some avoidance of mother. However, most of these were weak forms of avoidance. Forty percent of babies were rated as 2-3, whereas only 10% were so rated in Ainsworth's study. During Episode 8, thirty-eight (67%) babies did not exhibit any avoidance and 16 (28%) were rated as 2-3; whereas 53% did not exhibit and 34% were rated as 4-7 in Ainsworth's sample. These results seemed to indicate that the Japanese infants would be less avoidant of the mother than the American sample.

TABLE 3

Percentage of infants who showed avoidance behavior towards their mother

Strength of Avoidance	Japan		America	
	Ep. 5	Ep. 8	Ep. 5	Ep. 8
6-7	0	0	11	12
4-5	18	5	29	22
2-3	40	28	10	13
1	42	67	49	53

CONCLUDING REMARKS

The purpose of this report is to describe the behaviors of Japanese infants in the Strange Situation, and to clarify points of difference with respect to the American sample. Three expectations were held. Firstly, the Japanese infants would be very distressed throughout the Strange Situation. Secondly, they would not have an ambivalent feeling towards mother. Thirdly, Japanese mothers would tend to be acceptant of their infant's proximity mode of attachment behavior. The results of this study seem to be congruent with these expectations. These can be considered as the typical behavior pattern of the Japanese infants. That is: (1) even in the pre-separation episodes (2 and 3), the Japanese infants tended to activate attachment behavior. They approached and sought contact with mother frequently. They also manifested resistance to separation from mother by crying in Episodes 3 and 5, and also by increasing the intensity of crying to the mother's attempts to stimulate, sit down on the floor, even change the position of the infant in her arms; (2) The Japanese infants readily became distressed during Episode 6, (child alone episode) so that they were not easily soothed by the return of mother and by regaining of close contact with mother during Episode 8. Under Ainsworth's rating system, these tendencies were apt to be rated as manifestations of resistance to mother. However, these tendencies do not necessarily show the existence of any ambivalent feeling towards mother.

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