

The Patterns of Infant-Mother Attachment as a Function of Home Environment

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ABSTRACT The present investigation was undertaken to assess the relationship between home environment and patterns of infant-mother attachment on a sample of 100 infants (12 to 24 months old) and their mothers enrolled from randomly selected urban middle income families of Ludhiana city. Infant-mother attachment was assessed by using Ainsworth Strange Situation Test (Ainsworth 1978). HOME inventory by Caldwell and Bradley (1984) was used to observe the home environment of the infants. The results revealed that all the infants were securely attached to the mother at the time of reunion, although majority of them displayed low security of attachment. Infants experiencing low quality home environment but high acceptance of their behavior and more organized physical and temporal environment displayed more secured attachment to their mother than their counterparts having high quality home environment but low acceptance of their behavior and less organized physical and temporal environment.

INTRODUCTION

Attachment is a strong, affectional bond we feel for special people in our lives that leads us to feel pleasure and joy when we interact with them and to be comforted by their nearness during times of stress (Berk, 2001).

Developmental theorists have tried to explain the attachment relationship in terms of their own theoretical perspective. Psychoanalysts (Frued, 1905) believed that phenomenon of attachment is based upon the notion "I love you because you feed me". Young infants are oral creatures who derive satisfaction from sucking and mouthing objects and are attached to any person who provides oral pleasure. Similarly social learning approach (Sears, 1975) emphasized on rewardingness and sense of gratification leads to love. Bowlby (1969), an ethological theorist phrased out the notion "Perhaps I was born to love", that all species, including human beings, are born with a number of innate behavioural tendencies that have in some way contributed to the survival of species over the course of evolution and many of these built-in behaviours specifically promote attachments between infants and their caregivers.

Various patterns of attachment on the basis

of child's feeling of security with the mother have been defined (Ainsworth et al., 1978). The infants who are securely attached to the mother are distressed by parental separation and are easily comforted by the parent when she returns. Insecure or anxious attachment involves either such infants who are usually not distressed by parental separation and avoid parent when she returns or the ones who may remain close to the parent before departure and display angry, resistive behaviour on reunion.

The current study presumed that like all other relationships infant-mother attachment is also affected by the home environment. Caregiving seems to be involved in the relationship between separations anxiety and attachment security. The opportunities to establish a close relationship with the caregiver are pertinent for infant-mother attachment which can be possible through sensitive and responsive caregiving only. Infant-mother attachment is the product of infant-mother interaction over time. Close and quality interaction with a mother figure is essential for secure relationship and the resulting healthy development. Research on older children has revealed that parent- child relationship are affected directly by the quality of time parents spent with their children rather than quantity of time spent. It is the quality of interaction adult caregivers, and the kind of affective home environment provided by their parents that determines the intensity of their relationship. It is worth exploring that whether the same idea is

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extendable to the patterns of attachment displayed by the infants as well for their mother. In the present study, it is hypothesized that the mothers who are emotionally responsive to the children's needs and provide good home environment, provide a secure base to the child during period of anxiety and stress, whereas the ones who are not able to provide a secure base to the child during the periods of anxiety and stress, are avoided by the infant when she returns after the brief periods of separation. Investigators (Cox and Compbell, 1968) have found that infants move and explore more freely and exhibit less negative affect in novel environment, in the presence of the caregiver or attachment figure. Anxious attachment was associated with less stable caretaking environments than secure attachment and change from secure to anxious attachment was associated with higher stressful-event scores than stable secure attachment (Vaughn et al., 1979). Securely attached infants tended to have mothers who were sensitive to infant needs and encouraged reciprocity. These mothers were found to be feeling more positive about themselves and consequently had more to give to their infants (Egeland and Farber, 1984). In the families where there is a instability and insensitive parenting, insecure attachment are especially high (Howes et al., 1989).

The present study is an attempt to find out the impact of home environment on security of infant-mother attachment. Although research is available in India on the quality of parent child relationship and home environment but all the previous studies are conducted on older children only and none of the studies were available on security of infant mother attachment in Indian literature. Therefore this study is the first of its kind.

METHOD AND MATERIALS

Sample: The study was conducted on 100 mother-infant (12 to 24 months) dyads from urban, middle income, two parent intact families with monthly family income ranging between Rs. 10,000/- to Rs. 15,000/-. Only full-term infants were included in the sample. It comprised of 53 males and 47 females. The family income was controlled to avoid the effect of varied range of income.

Tools for Data Collection: The following standardized tools/tests were used for assessment

of the selected sample:

Family Background Information Sheet: Family background information sheet was prepared which included the general information about socio-personal characteristics of the child and his family.

Certain important of these were child's age, gender, birth order, number of siblings, spacing with elder siblings; parental age, education and occupation; income, size and type of the family, child care arrangements in the absence of mother and medical status of the child.

Strange Situation Test: The Strange Situation test has been developed by Ainsworth et al. (1978). It is the most widely used instrument for measuring the quality of attachment of 12 to 24 months infants. It is a procedure which takes the baby through eight short episodes in which brief separation from the mother and the reunions with her takes place. Each episode of the Strange Situation Test is scored for five kinds of interactive behaviours shown by the baby namely: Proximity and contact-seeking behaviour, Contact-maintaining behaviour, Resistant behaviour, Avoidant behaviour, Crying. Scores in each behaviour range from 1 to 7 depending on the intensity and persistence of the behaviour shown by the baby. On the basis of the responses of infants to these episodes, the following patterns of attachment are identified: Secure Attachment, Insecure Attachment- includes two patterns of behaviour: viz. a viz. avoidant and resistant attachment.

Home Observation for Measurement of Environment (HOME): The HOME Inventory for infants and toddlers (Caldwell and Bradley, 1984) was administered to assess the quality of home environment provided by the parents. It measures the following aspects of home environment: Emotional and verbal responsivity of parents, Acceptance of child's behaviour, Organization of physical and temporal environment, Provision of appropriate play materials, Parent involvement with child, Opportunities for variety in daily stimulation

The HOME inventory is administered by the investigator who goes into the home at a time when the child is awake and can be observed in his or her normal routine for that time of the day. Information regarding each statement of each sub-scale was mostly collected through observation except few which necessitated interview with the care taker of the focus child.

RESULTS

Socio-Personal Characteristics of the

Sample: The descriptive analysis of the personal and family characteristics of the sample are being given to enlighten about the background of the sample and families. Majority of the infants (69%) were first borns and were not having any elder sibling while rest of the 31% were later borns with their birth order ranging from one to five. Predominantly the infants (65%) were the only child to their parents while only 35% had siblings ranging between 1 to 4. Data revealed that 63% of the fathers were in the age range of 21-30 years while rest (37%) were between 31-40 years. Most of the mothers (83%) were aged between 21 to 30 years while others (17%) were 31-40 years old. It is evident from the table that a big proportion of the fathers (60%) were educated upto graduation levels, while 21% were post-graduates and 19% were educated till matric or above but less than graduation. A look into the educational status of mothers indicates that 40% of them were graduates while 30% were post-graduates and 30% were educated till matric or above only. 43% of the fathers were engaged in some kind of service while 57% were having their own business. The data reveals that most of the mothers (85%) were not working while only 15% were employed outside home. 67% of the sample families were joint in structure while 33% were nuclear. The distribution of the families according to their size indicated that 53% of the families were medium sized (four to eight members) while 41% were small (upto four members) and only 6% were large (more than eight members) in size. However, Data revealed that majority of the infants (64%) stayed with their grand parents in the absence of mother while 31% stayed with servants.

Patterns of Mother-Infant Attachment:

Researchers have identified various patterns of attachment on the basis of child's feeling of security with the mother at the time of reunion with her ranging from low to very high intensity in security of attachment (Ainsworth et al., 1978). The secure attachment has been divided into four types according to the degree of security i.e. SB1 (low security of attachment), SB2 (moderate security of attachment), SB3 (high security of attachment) and SB4 (very high security of attachment). On the other hand, insecure attachment has been divided into two

types: i.e. resistant attachment behaviour and avoidant attachment behaviour. These have been further divided depending upon the degree of resistance and avoidance respectively. In case of resistant attachment, two categories are C1 (low insecure-resistant behaviour) and C2 (high insecure-resistant behaviour) while in avoidant attachment, two types are A1 (low insecure-avoidant behaviour) and A2 (high insecure-avoidant behaviour).

Distribution of the Infants Across Various Patterns of Infant-Mother Attachment:

It is evident from the Table.1 that after a brief separation of three minutes, at the time of reunion with the mother, all the infants (100%) exhibited security of attachment ranging from low to very high and none of the infants in the sample families showed avoidant or resistant behaviour towards the mother when she returned after brief separation. However, majority of the infants (59%) displayed low security of attachment (SB₁ type). Infants (10%) showed moderate security of attachment (SB₂ type). 14% of the infants were having SB₃ category while SB₄ type of attachment was displayed by 17% infants which means very high security of attachment. It is noteworthy that none of the infants (0%) showed either avoidant or resistant pattern of attachment.

Distribution of Infants on Different Levels of Home Environment:

Looking at the total HOME score (Table.2), most of the infants (65%) had moderate quality of home environment while 32% had high quality of home environment on the basis of total HOME score. Only 3% infants

Table 1: Gender-wise distribution of infants across various patterns of infant-mother attachment at reunion

Patterns of attachment	Girls Total (n = 47) no.(%)	Boys Total (n = 53) no.(%)	Chi-square value	Over American sample ¹
<i>Avoidant</i>			3.6145	24 %
A1(low)	0	0		0
A2(high)	0	0		0
<i>Secure</i>				58%
B1(low)	30(63.83)	29(54.73)		59
B2(moderate)	2(4.26)	8(15.09)		10
B3(high)	6(12.77)	8(15.09)		14
B4(very high)	9(19.15)	8(15.09)		17
<i>Resistant</i>				18%
C1(low)	0	0		0
C2(high)	0	0		0

¹Data: Ainsworth and Wittig (1969) (N=100)

had poor home environment. However, majority of the infants (84%) received high emotional and verbal responsiveness from the parent followed by 16% infants with moderate emotional and verbal responsiveness of parent. However, the child's behaviour acceptance was very low because a big proportion (81%) of infants had low acceptance of their behaviour by their parents followed by only 17% with high acceptance of their behaviour. A large percentage (75%) of infants lived in moderately organized physical and temporal environment while 19% had high scores in this dimension. Appropriate play materials were provided to the infants ranging from moderate (47%) to high (39%) level. Only 13% had less provision of appropriate play materials. Majorities of the parents (90%) were highly involved with the infants' activities while few (9%) were moderately involved. Most of the infants (81%) availed high opportunities for variety in daily stimulation followed by 18% receiving it moderately. Only negligible percentage (1%) of infants had less opportunities for variety in daily stimulation. However, the acceptance of child's behaviour was very low in most of the families. Therefore, the home environment of the infants presented a satisfactory picture in the present data. Non-significant differences were found in the distribution of infants across various home environment levels.

Table 2: Distribution of infants according to various levels of home environment

Home environment dimensions	Level of home environment			Chi-square value
	Low	Moderate	High	
Emotional and verbal responsiveness of parent.	0	16	84	6.39
Acceptance of child's behavior	81	2	17	
Organization of physical and temporal environment	8	73	19	
Provision of appropriate play materials	13	47	39	
Parent involvement with child	1	9	90	
Opportunities for variety in daily stimulation	1	18	81	
Total Score	3	65	32	

Infant-Mother Attachment Behaviour as per Quality of Home Environment: Table 3 indicates that the infants living in different levels of home environment differed significantly in their attachment behaviour shown at reunion with the mother in the form of proximity seeking ($p < 0.01$) and contact maintaining but in their avoidance behaviour ($p < 0.05$) shown at pre-separation ($p < 0.05$). Infants experiencing low quality home environment wanted to remain more closer to the mother, sought her proximity at reunion and once the contact was made they wanted to maintain the contact with her. However, the ones who were experiencing high quality of home environment during pre-separation in the presence of their mother they were busy exploring the environment or play materials. They used the mother as a secure base or felt secured when she was present, but during separation they showed minimum avoidance-insecurity and again when they are reunited with the mother they showed avoidance to her, although the differences in avoidance behaviour were non-significant at separation and reunion. In general the children with low quality home environment cried at a non-significantly higher rate than their other counterparts living in moderate or high quality of HOME.

Security of Infant-Mother Attachment and Home Environment (Mean Scores): Although non significant differences were reported, but as the data (Table 4) reveals, less securely attached infants had relatively high scores on emotional and verbal responsiveness of the parent, provisions of appropriate play materials, parent involvement with child, opportunities for variety in daily stimulation and total HOME score as compared to more securely attached infants. However, acceptance of child's behaviour and organization of temporal and physical environment were comparable among infants with different levels of attachment.

Co-relation Between Home Environment and Infant-Mother Attachment Behaviours: Data (Table 5) reveals that infants scoring high in emotional and verbal responsiveness had significantly positive correlation with proximity seeking ($p < 0.05$), contact maintaining ($p < 0.05$), avoidance ($p < 0.05$) and crying behaviour ($p < 0.05$) showing that as parents became more emotionally and verbally responsive to their infants, infants also became more securely attached with their mothers although their

Table 3: Mean infant-mother attachment behavior scores of infants according to quality of home environment

Infant-mother attachment behaviors	Quality of home environment			F-ratio
	Low (n=4) Mean $\pm$ S.D.	Moderate (n=62) Mean $\pm$ S.D.	High (n=34) Mean $\pm$ S.D.	
<i>Proximity Seeking</i>				
Pre-separation	1.00 $\pm$ 0.0	1.10 $\pm$ 0.76	1.00 $\pm$ 0.0	0.17
Separation	3.00 $\pm$ 0.0	4.10 $\pm$ 2.34	3.82 $\pm$ 2.02	1.84
Reunion	9.00 $\pm$ 4.47	6.95 $\pm$ 4.75	7.58 $\pm$ 4.83	5.69***
Total	13.00 $\pm$ 4.47	12.15 $\pm$ 5.05	12.39 $\pm$ 4.29	2.15
<i>Contact Maintaining</i>				
Pre-separation	1.00 $\pm$ 0.0	1.03 $\pm$ 0.25	1.00 $\pm$ 0.0	0.04
Separation	3.00 $\pm$ 0.0	3.52 $\pm$ 1.08	3.24 $\pm$ 0.66	0.91
Reunion	7.20 $\pm$ 4.38	5.90 $\pm$ 2.97	6.18 $\pm$ 3.31	3.84**
Total	11.20 $\pm$ 4.38	10.45 $\pm$ 2.96	10.24 $\pm$ 3.21	2.45
<i>Resistance</i>				
Pre-separation	2.20 $\pm$ 1.64	2.63 $\pm$ 1.56	2.67 $\pm$ 1.49	0.32
Separation	6.40 $\pm$ 4.67	5.27 $\pm$ 3.10	6.00 $\pm$ 2.97	1.19
Reunion	2.00 $\pm$ 0.0	2.00 $\pm$ 0.0	2.18 $\pm$ 1.04	0.27
Total	10.60 $\pm$ 6.31	9.90 $\pm$ 4.14	10.82 $\pm$ 4.34	1.01
<i>Avoidance</i>				
Pre-separation	2.60 $\pm$ 2.61	3.61 $\pm$ 2.71	3.76 $\pm$ 2.70	3.26**
Separation	6.40 $\pm$ 4.77	5.24 $\pm$ 2.89	5.58 $\pm$ 2.84	1.77
Reunion	2.00 $\pm$ 0.0	2.06 $\pm$ 0.31	2.18 $\pm$ 0.88	0.49
Total	11.00 $\pm$ 6.86	10.92 $\pm$ 5.07	11.52 $\pm$ 5.09	2.06
<i>Crying</i>				
Pre-separation	1.00 $\pm$ 0.0	1.00 $\pm$ 0.0	1.00 $\pm$ 0.0	0
Separation	1.80 $\pm$ 1.10	1.35 $\pm$ 0.77	1.42 $\pm$ 0.83	0.79
Reunion	1.80 $\pm$ 1.10	1.35 $\pm$ 0.77	1.18 $\pm$ 0.58	0.81
Total	1.40 $\pm$ 0.89	1.58 $\pm$ 0.92	1.48 $\pm$ 0.87	0.54

** Significant at 5% level *** Significant at 1% level

Table 4: Security of infant-mother attachment and home environment (mean scores)

Home environment dimensions	Security of Attachment		t-value
	Less securely attached infants Mean $\pm$ S.D.	More securely attached infants Mean $\pm$ S.D.	
Emotional and verbal responsiveness of parent.	10.13 $\pm$ 1.12	10.10 $\pm$ 1.04	0.13
Acceptance of child's behavior	3.25 $\pm$ 2.38	3.26 $\pm$ 2.72	0.02
Organization of physical and temporal environment	4.72 $\pm$ 1.06	4.77 $\pm$ 1.06	0.22
Provision of appropriate play materials	6.78 $\pm$ 1.64	6.42 $\pm$ 2.23	0.89
Parent involvement with child	5.39 $\pm$ 0.62	5.26 $\pm$ 1.06	0.77
Opportunities for variety in daily stimulation	4.41 $\pm$ 1.09	4.23 $\pm$ 1.02	0.78
Total Score	34.68 $\pm$ 4.66	34.03 $\pm$ 6.41	0.57

avoidance to the mother and attention to the play materials was high in the presence of mother and their crying behaviour also increased. However infants scoring high in acceptance of child's behaviour showed significant negative correlation with contact maintaining behaviour ($p < 0.05$). It indicates that as the acceptance of child's behaviour by mothers increased, infants maintained less contact with mother. However, infants scoring high in organization of temporal and physical environment showed significantly positive correlation with proximity seeking behaviour ($p < 0.05$). It reveals that as the organization of temporal and physical environment increased, infants became more securely attached to their mother significantly while their resistance and avoidance behaviour (anxious attachment) decreased, though non-significantly. High scores in provisions of appropriate play materials displayed significant positive correlation with avoidance behaviour ($p < 0.05$) shown by infants. Greater the provisions of appropriate play materials, higher was the child's avoidance towards mother. Whereas higher parent involvement with the child was

Table 5: Correlation between infant-mother attachment behaviors and home environment

<i>Home environment dimensions</i>	<i>Proximity seeking</i>	<i>Contact maintaining</i>	<i>Resistance</i>	<i>Avoidance</i>	<i>Crying</i>
Emotional and verbal responsivity of parent.	0.197**	0.208**	-0.044	0.214**	0.255**
Acceptance of child's behavior	0.053	-0.236**	0.037	0.037	0.039
Organization of physical and temporal environment	0.261**	-0.058	-0.003	-0.007	0.072
Provision of appropriate play materials	0.064	-0.110	0.019	0.217**	0.061
Parent involvement with child	0.003	-0.058	-0.006	-0.072	-0.019
Opportunities for variety in daily stimulation	-0.054	-0.198**	0.212**	0.207**	0.197**
Total Score	-0.030	-0.123	0.204**	-0.38	0.044

** Significant at 5% level

negatively correlated though non-significantly with resistance, avoidance and crying behaviour of the infant. The infants securing high in opportunities for variety in daily stimulation had significant negative correlation with their contact maintaining behaviour ($p < 0.05$) and significant positive correlation with resistance ($p < 0.05$), avoidance ($p < 0.05$) and crying behaviour ($p < 0.05$) towards the mother. It indicates that as the opportunities for variety in daily stimulation increased, children were more anxiously attached to their mother and desired to maintain contact with her at a lower rate. Infants with high HOME score showed significant positive correlation with resistance behaviour ($p < 0.05$) and non-significant negative correlation with proximity seeking and contact maintaining indicating that as the infants' quality of home environment improved, their security of attachment decreased as the very important factor for high infant-mother attachment security i.e. "acceptance of child's behaviour by mother" is either missing or negligible in case of infants with high home environment. The infants who experienced better home environment in total were less securely attached to the parent.

DISCUSSION

It is noteworthy that none of the infants (0%) showed either avoidant or resistant pattern of attachment. Whereas, the results of the famous American study by Ainsworth and Wittig (1969) explains that 58% infants were classified as secure, 24% were anxious-avoidant and 18% were anxious-resistant. While Indian babies have much more close contact with their mother, nursed for atleast two years, and go wherever their mother goes. Home environment lead to their being more securely attached to the mother. Moreover, sleep time closeness or proximity is

high in Indian infants as compared to others. In India, infants maintain contact with their mother more often as compared to other countries (Kakar, 1990).

When the mother is present with them, the children having high quality home environment do not bother about her, or avoid her and seek less proximity and contact, but when the mother is away they demand her closeness and the results are contrary with the infants experiencing low quality home environment who show more secure attachment when they reunite with the mother after brief separation whereas during separation they showed less secure but more anxious attachment behaviour by manifesting avoidance and resistance. The children who received less appropriate home environment and parenting felt secure with the mother when she is present but once she is away they feel more insecure. The earlier studies conducted by Ainsworth et al. (1978) also documented that the mothers of more securely attached infants were more co-operative i.e. not interfering or restricting then and accepting to their behaviour as compared to mothers of less securely attached infants. The important parenting factors i.e. acceptance of the child behaviour and organization of the temporal and physical environment are directly related to attachment, showing lower mean scores in those families where total HOME score is better and on the contrary the infants experiencing lower quality home environment (as per other dimensions) received more behaviour acceptance and organized environment. These can be the important mediating factors which need to be researched further.

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