

Mother-Infant Attachment:
The Relationship between Quality of Attachment and the Social-
Emotional Development of the Infant at Six Months

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Abstract

Goal of this study is to examine the influences of mother-to-infant attachment on the social-emotional development of the infant at six months. Participants were 334 mothers of six-month-old infants, obtained by 4 midwifery practices from the region of Eindhoven, The Netherlands. The quality of mother-infant attachment was measured by the Maternal Postnatal Attachment Scale (MPAS). The Ages and Stages Questionnaire: Social-Emotional (ASQ: SE) measured the social-emotional development of the infant at the age of six months. Analysis showed a significant positive relationship between the quality of mother-to-infant attachment and the social-emotional development of the infant at six months. The subscale indicator of attachment ‘absence of hostility’ showed a positive relationship to the social-emotional development, while the indicator ‘pleasure in interaction’ showed a negative relationship to the social-emotional development of the infant at six months. The indicator ‘quality of attachment’ did not show any significant results. Follow-up studies should focus on the attachment subscale pleasure in interaction, because of its negative influence on the social-emotional development of the infant at six months found in this study, which is essential to identify early problems in social and emotional development.

Keywords: attachment, social-emotional development, MPAS, ASQ: SE

Introduction

Mother-infant attachment is one of the most popular and theoretically grounded topics related to the social-emotional development of the infant, because it is believed by many it has a big influence on the infant's later functioning, such as resilience to stress, confidence, development of self, behavior problems, psychopathology or quality of functioning in future peer and romantic relationships (Kochanska, 2001). Attachment has the purpose of making a child feel safe, secure and protected and is a specific aspect of the relationship between a child and a parent (Benoit, 2004). Bowlby, founder of the attachment theory, put forward two main hypotheses in which he claimed that the interaction between parent and child could cause differences in quality of parent-to-infant attachment relationships, and individual personality differences later in life were products of these variations in attachment quality (Sroufe, 2005; Bowlby, 1988).

Attachment, as described by Ainsworth (1985), is based on a behavioral system, which is part of the equipment of the infant, underlying reproductive behavior, parental behavior, feeding, and exploratory behavior. It is manifested by attachment behavior, and has the outcome of keeping in proximity to a significant other. This significant other usually is the principal caregiver. Attachment behavior also is adapted to a complementary behavioral system characteristic of adults, which promotes keeping proximity to the infant and also has the function of protecting the infant (Ainsworth, 1985). Thus, attachment can both be viewed from the perspective of the infant as from the caregiver, defined as infant-mother attachment and mother-infant attachment.

Ainsworth (1985) distinguished three types of infant-mother attachment; called patterns A (avoidant), B (secure), and C (anxious-resistant). A fourth type, pattern D (disorganized), was added by Main & Solomon in 1990. Secure attachment behavior, shown by pattern B infants, consists out of the willingness to explore when the mother is present, less so when she is absent and seeking to be close to her at reunion. Insecure attachment behavior, shown by pattern A, C, and D infants, is either characterized by not getting upset at all, or by getting intensely upset by separation from the mother and avoiding or ignoring her when she returns (Ainsworth, 1985; Main & Solomon, 1990). Bartholomew & Horowitz (1991) introduced four types of mother-infant attachment; 'secure', 'preoccupied', 'fearful', and 'dismissive'. Secure attachment indicates a sense of worthiness plus an expectation that other people are generally accepting and responsive. Preoccupied, fearful, and dismissive attachment lead a person to strive for acceptance of valued others, protect themselves against rejection, and avoid close relationships to maintain a sense of invulnerability (Bartholomew & Horowitz, 1991; Bartholomew & Shaver, 1998).

Ainsworth (1985) suggests that attachment starts to take shape at about the middle of the first year, when a number of important changes occur, such as emerge of locomotion and directed reaching and grasping. This is when proximity behavior becomes more active and effective; it becomes more intentional and the infant forms a representational model of its principal attachment figure (usually the mother). The infant has attained the capacity for believing she exists, even when she is not present to perception and so the separation distress occurs when she leaves (Ainsworth, 1985).

In the past, several studies have confirmed the strong mother-infant relationship and its effects on the development of children during childhood. Mother-

infant attachment particularly seems to have a lot of influence on social-emotional development and the competence of a child to be socially active and successful (Kochanska, 2001). Ainsworth & Bell (1974) found, that the quality of infant-mother attachment was influenced by the quality of interaction between the mother and the infant. In addition, the quality of interaction also influenced the level in which the infant showed exploratory behavior and play. They suggested that at first an infant's competence rests upon the cooperation of its mother figure. When a mother reacts to the infant's signals, its communication skills are stimulated, which leads to the development of social competence (Ainsworth & Bell, 1974). Bohlin, Hagekull, & Rydell (2000) completed a longitudinal study of 8-9 years to test the hypothesis that secure attachment promoted later social competence. At school age, social competence was more developed for children who had been securely attached as infants, than for children who had been insecurely attached as infants. Additionally, scores on social anxiety were lower for secure children than for insecure children (Bohlin, Hagekull, & Rydell, 2000). Also van IJzendoorn, Kranenburg, Zwart-Woudstra, van Busschbach, & Lambermon (1991) showed that the social-emotional development of children could be predicted by adult attachment classifications. Results suggested that children of insecure mothers were less compliant and more difficult to control. Children of dismissing fathers appeared to be less social, less timid, and more aggressive in pre-school (van IJzendoorn, Kranenburg, Zwart-Woudstra, van Busschbach, & Lambermon, 1991).

Research has also focused on the relationship between maternal depression, attachment and development of the child. Carter, Garrity-Rokous, Chazan-Cohen, Little, & Briggs-Gowan (2001) examined the role of maternal depression and comorbidity in early mother-infant interactions, security of infant attachment, and the

early emergence of problem behaviors and delays in the acquisition of competencies. Lifetime maternal depression had a negative influence on the amount and quality of mother-infant interactions, with insecure infant attachment as a consequence. This “depression effect” was significant for mothers with comorbid diagnoses. The condition of the interactions with their infants tended to be lower, and the rate of insecure attached infants higher than those of mothers who were diagnosed with depression or mothers without any diagnosis. Effects of depression during and after pregnancy for boys, were the occurrence of problem behavior and the decrease of capabilities. For girls, problem behavior was associated with the quality of early interaction with the mother (Carter, Garrity-Rokous, Chazan-Cohen, Little, & Briggs-Gowan, 2001).

Because the mother’s subjective wellbeing is proven to be important, this article is concerned with the mother’s side of the attachment relationship, which refers to the emotional bond or tie of affection experienced towards the infant (Condon & Corkindale, 1998). To assess parent-to-infant attachment, Condon & Corkindale introduced the Maternal Postnatal Attachment Scale (MPAS). Their focus was mainly upon subjective experiences of the parents in relation to their infant during the first year of life. Using a factor analysis, Condon & Corkindale found the three following indicators of attachment strength: ‘acceptance and tolerance’, ‘pleasure in proximity’ and ‘competence as a parent’. Acceptance represents the lack of resentment in the face of personal sacrifice if the attachment is strong, and the responsibilities of infant care less likely to be experienced as excessively burdensome. Tolerance refers to the willingness and ability to tolerate behavior, which, in the absence of attachment, would more likely be experienced as irritating or frustrating. Pleasure in proximity indicates a desire for interaction with the infant rather than separation. If attachment is

strong, such interaction is more likely to be experienced positively. Competence as a parent can be interpreted as a sense of confidence, competence and satisfaction at being the mother of the baby, such as experiencing the baby as ‘her own’, and perceiving herself as being patient in interactions with the baby. When the infant had reached the age of eight months, acceptance and tolerance was found to be the biggest indicator of attachment quality, followed by pleasure in proximity, and competence as a parent (Condon & Corkindale, 1998).

It appears, that as soon as the infant is capable of attachment, the effects of the mother-to-infant relationship will have its influences on the development of the infant. Despite all the research, we still know little about these influences at the age of six months. It is essential to identify early problems in social and emotional development, to be able to let children fully develop their capacities. It can also prevent them from being seen as inappropriate, unacceptable to others, or seen as disabled or troubled. Goal of this study is to examine the influences of mother-to-infant attachment on the social-emotional development of the infant at six months, to help identify early social and emotional problems in infants. It is expected that the social-emotional development of a six-month-old infant will be positively influenced by a higher quality of mother-to-infant attachment. To assess the strength of the mother-to-infant attachment, the MPAS (Condon & Corkindale, 1998) will be used. Based on the subscales ‘absence of hostility’, ‘pleasure in interaction’ and ‘quality of attachment’, it is expected that the indicator absence of hostility will have the biggest influence on the social-emotional development of the infant at six months. The Ages and Stages Questionnaire Social-Emotional (ASQ:SE) (Squires, Bricker, Twombly, Schoen Davis, Kim, & Yockelson, 2002) will be used to measure the social-emotional development of the infant. This questionnaire addresses seven behavioral areas: ‘self-

regulation', 'compliance, 'communication', 'adaptive functioning', 'autonomy', 'affect', and 'interaction with people'. Based on studies described earlier, it is expected that a high quality of attachment in general will have a significant positive effect on the social-emotional development of the infant at six months.

Method

Participants

In this study, the influences of mother-infant attachment on the social-emotional development of a six-month-old infant are examined. This study is part of a larger longitudinal study called 'In Verwachting', developed and conducted at Tilburg University, since 2008. Participants were 334 mothers of six-month-old infants, obtained by 4 midwifery practices from the region of Eindhoven, The Netherlands. Mean age of the mothers was 32.35 years old; SD 4.32 spread between ages 18.11 and 45.23. From the total of 334 infants, 167 (50%) were boys, and 167 (50%) were girls. Mean age of the infants was 6.09 months old; SD 0.60 spread between ages 3.84 months and 8.84 months. Twins and other multiple births were excluded from this study, and only Dutch or English speaking mothers could participate.

Procedure

In 2008, all future mothers were asked to participate in the longitudinal study 'In Verwachting' and received an information brochure during their first or second visit to the midwifery practice. When interested, the names and telephone numbers of the future mothers were reported to the researchers at the Tilburg University, who then contacted them to provide them with additional information and to answer possible questions about the study. Eventually, the future mothers were asked if they would like to participate.

For this part of the study, the mothers were asked to fill out two questionnaires about their infants, six months after birth. It was possible to receive and fill in these questionnaires online, or on paper.

Materials

The quality of mother-infant attachment six months after birth was measured by the Maternal Postnatal Attachment Scale (MPAS) (Condon & Corkindale, 1998). This questionnaire contains 19 items, which are divided over three subscales, indicating 'quality of attachment', 'absence of hostility' and 'pleasure in interaction'. A selection of the items start with a part of a sentence and are followed by three, four, or five options that can be checked by the mother to finish the sentence. An example of an item with an unfinished sentence is: "I now think of the baby as.." in which the mother can choose between the options 'very much my own baby', 'a bit like my own baby' and 'not yet really my own baby' to finish the sentence. The other items are statements, which can be answered on a 2-, 4-, or 5-point scale. An example of a statement is: "When I'm taking care of the baby, I get feelings of annoyance or irritation", in which the mother can choose between 'very frequently', 'frequently', 'occasionally', 'very rarely' and 'never' to indicate her feelings towards her child. Items 3, 4, 5, 6, 7, 10, 14, 18 and 19 indicate quality of attachment, from which 7, 10 and 14 are reverse scored. The minimum and maximum theoretical values for quality of attachment are 9 and 45. Items 1, 2, 15, 16 and 17 indicate absence of hostility. The minimum and maximum theoretical values for absence of hostility are 5 and 25. Items 8, 9, 11, 12 and 13 indicate pleasure in interaction and are all reverse-scored. The minimum and maximum theoretical values for pleasure in interaction are 5 and 25. The validity and reliability of the MPAS have yet to be fully established (Condon & Corkindale, 1998).

The social-emotional development of the infant at six months was measured by the Ages and Stages Questionnaire: Social-Emotional (ASQ: SE) (Squires et al.,

2002), which can be used with infants from three through eight months. The ASQ: SE contains 19 behavioral items, which are divided into seven behavioral areas: 'self-regulation', 'compliance', 'communication', 'adaptive functioning', 'autonomy', 'affect', and 'interaction with people'. Each item is followed by a series of three columns; 'most of the time', 'sometimes', and 'never or rarely'. Mothers check 'most of the time' if her child performs the behavior, 'sometimes' if her child performs the behavior occasionally, and 'never or rarely' if her child does not yet perform the behavior. The mothers can check a fourth column, if the behavior addressed in the item is of concern to them. The items are written in simple language, and three items are provided with illustrations, helping the mothers to fully understand the items. To be able to score the items quickly and error-free, the items are coded Z, V, or X. Mother's responses are transferred to point values of 0 for 'most of the time', 5 for 'sometimes', 10 for 'never or rarely' and 5 for the fourth column which indicates concern. Scores for the items are then combined into a total score. A low total score, below the cutoff score of 45 points, suggests the mother considers the social and emotional behavior of her child competent. A high total score, above the cutoff score of 45 points, is indicative of problems, and the child should be referred for further assessment. Items 4, 9, 11, 12, 14, 16, 18 and 19 are related to problem behavior, while the other items indicate competent behavior of the infant. Examples of items related to problem behaviors include: "Does your child have eating problems such as stuffing foods, vomiting, or eating nonfood items?" and "Does your child hurt himself on purpose?". Examples of competence-related items include "Is your baby able to calm himself down (for example, by sucking on his hand or pacifier)?" "Does your child like to be picked up and held?"; and "Does your baby let you know when she is hungry, hurt, or wet?". Internal consistency of the ASQ: SE ranges from .67 to .91,

measured by Cronbach's alpha. Test-retest reliability is 94% and concurrent validity ranges from 81% to 95%, with an overall agreement of 93% (www.agesandstages.com).

Statistics

In this study, all statistical analysis were performed using computer software SPSS statistics 17.0.

First, mean descriptives (age, gestational age, infant gender) for the participants were conducted. To examine the relationship between quality of attachment and the social-emotional development of the infant at six months, three subscale attachment variables were computed; 'quality of attachment', 'absence of hostility', and 'pleasure in interaction'. Multiple regression analysis was performed to determine the relationship between quality of attachment and the social-emotional development of the infant at six months, controlled for gender, age and parity. To predict the probability of occurrence of problems related to the social-emotional development of the infant at six months, multiple logistic regression analysis was performed between quality of attachment and the social-emotional development of the infant at six months, controlled for age, gender and parity.

Results

Descriptive analysis

Because of the age range of the 6-month ASQ: SE, only scores of infants from age 3.0 through 8.9 months were included in the analysis. Mean age of the infants was 6.09 months (SD 0.60). From the total of 334 infants, 167 (50%) were boys, and 167 (50%) were girls. Mean age of the mothers was 32.35 years (SD 4.32), with a mean gestational age of 39.80 weeks (SD 1.60), spread between 30.14 and 42.14 weeks (table 1).

Table 2 overviews scores for the MPAS and the ASQ: SE, which were calculated by summing the scores of each separate question belonging to the questionnaire. The table also displays mean scores on the three different attachment variables ‘quality of attachment’, ‘absence of hostility’, and ‘pleasure in interaction’ from the MPAS. A higher score on the MPAS indicates higher quality of maternal attachment. Also the percentage of participants who scored above the cutoff score of the ASQ: SE can be viewed in table 2. For the ASQ: SE, 3.1% of the participants scored above the cutoff score of 45, and are therefore indicative of problems.

Regression analysis

The results of the regression analysis are shown in table 3. To examine the relationship between mother-to-infant attachment and the social-emotional development of the infant at six months, a multiple regression analysis was performed between the independent variable ‘MPAS’ and the dependent variable ‘ASQ: SE’, controlled for the variables gender, age, and parity. The analysis shows a significant negative relationship between scores on the MPAS and scores on the ASQ: SE ($B = -0.32, p = .010$), which indicates a positive effect of high attachment quality on the

social-emotional development of the infant at six months.

In addition, a multiple regression analysis was performed between the independent variables ‘quality of attachment’, ‘absence of hostility’, ‘pleasure in interaction’, and the dependent variable ‘ASQ: SE’, controlled for gender, age, and parity (table 4). No significant relationship was found between scores on ‘quality of attachment’ and scores on ‘ASQ: SE’ ($B = -0.49, p = .140$). A significant negative relationship was found between scores on ‘absence of hostility’ and scores on ‘ASQ: SE’ ($B = -1.57, p = .000$), which shows the positive influence of ‘absence of hostility’ on the social-emotional development of the infant at six months. The relationship between scores ‘pleasure in interaction’ and ‘ASQ: SE’ turns out to be significant, and positive ($B = 0.87, p = .001$), which indicates a negative influence of ‘pleasure in interaction’ on the social-emotional development of the infant at six months.

Table 5 shows the results of the logistic regression analysis between the independent variable ‘MPAS’ and the dependent binary variable ‘ASQ: SE’ (below and above the cutoff score of 45), controlled for gender, age, and parity. No significant relationship was found between scores on ‘MPAS’ and the probability of scoring above the cutoff score of 45 on ‘ASQ: SE’ ($OR = 0.97, p = .598$).

Finally, a logistic analysis was performed between the independent variables ‘quality of attachment’, ‘absence of hostility’, ‘pleasure in interaction’ and the dependent binary variable ‘ASQ: SE’ (below the cutoff score of 45 = 0, above the cutoff score of 45 = 1), controlled for gender, age, and parity. For the variables ‘quality of attachment’ ($OR = 0.83, p = .148$) and ‘absence of hostility’ ($OR = 0.82, p = .157$), no significant results were found in the analysis. The logistic regression does show a significant positive relationship between scores on ‘pleasure in interaction’ and the probability of scoring above the cutoff score of 45 on ‘ASQ: SE’ ($OR = 1.47,$

$p = .011$), which indicates that mothers with a higher score on ‘pleasure in interaction’ will have more chance on scoring above the cutoff score of 45 on ‘ASQ: SE’ (table 6).

Discussion

Goal of this study was to examine the influences of mother-to-infant attachment on the social-emotional development of the infant at six months, to help identify early social and emotional problems in infants. Expected was that a high quality of attachment would have a positive, and significant effect on the social-emotional development of the infant at six months. In addition, based on the MPAS subscales ‘absence of hostility’, ‘pleasure in interaction’ and ‘quality of attachment’, it was hypothesized that the indicator ‘absence of hostility’ would have the biggest influence on the social-emotional development of the infant at six months.

As expected, analysis showed a significant positive relationship between the general quality of mother-to-infant attachment and the social-emotional development of the infant at six months. When mothers scored higher on the attachment scale, their infants also showed better results on the social-emotional development scale. This can be seen as an addition to earlier findings of van IJzendoorn et. al (1991), who showed that the social-emotional development of children could be predicted by adult attachment classifications at the age of 12 months and 41.5 months (van IJzendoorn et. al, 1991).

When analyzing the attachment subscales ‘absence of hostility’, ‘pleasure in interaction’ and ‘quality of attachment’, the subscales absence of hostility and pleasure in interaction showed a significant influence on the social-emotional development of the infant at six months. The subscale absence of hostility showed the biggest influence on the social-emotional development of the infant at six months, which was also found by Condon & Corkindale (1998) who introduced the three indicators of attachment ‘acceptance and tolerance’ (refers to absence of hostility in

this study), ‘pleasure in proximity’ (refers to pleasure in interaction in this study) and ‘competence as a parent’ (refers to quality of attachment in this study) on which he based the three subscales of the MPAS (Condon & Corkindale, 1998), and confirms the hypothesis.

‘Pleasure in interaction’ showed however a negative relationship to the social-emotional development of the infant at six months. This was a surprise, as a positive influence on the social-emotional development of the infant was expected for all three indicators. To be sure of the results for this article, mean scores of the three MPAS subscales found in the analyses during this study, were compared to mean scores of the three MPAS subscales found by van Bussel, Spitz, & Demyttenaere (2010). No big differences were found between both datasets, so it might be assumed that the population is representative. A possible explanation for the negative relationship between ‘pleasure in interaction’ and the social-emotional development of the infant at six months could lie in reinforcement of the infant’s behaviour by the mother. As stated by Skinner (1971), both positive and negative reinforcement may have negative consequences because behaviour, which is reinforced, tends to repeat itself (Skinner, 1971). Example questions from the ASQ: SE are: “When upset, can your baby calm down within a half hour?” and “Does your baby cry for long periods of time?”. A higher score on pleasure in proximity indicates a higher amount of interaction between mother and infant. This can cause, for example, early pickup by a parent when the infant appears to be upset, causing behaviour reinforcement, which could possibly have a negative influence on the social-emotional development of the infant.

The reason why quality of attachment did not show a significant relationship to the social-emotional development of the infant at six months, could be explained by the fact that, as suggested by Ainsworth (1985), attachment starts to take shape

around 6 months of age, thus mother-to-infant attachment is presumably very weak around this time. Additionally, it might be possible that competence as a parent, which quality of attachment also refers to, did not fully develop at the age of six months either.

Analyses that estimated the probability of occurrence of problems related to the social-emotional development of the infant at six months, showed no significant effect of mother-to-infant attachment in general. This could be explained by the fact that the group of mothers, who had a score indicative of problems, was very small (3.1%) compared to the non-problem group (96.9%). When looking at the indicators ‘acceptance and tolerance’, ‘pleasure in proximity’ and ‘competence as a parent’, ‘pleasure in proximity’ seemed to significantly improve chances on the occurrence of problems. This confirms earlier findings, where analysis showed a significant negative relationship between ‘pleasure in proximity’ and the social-emotional development of the infant at six months.

Strong feature of this study is the elimination of possible effects of age, gender and parity on attachment quality. With an age range of 3 through 8 months used in this study, a 3-month old infant will have a lower score on social-emotional development than an 8-month old infant. It is also known attachment differs between boys and girls, as shown by Iizendoorn et. al (1991), who found a difference of sensitivity between secure and insecure mothers towards girls, while this difference was not found for boys (van Iizendoorn et. al, 1991). Furthermore, it is generally known that girls are faster in the development of speech and motor-skills, which will improve the mother-to-infant attachment. As for parity, the importance lies in being the firstborn with inexperienced, insecure parents who do not know what to expect, or

being a newborn, with experienced parents who are more at ease, which will improve quality of attachment.

This study has several limitations that need to be addressed. First, it is possible the participating mothers showed a tendency to reply in a manner that will be viewed favourably by others (social desirability). This could both have happened while answering the MPAS, and the ASQ: SE. As for the MPAS, mothers can feel ashamed about their relief when their baby is not around, and pretend that is not the case by filling in a different answer. For the ASQ: SE, mothers can think their infants should develop faster than shown in reality, and tend to mark the sometimes option too frequently which will inflate scores (Squires et al., 2002). Letting another person fill in the ASQ: SE, perhaps through observation, could eliminate the mother's social desirability bias for this questionnaire, and create more objective measurements.

Some questionnaires were not fully answered by the mothers, which lead to missing values. It is possible these missing values influenced the total scores of the questionnaires and the overall data. Skipping questions can happen because of social desirability, or not understanding the question fully because of intellectual limitations. It can perhaps be resolved by filling in the questionnaire under the guidance of a project leader, who can immediately explain questions and check the answers given.

Follow-up studies should focus on the attachment subscale pleasure in interaction, because of its negative relationship to the social-emotional development of the infant at the age of six months, found in this study. It is recommended to conduct a more expanded measurement of this indicator, as it was only represented by five questions on the MPAS in this study. As mentioned before, we still know little about the influences of attachment on social-emotional development at such a young age, and it is essential to identify early problems to be able to undertake fast

intervention. As Lyons-Ruth, Connell & Grunebaum (1990) found, developmentally oriented home-visiting services could have a significant impact on the early development of infants a severe social risk (Lyons-Ruth, Connell & Grunebaum, 1990). More research is necessary to be able to let children fully develop their capacities and prevent them from being seen as inappropriate, unacceptable to others, or seen as disabled or troubled.

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Table 1. Descriptive analysis

		N	%	Mean	SD
Age Mother		334	-	32.35	4.32
Age Infant		334	-	6.08	0.60
Gestational age		334	-	39.80	1.60
Gender	Boys	167	50.0	-	-
	Girls	167	50.0	-	-

Table 2. Scores for the MPAS and the ASQ: SE

	N	Mean score	SD	Above Cutoff (%)
MPAS Total	322	83.33	6.07	-
Quality of Attachment	329	41.76	2.60	-
Absence of Hostility	332	21.80	2.34	-
Pleasure in Interaction	327	19.81	3.02	-
ASQ:SE Total	300	15.05	12.47	8 (2.7)

Table 3. Regression analysis of MPAS on ASQ: SE, corrected by gender, age and Parity.

		b	SE b	B
ASQ:SE	(Constant)	35.92	10.52	
	Gender	.67	1.47	.03
	Parity	3.16	1.48	.13*
	Age	.00	.03	.00
	MPAS	-.32	.13	-.15**

Note. R²= .04 (p<.05). *p<.05, **p<.01, ***p<.001.

Table 4. Regression analysis of ‘quality of attachment’, ‘absence of hostility’, and ‘pleasure in interaction’ on ASQ: SE, corrected by gender, age and parity.

		b	SE b	B
ASQ:SE	(Constant)	49.59	12.18	
	Gender	-.03	1.41	-.00
	Parity	1.80	1.47	.07
	Age	.02	.03	.03
	Quality of Attachment	-.49	.33	-.10
	Absence of Hostility	-1.57	.36	-.29***
	Pleasure in Interaction	.87	.27	.21***

Note. R2= .13 (p<.05). *p<.05, **p<.01, ***p<.001.

Table 5. Logistic regression of MPAS on ASQ: SE, corrected by gender, age and parity.

		B	SE B	OR
ASQ:SE	(Constant)		4.28	.155
	Gender	-.24	.62	.785
	Parity	.78	.69	2.19
	Age	-.01	.03	.994
	MPAS	.338	.05	.974

Note. R2= .02 (p<.05). *p<.05, **p<.01, ***p<.001.

Table 6. Logistic regression of ‘quality of attachment’, ‘absence of hostility’, and ‘pleasure in interaction’ on ASQ: SE, corrected by gender, age and parity.

		b	SE b	OR
ASQ:SE	(Constant)	1.41	4.90	1.47
	Gender	-.49	.65	.61
	Parity	.11	.75	1.11
	Age	.00	.04	1.00
	Quality of Attachment	-.18	.13	.83
	Absence of Hostility	-.20	.14	.82
	Pleasure in Interaction	.38	.15	1.47*

Note. R2= .15 (p<.05). *p<.05, **p<.01, ***p<.001

Mother-Infant Attachment : The Relationship between Quality of Attachment and the Social-Emotional Development of the Infant at Six Months. @inproceedings{Vissenberg2010MotherInfantA, title={Mother-Infant Attachment : The Relationship between Quality of Attachment and the Social-Emotional Development of the Infant at Six Months}, author={J Vissenberg}, year={2010} }. J Vissenberg. Published 2010. 5. The child's attachment relationship with their primary caregiver leads to the development of an internal working model (Bowlby, 1969). This internal working model is a cognitive framework comprising mental representations for understanding the world, self, and others. A person's interaction with others is guided by memories and expectations from their internal model which influence and help evaluate their contact with others (Bretherton, & Munholland, 1999). John Bowlby believed that the relationship between the infant and its mother during the first five years of life was most crucial to socialization. He believed that disruption of this primary relationship could lead to a higher incidence of juvenile delinquency, emotional difficulties, and antisocial behavior. They first assessed mother-child attachment at 12 and 18 months of age, and coded it as anxious-avoidant, secure or anxious-resistant. Then when the children were 4 to 5 years old, the experimenters observed the playing behaviors of the dyads in lab settings. Three findings delineated a clear pattern of predictive relationship. Slightly different from the dynamics of aggression associated with avoidant attachment, the relationship between disorganized attachment and the manifestation of aggressive behavior may become established only by the late preschool period.