

ORIGINAL ARTICLE

Mother-child interaction at 9 months and child's attention problems at school age**Lorena Caiati^a, Elena Ierardi^{a,b}, Margherita Moioli^{a†}**^aChild Neuropsychiatric Unit, San Paolo Hospital of Milan,^bDepartment of Psychology, University of Milano-Bicocca, Milan, Italy

According to previous literature the inappropriateness of the mother-child relationship can be an important risk factor for the socio-emotional development and may determine psychopathological problems (Feldman, 2010; Lyons-Ruth *et al.*, 2013; Sroufe, Egeland, Carlson, & Collins, 2005).

Thus, it may be supposed that being parents is not just a univocal pre-determined genetic status, not even a simple role. Parenthood is a multi-determined and evolutionary open process, essential for a harmonious psychic development of the child, which ensures an easier and effective adaptation to environmental needs (Sameroff, McDonough, & Rosenblum, 2004).

The analysis of the relationship between the child communication competences and maternal responsiveness has also permitted to underline how different aspects of parent "caregiving" and those of the child communication ability have short and medium term effects on the socio-emotional development (Riva Crugnola, Gazzotti, Spinelli, Ierardi, Caprin, & Albizzati, 2013).

The dyadic system developing in the first year of life appears to be fundamental for the creation of attachment relationship of the child with the most important attachment figures, those

Abstract

Poor-quality infancy parenting is a risk factor for externalizing problems in developmental periods. The aim of this longitudinal research was to evaluate association between the quality of mother-child interaction at 9 months and child's attention disorders at school age. The participants were 27 mother-child dyads. At child 9 months, mother-infant interactions were video-recorded and codified by the *Neuropsychomotor video analysis for parent and child interaction*. At 6 years, *Conners' Parent Rating Scales-Revised* was administered to the mothers to assess attention-deficit/hyperactivity disorder.

The results indicated that the quality of early dyadic interaction was related to attention disorders in subsequent development. Maternal and child nonresponsive interactive style, particularly mother's aggressive behaviors and infant passive behaviors, were risk factors for child's attention problems at school age. It's necessary to carry out early screening and intervention to prevent behavior problems in children.

Key Words: mother-infant interaction, attention problems, child development.

influenced by parenting quality and parental emotional availability (Biringen, Derscheid, Vliegen, Closson, & Easterbrooks, 2014; Easterbrooks, Chaudhuri, & Gestsdottir, 2005; Sroufe, 1996). Currently research increasingly confirms that the creation of attachment relationship, facilitated by the proximity and the protectiveness of the caregivers, is important to guarantee not only physical survival but also emotional one (Coan, 2008).

Therefore, many research showed that dyadic interactions between child and caregiver in the first year of life have the important role of creating specific styles of emotional regulation, connected with attachment patterns strengthened during childhood (Tronick, 1989; Riva Crugnola *et al.*, 2011).

The different ways of the child's emotional regulation developed with their caregivers during his first years seem to influence the creation of a secure or insecure quality of the attachment pattern (Beebe *et al.*, 2010; Evans & Porter, 2009; Ierardi, Riva Crugnola, Gazzotti, Ferro, & Albizzati, 2013), determining individual emotional regulation styles strictly related to those qualities. These models of regulation strategies have a long-term impact on the regulation competences that the child develops at a later stage, indeed they influence their suitability or their aspects of dysregulation (Conway & McDonough, 2006).

During the second year of life, the child internalizes co-regulation forms that he experienced with the attachment figures, on the basis of the relational patterns connected to the self and the emotional availability observed in the first year of life. This pattern produces individual regulation styles, enriched by cognitive and symbolic competences that the child acquires (Sroufe, 1996) simultaneously with the progressive maturation of the cerebral cortex, mainly the pre-frontal one (Coan, 2008; Diamond & Aspinwall, 2003).

According to previous studies, parental sensibility and responsivity facilitate the child's self-confidence and his emotional development (Biringen *et al.*, 2014; Sroufe *et al.*, 2005).

Further studies show the quality of the parent's role and the attachment patterns that have been developed in the second and the third years are related to the quality of the child's social and relational abilities. As an example, the mother's intrusiveness and a scarce parental sensibility during childhood forecast externalizing and internalizing problems during the child's subsequent development (Mäntymaa, Puura, Luoma, Salmelin, & Tamminen, 2004). Maternal sensibility

instead is associated with a greater resilience competence in pre-school and school child (Cumberland-Li, Eisenberg, Champion, Gershoff, & Fabes, 2003; Kok *et al.*, 2013).

Previous research have also revealed how difficulties of a child in controlling his emotions during the interactions with the mother in his first year may be a risk factor for the development of symptoms and problems related to hyperactivity and inattention problems. Furthermore it has been showed that non-responsive maternal behavior (aggressiveness, intrusiveness, and hostility) carries emotional problems in the first months of life and later behavioral problems in school child (Morrell & Murray, 2003).

A recent longitudinal research shows that inadequate mother-child interactions in the first period of child life are a risk factor for externalizing problems arising at 5-10 years age and in adulthood (Lorber & Egeland, 2009). Another research instead demonstrates that hostile and aggressive behavior of both mother and child, during their interaction, causes behavioral problems at 20 years old (Najmi, Bureau, Chen, & Lyons- Ruth, 2009).

In clinical environment the request for consultancy is even more frequently required for externalizing problems, mainly concerning with restlessness, impulsiveness, inattention and hyperactivity. However, the ADHD (attention deficit disorder) is still not well identified as a specific clinical disorder. It is often associated with other clinical pictures. Links between different attachment styles and ADHD are still not well empirically investigated, but we can underline some attempts. Haddad and Garralda (1992) have described some seriously disturbed attachment relations within child with ADHD but without any neurobiological indicators.

Also we have to mention two important studies concerning early interactions and attention problems in the development process. Clarke *et al.* (2002) have compared two child groups with and without ADHD, evaluating, trough the SAT, internal operative models related to emotional bound. They found a strong support to the hypothesis that the ADHD is associated with a more insecure attachment because the ADHD group of child achieved very low scores in all secure attachment dimensions as compared with child without ADHD.

In this context, impulsiveness, negative asking for attentions, recklessness, hyperactivity, and recurring oppositional behavior in the ADHD child can be viewed as strategies to receive attentions from a less responsive caregiver.

Carlson, Jacobvitz & Sroufe (1995) found the mother's intrusiveness evaluated at 6 months of infant life significantly predicts inattention first and then hyperactivity in the pre-scholar age, with respect to biological and behavioral factors. Stiefel (1997) outlined a positive correlation between the insurgence of symptoms in ADHD child sample and the lack of parental attentions during their first year of life. This kind of deficit results from many stressing events that compromised the prime relationship. But, until now, no study has analyzed the interactions at a micro-analytical level with to find attentive problems predictors.

According to previous considerations, our analysis at a micro-analytical level aims to investigate the relation between mother's and infant's style of interaction at infant 9 months and to measure how the dyadic quality of early interactions is associated with the child's attentive/hyperactivity problems in scholar age.

The hypothesis was that mothers with more intrusive and aggressive behaviors in the interaction with their infants at 9 months had children with more inattention and hyperactivity problems at 6 years old. At the same time, infants with more negative behaviors, as passive and aggressive styles, had more attention and hyperactivity problems. We hypothesized also that non sensitive mothers and non-participating infants had more scores on Total Conners' scale.

Moreover, maternal sensitive style was associated with the infant positive behaviors; likewise maternal non-sensitive styles were associated with negative infant behaviors.

Method

Participants

The sample is composed by 27 Italian mother-infant dyads. Mothers were from 25 to 37 years old (Mean age=33.4; SD =2.45) and were nearly all primiparous. Most of the mothers were married (61%) or had partners (39%).

The socio-economic level is 26% from the middle-class and 74% from the upper-class. The education level of the mothers has a range of between 8 and 18 years (55.2% had a degree, 34% had an Italian High School Diploma and the remaining 10% had an Italian Middle School Diploma at 14 years old). Nearly all mothers are working (92%). The child are all born full-term (11 females) and with no pathology at birth. All the participants are recruited from a normal population participating to the "Servizio di Accompagnamento alla Crescita", of the San Paolo Hospital of Milano so as to support the mother-infant relationship in the first year of life.

Instrument

Neuropsychomotor Video Analysis of parent and child interaction (NVA) (Moioli et al., 2014)

NVA is an assessment tool designed for the structural observation, evaluation and coding of video-recordings of caregiver-child interactions in the first three years of life. The coding carried out with NVA allows the observer to evaluate separately the behavior of both the caregiver and the child one in relation to each other. Maternal and child behaviors were analyzed for the all duration of interaction in order to evaluate the occurrence of specific behaviors. Child and maternal behavior was coded separately, and at different times, by the same researcher. The evaluation of the behavior of both caregiver and child takes place in 7 areas: “look”, “facial mimicry and facial activity”, “hand and arm gestures”, “posture and use of the body”, “verbal communication”, divided into “use of voice”, which includes vocal, prosodic and sound aspects of communication and “use of words”, which looks more specifically at the verbal and the semantic aspects, and “objects and games”. For each one of the 7 areas, the instrument presents a list of questions that the observer must answer by selecting one or more options among the ones provided. The observer can choose the option that better describes the interaction that is being evaluated by clicking on it. The options are not mutually exclusive: if one answer is not enough to describe the interaction, it's possible to select a second additional answer. If it is not possible to provide an answer for a specific question, the examiner can left it unanswered. Once the information has been filled-in, the first thing to be considered is the percentage of the answers determined compared to the maximum number of possible answers per category. The final coding of the interaction allows to give a definition of the type of prevailing behavior of both partners based on the calculation of the frequency of the behavior itself and to assigned caregiver and child in specific categories. Mother categories are: Intrusive, Controlling, Violence, Sensitivity, Collaborative, Passive, and Expulsive. Child categories are: Intrusive, Reactive, Aggressive, Participating, Collaborative, Passive, and Avoidant. From the 7 categories defined both for the child as well as for the adult, a further central one is identified, which includes the behavior of a working parent-child dyad where it can be observed that the two share the same play activity with pleasure. From this central category defined as Participating (corresponding to “Sensitivity” adult and “Participating” child) three other categories describing the behavior macrocategory of “Approach” and three others of “Dismissal” increasingly outdistance

themselves. *The Adult Approach* categories includes: *Controlling*, all the behavior patterns in which the parent manages to interact together with the child are able to start a play but his/her posture, body language, look, and speech tell us that he/she will not allow himself to lose control and this doesn't allow him/her to manage the situation so that the other can move spontaneously or behave freely; *Intrusive*, it is the type of behavior that pursues the personal objective of the individual. It has an annoying and/or avoidance effect which interrupts spontaneous play. Intrusive action often has a controlling effect; *Violence*, verbal and physical behavior appears so exasperated and aggressive. *The Adult Participating* category includes *Sensitivity*, in which the caregiver is awareness and responds appropriately to the needs and emotions of the child. *The Adult Dismissal* categories includes *Collaborative*, the actions of an adult who does not start games but who is able to play together with the child, to share an object or an activity, but lacks that element of pleasure of being together; the category refers to the neutral engagement of the mother; *Passive*, the behavior is characterized by the non-response or by a response given at times which are unsuitable to the interaction. Partial or isolated interactions are highlighted, which involve the look or actions or speech which can often be disjointed and uncoordinated; *Expulsive*, the adult wards off actively and directly the contact and sharing attempts of the child.

The Infant Approach categories includes *Controlling*, the child's use of control upon the parent emerges thanks to some peculiar characteristics of its actions which clearly give the observer the idea of a child that doesn't want to give up the relationship with the other but cannot trust him completely; *Reactive*, the child shows behaviour where the gesture is often the response to the other's actions and where we can see an excess of energy applied to the gesture, whether vocal or physical; *Aggressive*, this category includes verbal and physical aggressive behaviours. *The Infant Participating* category corresponds to *Participating*, this category includes behaviors in which the child actively seeks to play with the parent, for example, infant explorative behaviors of others and the environment acted in a context of emotional security where the exploration is shared with the parent and it sustained by the caregiver; the activity is engaging, produces pleasure and is based on alternation of child and parent in the play. In *the Infant Dismissal* categories there are: *Collaborative*, in this category it's possible to see all the behavior patterns where the child is able to interact with the parent, but his/her actions are mainly in response to the stimulation received; the category refers to the neutral engagement of the infant; *Passive*, the

behavior is characterized by the non-response or by a response given at times which are unsuitable to the interaction; *Avoidant*, the child is directly active in rejecting the attempts of contact and sharing with the parent.

Convergent validity of the instrument was supported by significantly positive correlations between the NVA categories and the Care-Index categories (see Moioli *et al.*, 2014).

The coding of the NVA video-recordings was done by two judges independently, both judges are specifically trained to use the coding system. Therefore, Cohen's K (Cohen, 1960) was calculated to identify the agreement among the observers and the result was $K=.79$ for the infant categories and $K=.86$ for the mother categories.

Conners' Rating Scales-Revised (CRS-R; Conners, 1997)

Conners' Scales are extensively used in the clinical and research context for evaluating the attention deficit with or without hyperactivity problems. For this research, the parent's version was used (CPRS-R); it assesses behaviors and other concerns in children from the age of 6–18 and provides evaluation of the key areas of inattention, hyperactivity/impulsivity, learning problems, executive functioning, aggression, and peer relations. Response-time needed less than 20 minutes (except for cases in which the subject is affected by serious problems). Answers are given in the form of choices based on a four-point frequency of occurrence scale (0 = never; 1 = sometimes; 2 = frequently; 3 = very often).

The subscales and the deriving indicators from the questionnaire results are the following: Opposite behavior, cognitive disorders, hyperactivity-impulsiveness, anxiety-shyness, perfectionism, social problems, psychosomatic illness, ADHD, CGI index, restlessness, emotional instability, Total-CGI, DSM-IV-Inattention, M-DSM-IV-Hyperactivity-Impulsiveness, Total-N-DSM-IV. Each range result (A-n) is transposed in another format, designed for graphically represent the overall results.

The Conners' Parent Rating Scale revised scale has a good internal reliability coefficients, high test-retest reliability, and effective discriminatory power (see Conners *et al.*, 1998).

Procedure

When infants were 9 months old, interactions between mother and child have been video-recorded.

Video-recording have been realized in a room of the hospital for about 5 minutes, asking to the mother to act normally, play and interact with her child. The room setting included an exercise mat where mother and child could sit and lay down and many toys (stuffed animals, rattles or carillon). Camera was placed inside the room in order to monitor mother-child behaviors.

Subsequently, video-records have been analyzed and codified by the NVA (Moioli *et al.*, 2004), a specific instrument for investigating (observation, evaluation, codification) mother-child interactions.

At child 6 years old, the Conners' Parent Rating Scales-Revised (CRS-R; Conners, 1997) was administered to the mothers, in order to evaluate the child's behavior during his interaction with his mother at home (studying, playing) and to identify attentive problems.

Data Analysis

For the correlations between mother and infant styles, only macrocategories of NVA have been considered, both of mothers and infants, because in our previous studies have already analyzed the correlations between all the mother and infant subcategories.

For analyzing data on Conners' scales, we use instead NVA categories and macrocategories to identify the styles that can be associated to children problem at 6 years old both at analytical and at global level.

Data processing was developed through inferential tests with the SPSS statistics program (21.0 version). We used the Spearman rho correlation to identify significant associations in mother-child behaviors and to reveal the combination of mothers and children lifestyles and the subscales scores marking hyperactivity and inattention and Conners' full-rating scale test.

Results

Preliminary analysis

At the first step, we analyzed sociodemographic characteristics to understand whether some variables could influence the results. Using Mann-Whitney, it was possible to point out differences between the genders compared to the NVA categories and Conners' scales. There are no significant differences for the mother's and child's behaviors in relation to child's gender. No significant differences were found with respect to the social-demographic variables such as mother's age, marital status and level of education.

Therefore these variables were not taken into consideration in the following analysis.

In Table 1 the descriptive statistics for the variables of this study were showed.

Table 1. Mean and standard deviation of the variables.

Variables	N	Mean	S.D.
Infant Aggressive	27	.07	.385
Infant Reactive	27	3.19	3.65
Infant Controlling	27	8.07	5.17
Infant Participating	27	49.3	25.1
Infant Collaborative	27	16.6	7.05
Infant Passive	27	18.5	18.3
Infant Avoidant	27	4.22	4.54
Mother Violent	27	.44	1.39
Mother Intrusive	27	9.33	12.4
Mother Controlling	27	9.85	6.61
Mother Sensitivity	27	59.0	26.0
Mother Collaborative	27	12.1	9.30
Mother Passive	27	8.15	14.2
Mother Espulsive	27	.70	1.81
Child Approach	27	11.3	7.91
Child Participating	27	49.3	25.1
Child Dismissal	27	39.4	23.0
Mother Approach	27	19.6	17.3
Mother Participating	27	59.0	26.0
Mother Dismissal	27	21.0	20.6
Inattention	27	1.74	2.34
Hyperactivity	27	1.30	1.77
Total scale	27	48.1	32.9

Mother-child styles correlation

Spearman correlation was use to evaluate the relation between maternal and infant styles. Significant associations between mother and infant's categories were found.

The Approach child's category was positively correlated with the Approach mother's category and was negatively correlated with Participating mother's category. The intercorrelations of these scales ranged from .41 to .48, which indicated moderate correlations. The Participating infant's category was positively and strongly correlated with mother's Participating category and

was negatively correlated both with the mother's Approach category (moderate correlation) and the Dismissal one (strong correlation); the infant's Dismissal category was positively and strongly correlated with the mothers' Dismissal and was negatively and strongly correlated with mothers' Participating category (see Table 2).

Table 2. Correlations among NVA child's and mother's macrocategories

	Mother Approach	Mother Participating	Mother Dismissal
Child Approach	.489**	-.418*	.185
Child Participating	-.460*	.884***	-.819**
Child Dismissal	.376	-.820***	.852***

* $p < .05$, ** $p < .01$, *** $p < .001$.

At first, we analyzed the association between 7 infant's and mother's NVA categories and Conners' scale. Spearman correlation showed that the inattention subscale of CPRS-R was significantly positively correlated with the infant's Passive category and the hyperactivity scale was positively correlated with the infant's Collaborative category (see Table 3). Moreover, CPRS-R Total scale was positively correlated with the infant's Passive category and negatively correlated with the infant Participating categories. The intercorrelations of these scales ranged from .38 to .44, which indicated moderate correlations.

Table 3. Correlations among NVA infant's categories and CPRS

	Inattention	Hyperactivity	Total scale
Aggressive	-.198	-.200	-.063
Reactive	-.047	.049	.072
Controlling	.092	.076	.103
Participating	-.371	-.232	-.443*
Collaborative	.356	.385*	.294
Passive	.390*	.098	.440*
Avoidant	.234	.074	.323

* $p < .05$, ** $p < .01$ *** $p < .001$.

Table 4. Correlations among NVA mother's categories and CPRS

	Inattention	Hyperactivity	Total scale
Violent	.443*	.405*	.500**
Intrusive	.211	.389*	.290
Controlling	.217	.233	.138
Sensitivity	-.300	-.152	-.419*
Collaborative	.434*	.022	.497**
Passive	.212	.068	.296
Espulsive	.163	-.027	.272

* $p < .05$, ** $p < .01$ *** $p < .001$.

Concerning mother's categories, Spearman correlation showed that the inattention subscale of CPRS-R was significantly positively correlated with the mother's Violent and Collaborative categories. The hyperactivity scale was positively correlated with the mother's Violent and Intrusive categories (see Table 4). Moreover, CPRS-R Total scale was positively correlated with the mother's Violent and Collaborative categories and was negatively correlated with the Mother Sensitivity category. The intercorrelations of these scales ranged from .38 to .50, which indicated moderate correlations.

Regarding macrocategories, the analyses conducted show that the inattention subscale of CPRS-R was significantly positively correlated with the infant's Dismissal category (see Table 5). CPRS-R Total scale was positively correlated with Maternal Dismissal and Infant Dismissal macrocategories and was negatively correlated with the Maternal Participating and Infant Participating categories. The intercorrelations of these scales ranged from .41 to .50, which indicated moderate correlations.

Table 5. Correlations among NVA child's and mother's macrocategories and Conner's scales

	Mother Approach	Mother Participating	Mother Dismissal	Child Approach	Child Participating	Child Dismissal
Inattention	.243	-.300	.368	.070	-.371	.449*
Hyperactivity	.367	-.152	.319	.083	-.232	.204
Total scale	.248	-.419*	.434*	.100	-.443*	.503**

* $p < .05$, ** $p < .01$, *** $p < .001$.

Furthermore, the inattention scale showed a trend toward a significant negative correlation with the infant's Participating category ($r = -.37$; $p = .057$) and a trend toward a significant positive

correlation with the Mother Dismissal category ($r = -.36; p = .059$). Also the hyperactivity subscale of CPRS-R showed a trend toward a significant positive correlation with the mother's Approach category ($r = -.36; p = .060$).

Moreover, the two subscales (inattention and hyperactivity) were significantly positively and moderately correlated ($r = .54; p = .003$).

Discussion

The obtained results from this research confirm the initial hypotheses, indeed a significant correlation between mother's and child's behaviors were found. In particular, a positive association between the sensitive infant's behavior and the sensitive mother's one was underlined. This kind of result is compliant with the previous results coming from the NVA validation in Italian couples sample (Moioli *et al.*, 2014). It also confirms previous studies that show a relation between responsive mother's behaviors in interaction (such as social play, nice tone of voice, right body position and non-intrusive interaction) and infant positive behaviors (mother's involvement to the mother, attention, smiles and positive reactions) (Beebe *et al.*, 2010; Biringen *et al.*, 2000; Tronick *et al.*, 2005).

At the same time it was found a positive correlation between the infant's Approach category and an intrusive and aggressive behavior of mothers. Consequently we can affirm there is a strong link between negative and non-sensitive behaviors of mother and child because passive behaviors of the infant always depend on passivity and dismissal behaviors of the mother. These results just confirm previous literature researches about interactive regulation or the first mother-child synchronized and reciprocal interaction (Beebe & Lachmann, 2002; Feldman, 2003; Riva Crugnola *et al.*, 2013).

Also Tronik's studies about the dyadic emotional regulation (Tronick *et al.*, 2005; Reck *et al.*, 2011) outlines that a successful interaction is characterized by dyadic affective coordination in which mother and infant share the same affective behavior, and the ability by the mother and child to repair affective noncoordination states, moving quickly to the coordinated states.

With regards to the relation between the quality of mother-infant interaction at 9 months and Conners test results at 6 years old, data obtained confirm the earlier hypotheses.

At microcategories level, mother's violent style, that is considered the style most at risk, was positively correlated with all the Conners scales undertaken in to consideration in the analysis: mothers, who had more aggressive and hostile behaviors in interactions with their children at 9 months, had children who reported more attention and hyperactivity problems and had more scores on total Conners' scale. Moreover, the mothers, who were more intrusive in the dyadic interaction at 9 months, had children who reported higher score on hyperactivity scale at 6 years old; instead mothers, who were more sensitive at 9 months, had children with a less score on total Conners scale. Regarding the macrocategories, higher scores on total Conners scale at 6 years old were associated with less sensitive mothers and more mother's avoidant and passive behaviors. These results confirm the previous longitudinal studies that showed that aggressive and intrusive behaviors of the mothers in the first year of infant's life were risk factors for attentive and externalizing problems (Morrel & Murray, 2003; Najmi et al., 2009). Another important point was also that the mother's detached behaviors at 9 months were associated with child's problems at 6 years old; particularly, the mother's collaborative category, that indicated a neutral engagement with the infant, was significantly correlated with inattention and total scales of Conners test and the inattention scale showed a trend toward a significant positive correlation with the Mother Dismissal category. These results highlighted that both aggressive and passive mothers were a risk factor for children attentive problems.

For the infant microcategories, the results indicated that children, who were passive in the interaction with the mothers at 9 months, had the highest scores in inattention subscale and total scale. Moreover, children who had more participating behaviors at 9 months had a fewer score in the total Conners' scale, that indicated less behavior problems. As well at macrocategories level, children, that used passive and disengagement behaviors in interactions with their mothers at 9 months, had the highest scores in the inattention subscale and total scores at 6 years old. While 9-month-children are more sensitive towards their mothers, they have low scores on the inattention subscale (a trend toward a significant) and total scale. These results highlighted that the infant passive style was the higher style at risk and it added a new information on the association between infant interactive style in the first year of life and attentive and hyperactivity problems at 6 years old. The previous researches were focused almost only on mother's styles of interaction and not on the infant styles.

As last, it is important to underline that inattention and hyperactivity scales are positively correlated, therefore high scores in the first scale are associated with high scores in the second one. These kind of results reveal how much is important to effectuate an early evaluation of the risk indicators for the mother-child interaction, (such as incompetence, non-responsiveness of the caregiver and other difficulties in the child involvement) in order to prevent the development of psychopathological problems in pre-scholar and school age. Early relational problems are predictive signals of the child's difficulties in the following years, therefore it is important to set up precautionary strategies that sustain and improve the relational quality of the mother-child couple, in order to avoid later mental child's problems.

The main limitation of this research is the sample size that can influence the results and their further applicability. It will be more interesting data analysis coming from a larger sample.

Furthermore, some variables have been not considered, in particular: the child's temperament that can influence his behavior (Rothbart, 1994); the mother's interaction ways and the available social support. All of them can be important factors in cases of risky parental conditions (Belsky, 1999). In addition the paternal figure should be considered as an important factor for the child's development.

Moreover, further analysis could be: the evaluation of 6-year-old child's behavior at school; provide an assessment questionnaire for teachers (such as the teacher version of the Conners test); use different instruments to analyze child's social relation and socio-emotional development and to identify psychopathological problems; investigate attention problems even after 6 years old, deriving from mother's non-sensitive behaviors at 9 months.

It's also important to highlight that Conners test scores have to be considered as attention problems indicators, but they are not a clinic diagnosis about the attention deficit competences. For this reason it could be useful examining in depth with more specific tests child's in order to obtain early diagnosis and promptly intervened.

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