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**The Time of the Infant, Parent-Infant  
Desynchronization and Attachment  
Disorganization, or How Long Does it Take for a  
Preventive Action to be Effective?**

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**The time of the infant, parent-infant desynchronization and attachment disorganization.**

**Or how long does it take for a preventive action to be effective?**

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Abbreviations: Internal Working Models (IWM); Post Natal Depression (PND)

## Abstract

The classical version of early development by psychoanalysis has been largely challenged by developmental psychology, and particularly by attachment theory. Psychopathology appears to be much more linked with a sequence of events involving interpersonal relationship disorders rather than with intra psychic conflicts, as hypothesised by drive theory.

Establishing synchrony between parent and infant is probably one of the major tasks of the first year of life. Attachment theory appears to be the modern paradigm to understand how the several types of answers from caregivers to stressing situations in the infant give way to different emotional and cognitive regulatory strategies, with impact on the effectiveness of the stress buffer systems. This paper presents what we can figure out about what is time to the infant, the importance of synchronization within infant and caregiver, the key concept of attachment disorganization, the concept of sustained social withdrawal as a defence mechanism and an alarm signal when synchronisation fails, and finally the key issue of conditions for effectiveness of early parent- infant preventive intervention.

### Key words:

Parent- infant synchrony/ Attachment Disorganization / Parenting/ infant social withdrawal behaviour/ early prevention and intervention

## **The time of the infant, parent-infant desynchronization and attachment disorganization.**

### **Or how long does it take for a preventive action to be effective?**

**“The baby can’t wait “**

*Selma Fraiberg, Clinical studies in infant mental health, 1980.*

**"Nothing lasts, and yet nothing passes either.  
And nothing passes just because nothing lasts".**

*Phillip Roth, The Human Stain, 2002.*

### **Introduction**

Establishing synchrony between parent and infant is probably one of the major developmental tasks of the first year of life. The classical version of early development by psychoanalysis has been largely challenged by evidence from developmental psychology. Attachment theory appears to be the modern and effective paradigm to understand how the several types of answers from caregivers to stressing situations in the infant give way to different regulatory strategies, with impact on the effectiveness of the stress buffer systems. This paper presents what we can figure out about what is time to the infant, the importance of synchronization within infant and caregiver, and its physiological impact in the emotional regulation and regulation of stress, the current concept of attachment disorganization, the concept of sustained social withdrawal as a defence mechanism, and the key issue of effectiveness of early parent- infant preventive intervention.

#### **1. The baby and the time**

The notion of time for the infant is a double mystery: time is both evident and a mystery for us adults. It is even more so when we consider what could be the way time is felt in the beginnings of life. We know that the infant is highly sensible to violations of rhythms and to contingency within the infant- caregiver interaction (Cohn & Tronick, 1987).

As the Greek philosopher Chrisippe puts it, 'Only does the present time exists' and this seems to be particularly true for the infant. When the infant is faced with repetitive violations of the synchronization of the interaction, without sufficient repair (Weinberg and Tronick 1994), then the baby is in some way forced out of the present time. In the beginning of life, the infant does not have sufficient memory capacity to retrieve a representation of a good enough caregiver. The infant has no other solution than to withdraw from the present time into sustained withdrawal behaviour, which represents a sort of suspended time, far from a depressive position in the kleinian sense of the term (Guedeney, 2007). Sustained withdrawal behavior therefore appears to be the infant's answer in front of repetitive or durable violations of the expected synchrony within the parent infant relationships (Puura, Mantymaa, Luoma, Kaukonen, Guedeney, Salmelin & Tamminen, 2010).

## **2. The time line of synchrony in the first year of life**

2.1 Social and emotional development in early infancy is widely recognised as crucial for all aspects of functioning throughout the lifespan (Brazelton, Koslowski & Main ,1974; Sroufe, 1995). The infant's ability to relate to and understand the social world develops within the close and continuous interactions between parent and infant. Several factors can have a deleterious effect on early infant social and emotional development. Social risk factors include infant prematurity or illness, genetic risk factors, living in inadequate or inappropriately stimulating environments, and early disruptions in the parent-child relationship and the adequacy of parental care (Feldmann, 2007). Parental mental illness also poses a risk for infant attachment and social and emotional development (Field, 2001; Murray & al, 1997; Teti et al., 1995). The influence of potential risk factors on infant development is dependent on qualities of both the parent and of the infant, which together determine the mutual adaptation capacity of the dyad (Mäntymaa, 2006), and its capacity to develop a parent -infant synchrony within the first 18 months of life of the infant (Feldman, 2007).

Defined as the temporal coordination of micro-level social behaviour, parent–infant synchrony is charted in its development across infancy from the initial consolidation of biological rhythms during pregnancy to the emergence of symbolic exchange between parent and child.

2.2 Synchrony is shown to depend on physiological mechanisms supporting bond formation in mammals—particularly physiological oscillators and neuroendocrine systems such as those involving the hormone oxytocin. Developmental outcomes of the synchrony experience are observed in the domains of self-regulation, symbol use, and the capacity for empathy across childhood and adolescence (Feldman, 2007). Synchrony describes the intricate ‘dance’ that occurs during short, intense, playful interactions; builds on familiarity with the partner’s behavioural repertoire and interaction rhythms; and depicts the underlying temporal structure of highly aroused moments of interpersonal exchange that are clearly separated from the stream of daily life (Stern, 1985; Tronick, 1989; Trevarthen, 2001). Synchrony, therefore, provides one window to the nature of early relationships that is different from the angle captured by more global constructs such as sensitivity or responsiveness and highlights a distinct component in the attachment theory’s focus on predictable caregiving as a critical feature of early infant care (Bowlby, 1969, 1973). Synchrony is a feature of the dyadic system and thus may be compromised by risk conditions originating in both mother and child (Feldman, 2007). Prematurity as the child-related risk and maternal depression as the mother-related risk are the two conditions that received the most empirical attention to date. Within the attachment theory, synchronisation plays a major role through the concept of sensitivity of the caregiver response to the stress of the infant. During Ainsworth’s Strange Situation procedure (Ainsworth, Blehar & Waters, 1978), the measurement of the heart rate variability and of the cortisol level demonstrate the buffer role of the attachment style (Spangler & Grossmann, 1993). The hear rate variability measurement

made at the same time on mother and child during the Strange Situation procedure shows that more the dyad are secure more synchronized are the heart rates of mother and child (Zelenko & al, 2005).

### **3. Attachment disorganisation and parent's disorganising behaviour**

3.1 Selma Fraiberg was probably the first mother-infant psychotherapist to emphasize the importance of fear and loss in the disturbed mother-infant interactions she has to treat (Fraiberg, 1980). Since, developmental psychology has emphasized the importance of regulation of fear and arousal as one of the major tasks of the infant development. This issue is particularly crucial in Attachment theory. Attachment theory holds that human are born with a strong evolved tendency to seek care, help and comfort from members of the social group whenever they are facing an overwhelming danger and whenever they are suffering from physical or emotional distress (Bowlby, 1969, 1973). The attachment system, although more often active during infancy and childhood, is operand throughout any human being's life and is powerfully activated during and after any experience of fear and of physical or psychological pain (loss for instance) and of uncertainty (as, for instance, transition to parenthood). Keeping with this focus on fearful arousal, attachment research has illuminated the development of the infant's defensive adaptations to a caregiver's inability to provide the needed soothing responses to infant fear of distress. During the many interactions with his/her attachment figure, the infant builds Internal Working Model (IWM) of attachment with each of the attachment figure which is compounded of a model of the other (as trustful and available) and a complementary model of the self (as lovable) and a sense of agency upon the other in the attachment-relevant moments (when the child feels sad or weak or when he is exposed to stress). These primary IWM' s are revisited and new ones are internalised according the cognitive development of the child and his/her new relational experiences but these first IWM s may be elicited when the stress is too severe.

3.2 The caregiving system is another pre-adapted behavioural system, reciprocal of the attachment system for helping the infant to regulate fear arousal and developing his/her competencies (Bowlby, 1973; George & Solomon, 1996). The adult/caregiver is giving proximity and comforting interactions to her offspring. The only way of deactivating her/his caregiving system for a caregiver is to be able to establish or maintain proximity with his/her suffering infant. The caregiving system is influenced by the caregiver's attachment system but is not exactly overlapping with it. Many influences can directly impact on the caregiving system as biological hormones, life events, psychiatric status, attachment relationship with partner, level of stress and infant's cues. Both attachment and caregiving systems can be considered as a co evolutionary system (George & Solomon, 2008): the inborn disposition to care for one's kin that matches the equally inborn tendency to ask for help provides the basis for a relatively smooth functioning of caregiving care.

### 3.3 Intergenerational transmission of disorganized attachment

The two models of transmission described by, in one part by Mary Main and Eric Hesse (Main & Hesse, 1990) and in the other part, by Solomon and George (1999) and Lyons Ruth (Lyons Ruth et al, 1999) are the best known. They can now be considered as alternate models or parallels models or complementary models if we analyse the mechanisms of transmission upon three generations (i.e. grand mother, mother and child).

3.3.1 The traumatic experience of fear or loss: the dissociative mechanism: the '*First generation Effect*'.

For Hesse and Main, 2006, a mother can present an unresolved trauma relating to attachment with non integrated affects (fright, sadness and anger). The sudden change in normal and possibly sensitive parenting behaviour as well to dissociative phenomena which may underlie these behaviours are to be considered as Post Traumatic Syndrom Disorder symptoms. A mother's psychological state will most likely be "altered" when the behaviours

occur: thus, the mother cannot repair the mismatches. Elements of the traumatic experience are not integrated but instead are stored as isolated fragments consisting of sensory perceptions of affective states; these memories can abruptly and easily be activated by stimuli associated with the traumatic even ; these memories may disrupt attention and parental behaviour in the form of absorption and unmonitored intrusions of memories affects and sensory perceptions concerning the trauma (Hesse and Main, 2006). These odd maternal behaviors were described by Main & Hesse (1990), under the paradigm of Frightened/ Frightening/dissociative behaviours which are parallel to the usual reactions to intense fear or stress: i.e. the fight, flight or freeze. This dissociative mechanism is considered as underlying the *Ghosts in the Nursery* phenomenon, named after Fraiberg's expression, and describing the effects on the mother's child interactions of unresolved and traumatic attachment experiences of the caregiver (Fraiberg, 1980).

The key point is that, because of these reactions, the mother then becomes simultaneously the attachment figure who can soothe and the source of alarm. The infant is then exposed to an experience of Fright without solution (Main& Hesse, 1990).

### 3.3.1.2 The mother as an infant: infant's attachment disorganisation the *Second Generation Effect*

The infant of a disorganized parent will try to organise his/her strategies in developing controlling upon his/her caregiver (Solomon & George, 1999). By age 3-5 (but that can be seen even earlier) many previously disorganised infant adapt their attachment behaviour into either controlling punitive attachment patterns (hostile or humiliating behaviour) toward parent) or a controlling caregiving pattern (helping, protecting, worrying about the parent). These controlling adaptations are thought to serve the function of maintaining the attention and involvement of an otherwise emotionally distanced caregiver (Solomon & George, 1999).

Tying up developmental stories of disorganized attachment to later adult states of mind through forms of child and adolescent controlling behaviour can provide an important explanatory mechanism for continuity in adaptation among D infants over time and to the transmission of intergenerational disorganisation (Melnick et al, 2008). The infant or toddler is too young to be able to integrate such contradictory aspects of a same person or such contradictory strategies; instead of developing a coherent IWM of his/her attachment figure of the other, he/she is at risk to develop some segregated models of other and self (Bowlby, 1973) There is a consensus about the fact that the IWM, in that case, not only prefigures negative consequences of asking for help and comfort but also brings on a dissociated (non integrated) multiplicity of dramatic and contradictory expectations from the same attachment figure (Liotti, 2004; Main et Hesse, 1990).

Liotti (2004) proposes a description of what could be these multiple representations of her/his attachment figure in childhood, in which he calls the “Drama Triangle”. The disorganized child has good reasons for construing simultaneously or in quick sequence, both models of the attachment figure and the self according to the three basic positions of the drama triangle: persecutor, rescuer and victim. The attachment figure is represented negatively as the cause of the ever growing fear experienced by the self (self as victim of a persecutor) but also positively as a rescuer: the parent, although frightened by unresolved traumatic memories is nevertheless usually willing to offer comfort to the child and the child may feel such comforting availability with fear. Together with these two opposed representations of the attachment figure (persecutor and rescuer) meeting a vulnerable and helpless (victim) self, the IWM of disorganized attachment also conveys a negative representation of a powerful evil self meeting a fragile or even devitalized attachment figure (persecutor self, held responsible for the fear expressed by the attachment figure); moreover there is the possibility for the child of representing both the self and the attachment figure as

the helpless victims of a mysterious invisible source of danger. Finally, since the frightened attachment figure may be comforted by the tender feelings evoked by contact with the child, the implicit memories of disorganized attachment may also convey the possibility of construing the self as a powerful rescuer of a fragile attachment figure (i.e. the little child perceives the self as able to comfort a frightened adult). When considering this adult as a mother in interaction with her child, the different constellations of parenting behaviour (contradictory and unintegrated representations of parenting or caregiving tasks transitory unavailable) can be meaningfully explained as alternate behavioural expressions of this single underlying hostile helpless dyadic internal model.

A newborn is a stressor by him/herself and some of her/his characteristics or attitudes or developmental challenges can trigger alternate segregated IWMs in the mother: a model of the other (her own mom as an evil, an angel, a victim) and the complementary model of the self – herself as an helpless victim, good person, an evil). This may place parent in jeopardy of becoming flooded by intense affects that they cannot regulate or act on adaptively, leading to the display of hostile responses to their children (Melnick et al, 2008 ) These experiences of contradictory caregiving responses due to alternate maternal IWMs exposed the infant to intense levels of attachment activation with no repair from his/her attachment figure (Solomon & George, 1999).

3.3.1.3 To be exposed as a mother to a motivational dilemma without solution: the role of the therapeutic/ preventive relationship to decrease the effects of disorganization within the parent infant relationship.

Parenthood is a stressful period in itself, the baby is a stress in him/her self and the parent can be exposed to multiple other stresses. If the parent has an insecure state of mind and particularly if the parent has antecedents of attachment disorganisation, he will

particularly reactive to stress (Mikulincer & Shaver, 2007). Stress is also well known as reducing the mentalization abilities Fonagy (2002).

When exposed to intense stress (due to the child or to other stresses), there is a risk for any mother but particularly for insecure mothers, that the different set goals of motivational systems involved in the interaction between the infant and her/his mother, i.e. attachment and caregiving systems, may collide: for instance when needs of the parent and child are in contradiction. The attachment system is regarded as pre-emptive when aroused, and at all ages, because it mobilises responses to regulate the fearful arousal (Lyons-Ruth & al, 2004). The usual strategies used by the caregiver to deactivate her/his attachment may be antagonist to caregiving strategies. Thus, there can be what George & Solomon (2008) described as a competition between own mothers' caregiving and attachment systems.

The first condition to make an mother-infant psychotherapy possible is, for the therapist, to resolve first the maternal dilemma what Selma Fraiberg postulated very early in her work: What is the best solution for human being to resolve this motivational paradox if sources of stress can't be avoided? To receive help from a specific figure who may be perceived as stronger, kind and willing to help (Bowlby, 1998; Marvin et al, 2002)

If the therapist provides the conditions of a secure relationship and that can take time and involves to approach the mother, she will reduce maternal stress by an interpersonal soothing response. This response is now well known as alleviating mother's fear arousal. The first immediate consequence will be the diminution of the competition between her attachment and caregiving systems. Her caregiving system may be more functional: the mother will more able to follow child's cues and to repair if necessary.

Secondly, a securing relationship will deactivate mothers' own attachment system and reduce the eliciting of old strategies which can influence the caregiving behaviours;

third, by providing a safe haven to the mother while being overwhelmed by attachment relevant emotions. The securing relationship favours the exploration and so, maternal mentalization and parental reflective function (Bowlby, 1973).

#### **4. Withdrawal Behaviour as a Defence Mechanism against desynchronization**

4.1 Early defence mechanisms are therefore important to sort out and to describe in their unfolding, since they give us a precious hint about what is at stake and at which age. If one follows a dimension from normal to pathology, the first defence modality is a micro withdrawal behaviour, within a tenth of a second frame, as described by Brazelton, Koslowski & Main (1974) as a component of a normal parent infant interaction and a way for the infant to keep control of the rhythm of the interaction. On a more sustained time period frame, one finds the protest, then increasing avoidance withdrawal reaction observed in the Still Face experiment by Cohn & Tronick (1987), confirmed by the desynchronization experiment by Murray & Trevarthen (1986). Spitz had described social withdrawal as a clinical feature of Anaclitic depression, but without further definition of it (Spitz, 1943). Engel & Schmale (1972) described the Conservation- Withdrawal concept, based on the famous Monica case. Engel and Reichsman (1956) described pathological withdrawal in a marasmic and developmentally retarded infant, Monica, who came to their paediatric service with severe Failure To Thrive (FTT) when she was 14 months old. She had oesophageal atresia and required feeding through a gastric fistula. When her care was abruptly transferred from her warm grandmother to her isolated mother, who was disgusted by her fistula, she was noted to withdraw, cry, and lose weight although no physical cause was found. Now she would probably be considered as a typical case of disorganized attachment, with a frightened and abdicating caregiver behaviour. After prolonged care, she improved and developed normally as an adult and later on as a mother; this positive outcome came as a surprise to the psychoanalytical community in these days.

More recently, based on extended clinical experience, Fraiberg (1982) described a group of pathological defences observed between 3 and 18 months of age in infants who experienced severe danger and deprivation. These early defences, “Avoidance”, “Freezing” and “Fighting” are, following Selma Fraiberg, apparently summoned from a biological repertoire. Thus, withdrawal takes an important place, both in physiology and in pathology, in the infant's repertoire of response to stress. Infant withdrawal appears also to be a key symptom of infant depression, as it seems unlikely that a depressed infant show no sign of withdrawal; however, withdrawal reaction appears to cover a much larger scope than infant depression, including attachment disorders, autistic syndromes, post traumatic stress syndrome and anxiety. A sustained withdrawal reaction can also be observed in many acute and chronic organic conditions. In between, intense and chronic pain in infancy is characterised by a very severe withdrawal reaction that correlates with the intensity of the pain (Gauvain-Piquard et al, 1999).

Sustained withdrawal reaction seems to be a good target for early screening in infant mental health, as ‘negative symptoms’ are more difficult to assess than the more obvious, ‘positive’ ones, and because withdrawal is a major component in the infant’s behavioural response repertoire to stress and relationship disorders; moreover, infant social withdrawal behaviour has to be assessed within a relationship established with the child (Guedeney, 1997). Feldman stresses the importance of withdrawal behaviour in infants as a sign of a dysregulation of parent-infant synchrony (Mantimaa, 2006; Feldman, 2007). We have designed a scale to assess withdrawal social behaviour in infants aged 2 to 24 months of age, which has shown good psychometric properties and good transcultural validity (Guedeney, & Fermanian, 2001; Dollberg, Feldman, Keren & Guedeney, 2006; Guedeney, 2007; Guedeney, Foucault, Bougen, Larroque & Mentré, 2008; Puura., Mantymaa, Luoma, Kaukonen, Guedeney, Salmelin, & Tamminen, 2010).

#### 4.2 Maternal depression, maternal anxiety, infant depression and infant social withdrawal behaviour

The relationship between maternal and infant depression is no more direct nor simple than the one between separation and depression in infants. The infant's reactions to the interruption or to the violation of the expectations within the interaction are both obvious and durable in the "Still-Face" paradigm (Cohn & Tronick, 1983), or in the experimental de-synchronisation setting designed by Murray & Trevarthen (1986). The infant's reaction to these different conditions follows a path clearly delineated by Robertson and Bowlby (Bowlby, 1973), with the key sequence of Surprise, Protestation, Withdrawal, and Despair. Tronick has recently insisted on the effect of maternal depression on the extension of what he calls the 'Dyadic States of Consciousness' (Tronick & Weinberg, 1997). These key studies have shown some possible models of transmission of the depressive affect between mother and child, using the Still Face paradigm. Depressed mothers are less positive and more negative when interacting with their infants. Infants of depressed mothers are less positive and more negative when interacting with their mothers in these laboratory situations. More to the point is the fact that infants of depressed mothers show 'depressed' behaviour even with non depressed adults, demonstrating a generalisation of the depressive model of the relationship (Field, 1984, 2001). These behaviours result at least in part from the poorer interaction provided by the mother, as postpartum depressed mothers have been observed for instance to be less contingent and less affectively attuned to their infant (Murray, Fiori-Cowley, Hooper, & Cooper, 1996). This does not mean that infant's withdrawal is a passive behaviour, a simple imitation of the mother's behaviour. On the contrary, the depressive state of the infant is in no way a "pure biological" reaction, but a defensive organisation of its own. Children of mothers reporting being more depressed or anxious since childbirth obtain significantly higher ADBB scores (Matthey, Guedeney, Starakis, & Barnett, 2005); and children evaluated with

higher values of social withdrawal show less optimal behaviour in the interaction with their mothers (Puura & al, 2007; Dollberg et al., 2006).

**5. How can maladaptive trajectories be modified? Preventive Parent-infant intervention : CAPEDP, A French Project to promote Parental Skills and decrease Disorganized Attachment**

5.1 Several projects have been developed over the last ten years to prevent or decrease post natal depression and to reduce externalised behaviour disorders in the exposed children. Intervention programs targeted on high risk populations have been developed in North America and in other different contexts over the years 1960-70 (Olds,1998). The Project CAPEDP (*Compétences parentales et Attachement dans la Petite Enfance: Diminution des risques liés aux troubles de santé mentale et Promotion de la résilience* (i.e., Parenting Skills and Attachment in Infants: Reducing Mental Health Risks and Promoting Resilience) is being held in Paris since 2006 and will end in July 2011. CAPEDP is a randomised controlled End Probe study research and action program to promote mental health of young infants, conducted by the infant department of the Hospital Bichat, and the Research Laboratory of the Maison-Blanche hospital. The aim of the research project is to assess the effect of a preventive intervention in a group of young parents with psychosocial vulnerability.

5.2 The general project is CAPEDP, CAPEDP-A (for Attachment) being the ancillary study in a sub sample of CAPEDP, with closer and specific measures of child disorganization and attachment status and of parental disorganizing behaviour and mentalizing abilities. The CAPEDP-Attachment research consists in the evaluation of the infants' security and disorganisation attachment, as well as their parents' disrupted behaviour and mentalization skills, in a sub population of the general project CAPEDP. For this, we compare the effect of the preventive intervention at home in an intervention and a control group.

For achieving this aim a sub-sample of 120 mother-infant dyads was selected from the intervention and control randomized groups of CAPEDP general (60 of 220 of each CAPEDP group). At their 12 months, infants' attachment is assessed with the Strange Situation Paradigm (A, B, C, D) in our laboratory (Ainsworth, Blehar, Waters & Wall, 1978). and later, at infants' 18 months, the Waters' Attachment Q-sort is used to assess attachment quality at home (Waters & Deane, 1984). The maternal disrupting behaviours are assessed by Karlen Lyons Ruth's AMBIANCE scale (Lyons-Ruth, Bronfman & Parsons, 1999). Finally, the parental reflexive capacity is assessed by the Insignificance Assessment interview by Oppenheim & al (2002)

Regarding the intervention program, we provide specific training and supervision to the intervention psychologists on the use of home video feedback for the promotion of maternal sensitivity, promotion of maternal mentalizing skills, prevention, detection and reduction of maternal atypical behaviour and infants' disorganized attachment. The use of the video intervention is based on the most effective existing programs (see Guedeney & Guedeney, 2010 for a review on video based infant interventions). This type of approach is relatively recent in this kind of programs. By using the video the parent becomes his own model of intervention. This is an opportunity to focus on the baby's signals and expressions, while stimulating the mother's observation skills and her empathy with her child. It also enables positive reinforcement moments of sensitive behaviour that the parent evidences on the video. The videoscoping strategy is as more successful as it occurs within a supportive relationship that continually recognizes the individuals and the family's strengths recognizing the broader context to which they belong.

A pamphlet entitled "Infants' Emotional Development" is also used by the intervention psychologists, aiming to give knowledge to the parents on babies and infants' emotional life. The French pamphlet was developed as part of this research and is based on

the results of recent attachment longitudinal studies. Our aim is that the mothers work it with the psychologists and then read it and reread it when a problem of this area arrives or when they are in doubt, but avoiding its use as a guide to parenting. Rather, it was conceived as a tool to help them to face the challenge of raising their first child.

Conclusion: Even if our data collection is still in progress, CAPEDP hopes to offer new perspectives on preventive mental health with vulnerable populations, as well as the opportunity to develop specific training on the work involving projects of early mental health promotion. CAPEDP-Attachment, by clarifying our understanding of the mechanisms implied in the secure attachment strategies, intends to contribute in a significant way to refine parent-infant's early preventive intervention in contexts of psychosocial vulnerability. There is little evidence of short-term success for preventive interventions and some evidence of short-term success for treatment interventions. No preventive or therapeutic studies, however, have provided evidence for long-term success. There is a need for future research into the prevention and treatment of postnatal depression including feasibility in relation to cost-effectiveness (Chabrol & Callahan, 2007). Murray & al recently reported long term effects of maternal postnatal depression on academic performances of boys, particularly in the context of additional risk (Murray et al., 2010). We do not expect to have a large effect size in CAPDEP on postnatal depression, with a relatively short period of intervention and with a home based general help preventive and therapeutic frame. Our goal is to see to which extent one can reduce the effects of PND on parent child interaction. We have recruited a younger and more vulnerable sample than expected, with a large proportion of mother with axis I psychopathology and experience of violence and neglect. Recent longitudinal studies have shown differential links to emergent psychopathology stemming from different exposure to potentially traumatic events in early childhood (Briggs-Gowan et al., 2010): family violence exposure is associated with an array of symptoms and disorders in the internalizing and

externalizing domains, whereas non-interpersonal potentially traumatic exposures are primarily associated with specific phobia. Therefore, trying to have an impact on transmission of disorganised attachment in vulnerable populations seems to be a major goal for prevention and intervention research.

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## References

- Ainsworth, M.D.S., Blehar, M, Waters E, and Wall S. (1978). Patterns of attachment: A psychological study of the Strange Situation. (Hillsdale, NJ, Lawrence Erlbaum).
- Bowlby, J. (1969). Attachment and loss: vol 1. Attachment .(New York, NY: Basic Books).
- Bowlby, J. (1973). Attachment and Loss. Vol 2: Separation: Anxiety and Anger. (New York, NY: Basic Books).
- Brazelton, T. B., Koslowski, B. & Main, M. (1974). Origins of reciprocity. In Mother Infant Interaction, M. Lewis, & L. Rosenblum, eds.(New York, NY: John Wiley & Sons), pp.57-70.
- Brigg-Gowan, M. J., Carter, A. S., Clark, R., Augustyn, M, Mc Carthy, K .J., Ford ,J. D. (2010). Exposure to potentially traumatic events in early childhood: differential links to emergent psychopathology. *J Child Psychol Psychiatr.* 51;10:1132-1140.
- Chabrol, H., Callahan, S. (2007). Prevention and treatment of postnatal depression. *Expert Rev Neurother,* 7(5):557-576.
- Cohn, J.F., and Tronick, E.Z. (1987) Mother-Infant face to face interactions: The sequence of dyadic states at 3, 6 and 9 months. *Dev Psychol.* 23, 68-77.
- Dollberg, D., Feldman, R., Keren, M., Guedeney, A. (2006). Sustained withdrawal behaviour in clinic referred and nonreferred infants. *Inf Ment Health J.* 27(3), 292-309.
- Engel G.L., Schmale A.H. (1972). Conservation withdrawal: a primary regulatory process for organismic homeostasis. In *Physiology, emotion and psychosomatic illness, symposium 8 (New Series).* Amsterdam, Excerpta Medica), pp. 57-85.

- Engel, G. L., Reichsman, F. (1979). Monica: a 25 years follow-up longitudinal study of the consequences of trauma in infancy. *J Amer Psychoanal Association*. 27, 107-126.
- Feldmann, R.(2007). Parent infant synchrony and the construction of shared timing: physiological precursors, developmental outcomes and risk conditions. *J Child Psychol Psychiat*. 48:329-354.
- Field, T. Early interactions between infants and their post partum depressed mothers. (1984). *Infant Behav Dev*. 7: 532-537.
- Field, T. (2001). Chronic maternal depression affects infants, newborns and the foetus. In *Children of depressed parents: Alternative pathways & risk for psychopathology*, S. Goodman ed., (Mahwah, NJ: Lawrence Erlbaum), pp.174-186.
- Fonagy, P, Gergely, G, Jurist, E, Target, M. (2002). *Affect regulation, mentalization, and the development of the self*. (New York, NY. The Other Press).
- Fraiberg, S. (1981). *Clinical studies in infant mental health. The First Year of Life*. (New York, NY, Basic Books).
- Fraiberg, S. (1982). Pathological Defences in Infancy. *The Psychoanalytical Quarterly*, 4, 612-635.
- Gauvain-Piquard, A., Rodary, C., Rezvani, A. & Serbouti, S. (1999). The development of the DEGR®: A scale to assess pain in young children with cancer. *European J Pain*. 3, 165-176.
- George, C.& Solomon, J. (1996). Representational models of relationships: links between caregiving and attachment. *Inf Ment Health* .J. 17, 198-216.
- George, C &, Solomon, J. (2008). *The Caregiving System. A behavioural approach to parenting*. in *Handbook of Attachment: theory, research and clinical applications*,(2<sup>nd</sup> ed), J. Cassidy & P.R. Shaver, eds. (New York, NY: Guildford Press), pp 833-856.
- Guedeney, A.& Fermanian, J. (2001). A validity and reliability study of assessment and

screening for sustained withdrawal reaction in infancy: the Alarm Distress Baby Scale. *Inf Ment Health J.* 22, 5: 559-575.

Guedeney, A (2007). Infant's withdrawal and depression. *Inf Ment Health J.* 28,4:399-408.

Guedeney, A (2007). La position de retrait chez le bébé: de l'échec à maintenir le maintenant à la position dépressive. in *Le bébé et le temps*, A Ciccone & D Mellier eds., (Paris: Dunod), pp 145-168.

Guedeney, A, Foucault, C, Bougen, E, Larroque, B, Mentré, F.(2008). Screening for risk factors of relational withdrawal behaviour in infants aged 14-18 months. *Eur Psy.* 23,150-155.

Guedeney, A, Guedeney N (2010). The era of using video for observation in infant mental health. *The Signal, WAIMH Newsletter.* 18,2:1-5.

Hesse, E & Main, M. (2006). Frightening, threatening and dissociative parental behaviour in low risk samples: description, discussion and interpretations. *Dev & Psychopathol.* 18:309-343

Liotti, G. (2004). Trauma, Dissociation and Disorganized attachment: three strands of a single Braid. *Psychotherapy: Theory, research, Practice, Training,* 41, 472-486

Lyons-Ruth, K, Bronfman, E, Atwood, G (1999). A Relational Diathesis Model Of Hostile-helpless States of Mind. Expressions in Mother-Infant Interaction. In *Attachment Disorganisation In Attachment disorganisation*, J. Solomon & C. George, eds, (New York, NY: Routledge), pp 33-69.

Lyons-Ruth, K, Bronfman, E, and Parsons, E. (1999). Atypical maternal behaviour and disorganized infant attachment strategies: Frightened, frightening, and atypical maternal behaviour and disorganized infant attachment strategies. In *atypical patterns of infant attachment: theory, research and current directions.* J. Vondra, & D. Barnett, eds.

Monographs of the Society for Research in Child Development, (New York, NY: Wiley & Blackwell), 258, pp 67-96.

Main, M & Hesse, E. (1990). Parents' unresolved traumatic experiences are related to infant disorganized attachment status: is frightened and/or frightening parental behaviour the linking mechanism? In Attachment in pre-school years: theory, research, and intervention Greenberg, M.T. Cicchetti, D. and Cummings, E.M eds.. (Chicago University, IL) pp.161-182.

Mäntymaa, M. (2006). Early mother-infant interaction: Determinants and predictivity. Academic dissertation. (Tampere, FI: Acta Universitatis Tamperensis 1144. Tampereen yliopistopaino Oy Juvenes Print, Tampere). Electronic version: Acta Electronica Universitatis Tamperensis 519, <http://acta.uta.fi>.

Matthey, S., Guedeney, A., Starakis, N., & Barnett, B. (2005). Assessing the social behavior of infants: Use of the ADBB scale and relationship to mother's mood. *Inf Ment Health J.* 26, 442-458.

Marvin, R, Cooper, G, Hoffman, K, & Powell, B. (2002). The circle of security project: attachment-based intervention with caregiver-pre-school child dyads. *Att & Hum Dev.* 4, 107-124.

Melnick, S., Finger, B., Hans, S., Patrick, M & Lyons Ruth, K (2008). Hostile Helpless States of mind in the AAI. A proposed additional AAI category with implications for identifying Disorganised infant attachment in High risk samples. In Steele, H & Steele, M eds. *Clinical application of the AAI.* (New York, NY: Guildford Press) . pp 399-423.

Mikulincer, M. Shaver, P.R (2007). *Attachment in adulthood. Structure, dynamics, and change.* (New York, NY, Guilford press).

Murray, L, Trevarthen C. (1986). The infant' role in mother-infant communication *J Child Language.* 13: 15-29.

- Murray, L, Fiori-Cowley, A, Hooper, R, Cooper, P. (1996). The impact of postnatal depression and associated adversity on early mother-infant interactions and later infant outcome. *Child Dev.* 67(5), 2512–2526.
- Murray, L., Cooper, P.J. (1997). *Post partum depression and child development.* (New York, NY: Guilford press).
- Olds, D, Henderson C.R., Jr., Cole, R, Eckenrode, J, Kitzman, H & Luckey D et al (1998). Long term effects of home visitation on children's criminal and antisocial behavior: 15-year follow-up of a randomized controlled trial. *JAMA.* 280,1238-1244
- Oppenheim, D, Koren-Karie, N. (2002). Mothers' insightfulness regarding their children's internal worlds: the capacity underlying secure child-mother relationships. *Inf Ment Health J.* 23, 593-605.
- Puura, K, Guedeney, A, Mantymaa M & Tamminen T.(2007). Detecting children in need: how complicated measures are necessary? *Inf Ment Health J.* 28, 4:409-421.
- Puura, K., Mantymaa, M., Luoma, I. , Kaukonen, P., Guedeney, A, Salmelin, R., & Tamminen, T. (2010). Infant's social withdrawal symptoms assessed with a direct infant observation method in primary health care. *Inf Behav & Dev,* 33:579-588.
- Solomon, J & George, C. (1999). The measurement of Attachment Security in Infancy and Childhood. In *Handbook of Attachment* J. Cassidy, J. Schavers, eds, (New York ,NY: Guildford Press). pp 287-318.
- Spangler, G,&Grossmann, K E .(1993). Biobehavioral organization in securely and insecurely attached infants. *Child Dev.* 64: 1439-50.
- Spitz R. A. (1946). Anaclitic depression. *Psychoanal. Study Child.* 23:14-341.
- Sroufe, L. A. (1995). *Emotional development: The organization of emotional life in the early years.* (Cambridge: Cambridge University Press).
- Stern, D.(1985) *The interpersonal world of the infant* (New York, NY: Basic books).

Teti, D.M., Gelfand, D.M., Messinger, D.S. & Isabella, R. (1995). Maternal depression and the quality of early attachment: An examination of infants, preschoolers, and their mothers. *Dev Psychol.* 31 (3), 364-376.

Trevarthen, C, Aitken, K.J. (2001). Infant inter subjectivity: research, theory and clinical applications. *J Child Psychol Psychiat.* 42, 1: 3-48.

Tronick, E.Z., Cohn, J. (1989). Infant mother face to face interaction: age and gender differences in coordination and the occurrence of miscoordinations. *Child Dev.* 60, 85-91.

Tronick, E.Z., Weinberg, M.K. (1997). Depressed mothers and infants: Failure to form dyadic states of consciousness. In *Postpartum Depression and Child Development* L.

Murray & P. Cooper, eds. (New York, NY: Guilford Press) , pp. 54-84.

Waters, E & Deane, K. (1985). Defining and assessing individual differences in attachment relationships: Q-methodology and the organization of behaviour in infancy and early childhood. *Monographs of the Society for Research in Child Development*, 50, 41-65.

Weinberg, M. K. & Tronick, E.Z. (1994). "Beyond the face: an empirical study of infant affective configurations of facial, vocal, gestural, and regulatory behaviors." *Child Dev.* 65(5): 1503-15.

Zelenko, M., Kraemer, H, Huffman, L, Gschwendt, M, Pagelier, N. & Steiner, H. (2005). Heart rate correlates of attachment status in young mothers and their infants. *J Am Acad Child Adolesc Psychiatry*