



RITVA BELT

Mother-Infant Psychotherapy Groups
among Drug-Abusing Mothers

Preventing intergenerational negative transmission



ACADEMIC DISSERTATION

To be presented, with the permission of
the board of the School of Medicine of the University of Tampere,
for public discussion in the Jarmo Visakorpi Auditorium,
of the Arvo Building, Lääkärintäti 1, Tampere,
on February 1st, 2013, at 12 o'clock.

UNIVERSITY OF TAMPERE

ACADEMIC DISSERTATION
University of Tampere, School of Medicine
Finland

Supervised by
Professor Tuula Tamminen
University of Tampere
Finland
Professor Raija-Leena Punamäki-Gitai
University of Tampere
Finland

Reviewed by
Professor Jorma Piha
University of Turku
Finland
Professor Hannele Räihä
University of Turku
Finland

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Distribution
Bookshop TAJU
P.O. Box 617
33014 University of Tampere
Finland

Tel. +358 40 190 9800
taju@uta.fi
www.uta.fi/taju
<http://granum.uta.fi>

Cover design by
Mikko Reinikka

Acta Universitatis Tamperensis 1793
ISBN 978-951-44-9005-7 (print)
ISSN-L 1455-1616
ISSN 1455-1616

Acta Electronica Universitatis Tamperensis 1269
ISBN 978-951-44-9006-4 (pdf)
ISSN 1456-954X
<http://acta.uta.fi>

To my family

Abstract

The general purpose of the study was to explore the clinical applicability of psychodynamic mother-infant group therapy (PGT) among perinatal drug-abusing women and their infants. The more detailed aims were: First, to develop and describe the psychodynamic oriented group intervention method. Second, to examine the impact of drug abuse on prenatal resources and mental health problems and how they predict postpartum mental health among drug-abusing and non-substance abusing mothers. Third, to investigate the beneficial intervention impacts on substance abuse and program completion and on changes in maternal depressive symptoms and the mother-infant relationship (maternal sensitivity, structuring, intrusiveness and hostility, likewise child's responsiveness and involvement). The results were compared between PGT and PSS (psychosocial support) and non-drug abusing comparison groups. Fourth, to demonstrate – with the help of a case study – the factors that may mediate and prevent the intergenerational transmission of trauma and loss in early interaction. The aim was to prevent infant disorganized attachment and to evaluate how the methods derived from attachment theory may demonstrate the effects of an intervention.

The study was carried out between 2003 and 2008 and the participants were 101 Finnish mothers and their children. Drug-abusing women participated either in the PGT (N = 26) or PSS (N = 25) interventions at two outpatient family support centers in Finland. The comparison group consisted of 50 non-drug abusing women at a maternity outpatient clinic. The PGT comprised 20-24 weekly three-hour sessions with 3-5 months of follow-up and the PSS comprised individually tailored support

lasting on average 12 months and included e.g. home visits, mother-infant support and marital counseling. Assessments were pre-intervention and at 4 and 12 month follow-up.

The methods used were background and substance-abuse characteristics, social support, pregnancy related distress, hostility and depression (EPDS, CES-D), coping strategies, and attachment evaluations (AAI, EA and SSP).

The results can be summarized as follows: Drug-abusing mothers reported higher levels of pregnancy-related distress, depressiveness and hostility, and lower levels of social support than their comparisons. While facing the demands of pregnancy and painful experiences, these mothers more often used inadequate coping strategies. However, a safe therapeutic context helped them to deal with the stress and to mobilize their perinatal resources. During the intervention and throughout the 12-month postpartum follow-up maternal abstinence and treatment completion were on average 80% in both PGT and PSS intervention groups. Maternal depressive symptoms decreased, although PGT mothers had more depressive symptoms in all assessments. A general improvement was found in the quality of mother-child interaction in both groups. However, maternal hostility decreased significantly only in the PGT group and intrusiveness decreased especially in the PTG group. Attachment-derived methods (AAI, EA, SSP) were helpful for understanding the effects of the intervention and how to prevent the transmission of mother's unresolved trauma to the infant.

The findings highlight that perinatal substance-dependent mothers need programs that offer them safe environments where with their peers they can build a confidential relationship and continuity with a few clinicians. This study may contribute to the research and develop accurately focused intervention alternatives to

treat these mothers' relational traumatic experiences during the rapid transition in order to prevent transgenerational destructive models from being transferred to the offspring.

Keywords: Drug-abuse treatment, early interaction, group psychotherapy, attachment, intergenerational transmission, mother-infant psychotherapy, relational trauma, intervention effects

Tiivistelmä

Tutkimuksen tarkoitus oli kehittää huumetaustaisten äitien interventioita avohoidossa sekä tutkia psykoanalyttisen äiti-vauvaryhmäterapian käyttökelpoisuutta ja vaikuttavuutta äiti-vauvaparien (26) hoidossa. Tuloksen luotettavuuden arvioimiseksi muodostettiin toinen interventioryhmä 25 huumetaustaisesta äidistä, jotka saivat yksilöllisesti suunniteltua psykososiaalista tukea. Toinen vertailuryhmä muodostettiin 50 äitiyspoliklinikan raskaana olevista ei-päihdeongelmaisista naisista. Tutkimuksessa verrattiin keskenään huumeiden käyttäjä-äitejä ja ei-päihdeongelmaisista äitejä tutkimalla päihdeidenkäytön vaikutusta raskaudenaikaisiin voimavaroihin ja mielenterveysongelmiin sekä siihen, miten ne ennustavat synnytyksen jälkeistä mielenterveyttä. Interventioiden vaikutusta tutkittiin (a) äidin huumeiden käyttöön ja hoidossa pysymiseen, (b) äidin mielenterveyteen sekä (c) äidin ja lapsen väliseen vuorovaikutussuhteeseen siirryttäessä raskaudesta lapsen ensimmäiseen elinvuoteen. Tapaustutkimuksen avulla selvitettiin tekijöitä, jotka huomioimalla voidaan estää äidin negatiivisten kokemusten siirtyminen sukupolvelta toiselle varhaisessa vuorovaikutuksessa lapsen kiintymyssuhteen vaurioitumisen estämiseksi. Tutkimus selvitti myös kiintymyssuhdeteoriaan perustuvien menetelmien käyttökelpoisuutta intervention vaikuttavuutta arvioitaessa.

Aineisto kerättiin vuosina 2003 - 2008. Mittaukset suoritettiin ennen interventiota (T1), lapsen ollessa 4 kuukauden ikäinen (T2) ja seurantatutkimus lapsen ollessa 12 (T3) ja tapaustutkimuksessa lapsen ollessa 15 kk ikäinen. Menetelminä käytettiin kyselylomakkeita, haastatteluja sekä videointia.

Verrattuna ei-huumeiden käyttäjä-äiteihin, huumetaustaiset äidit olivat useammin yksinhuoltajia ja heillä oli merkittävästi heikompi taloudellinen ja

koulutustilanne. Lähes puolet äideistä ilmoitti lopettaneensa huumeiden käytön tultuaan tietoiseksi raskaudestaan ja loput ilmoittivat vähentäneensä käyttöä. Noin 80% molempiin interventoryhmiin osallistuneista äideistä sitoutui vahvasti hoitoon ja tutkimukseen ja ilmoitti olleensa ilman laittomia huumeita koko tutkimusjakson ajan. Molemmat interventiot osoittautuivat tehokkaiksi äidin ja lapsen vuorovaikutuksen laadun parantamisessa. Analyttisen ryhmäterapien voitiin osoittaa merkitsevästi auttaneen äitejä säätelemään vaikeasti hallittavia vihan tunteita ja vähentämään tunkeutuvaa käyttäytymistä lasta kohtaan. Nämä tulokset ovat merkittäviä, koska em. käyttäytymisen tiedetään olevan päihteitä käyttävien äitien vanhemmuuden ydinongelmia ja kaikkiaan lisäävän lapsen kehityksen sekä kaltoin kohtelun riskejä.

Tämän tutkimuksen tulokset osoittavat päihderiippuvaisten äitien vahvan motivaation kasvaa äidiksi, jättää päihteet ja sitoutua avohoitoon raskausaikana ja heti lapsen syntymän jälkeen. Edellytys tämän onnistumiselle oli toimiva alueellinen verkostotyö sosiaali- ja terveydenhuollossa, jossa hoitoa tarvitsevat äidit tunnistettiin ja ohjattiin hoidon arvioon. Toinen edellytys oli, että äideillä oli mahdollisuus turvalliseen, riittävän pitkäkestoiseen hoitosuhteeseen samana pysyvään työntekijään. Tämä oli myös edellytys sille, että äidit uskalsivat alkaa selvittämään elämäntilannettaan sekä traumaattisia kokemuksiaan.

Tulokset tuovat uusia näkökulmia tarkkaan kohdistettujen menetelmien kehittämiseen ja kielteisten vuorovaikutusmallien siirtymisen estämiseen sukupolvesta toiseen. Vaativahoitoisen asiakkaan ja hänen nopeasti kehittyvän lapsensa näkeminen kokonaisuudessaan pirstaleisessa sosiaali- ja terveydenhuollossa edellyttää sosiaali- ja terveydenhuollon työntekijöiltä integroitua yhdessä toimimista, erilaisia hoitovaihtoehtoja sekä sitoutuneita työntekijöitä. Toimijoiden eri sektoreilla tulisikin yhdessä suunnitella kuka, miten ja missä järjestyksessä parhaiten hoidetaan äitien

trauma- ja psyyketaustaa sekä päihdeongelmaa ja miten samanaikaisesti voidaan estää pienen lapsen kehityksen vaurioituminen. Suuri haaste on löytää kustannuksiin nähden vaikuttavin hoitomuoto kullekin äiti-vauvaparille ja mielellään koko perheelle.

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Abbreviations

AUDIT	Alcohol Use Disorders
AAI	Adult Attachment Interview
ANCOVA	Analysis of Covariance
BPD	Borderline Personality Disorders
CES-D	Center for Epidemiological Studies Depression Scale
EAS	Emotional Availability Scales
EPDS	Edinburgh Postnatal Depression Scale
M	Mean (age)
MANCOVA	Multivariate Analysis of Covariance
NS	Non-significant
PGT	Psychodynamic Group Therapy
RB	Ritva Belt, the author
RF	Reflective Functioning
SD	Standard Deviation
SB-K	Sirpa Behm-Kostiainen, the other group psychotherapist
SPSS	Statistical Package for the Social Sciences
PSS	Psychosocial Support
RCT	Randomized Clinical Trial
SSP	Strange Situation Procedure

List of original communications

The thesis is based on the following original publications, which are referred to in the text as Studies I-IV.

- I. Belt R, Punamäki R-L (2007): Mother-infant group psychotherapy as an intensive treatment in early interaction among mothers with substance abuse problems. *Journal of Child Psychotherapy* 33: 202-220.
- II. Belt R, Punamäki R-L, Pajulo M, Posa T, Tamminen T (2009): Transition to parenthood among substance-abusing mothers: Stressors, supports, coping and mental health. *Journal of Prenatal and Perinatal Psychology and Health* 20: 27-48.
- III. Belt RH, Flykt M, Punamäki R-L, Pajulo M, Posa T, Tamminen T. (2012): Psychotherapy groups to enhance mental health and early dyadic interaction among drug abusing mothers. *Infant Mental Health Journal* 5: 520-534
- IV. Belt R, Kouvo A, Flykt M, Punamäki R-L, Haltigan JD, Biringen Z, Tamminen T. (2012): Intercepting the intergenerational cycle of maternal trauma and loss through mother-infant psychotherapy: A case study using attachment-derived methods. *Clinical Child Psychology and Psychiatry*, doi: 10.1177/1359104512444116.

1.Introduction

Substance consumption among fertile-aged women has significantly increased in recent decades in Finland. This means that not only adults' health but also children's well-being are at risk. The exact prevalence of illegal drug abuse among pregnant women is difficult to estimate on the basis of interviews and self-reports because drug taking is criminal and the topic is a cause of shame. However, the prevalence of substance (alcohol, illegal drugs and pills) dependence among Finnish pregnant women is available - being about 6% at the turn of the millennium (Pajulo et al. 2001). Investigations among clinically identified drug-abusers showed that poly-drug use and concurrent consumption of alcohol are common (Hakkarainen and Metso 2009). Cannabis is the most commonly used illegal drug. Although amphetamine is the most common "hard drug", there is no medical replacement treatment available for abusers, whereas the most commonly abused opioid, buprenorphine, is also a replacement medication in opioid rehabilitation (Partanen et al. 2007).

A universal phenomenon is that women significantly decrease or stop their substance consumption after pregnancy confirmation (Tough et al. 2006). For instance, a Finnish study showed how two out of three pregnant heavy drinkers were able to considerably decrease their alcohol consumption by at least 50% with the help of counseling and support (Halmesmäki 1988). In general, there is encouraging evidence that substance-abusing women are willing to accept

professional help to find a new identity as successful mothers rather than as substance-addicts as far as appropriate treatment alternatives are available (Luthar et al. 2007, Pajulo et al. 2006). The perinatal period poses a challenge for providing effective intervention programs for women to give priority to the child instead of the substances, and thus prevent the negative consequences of substance abuse (Howell et al. 1999, Tronic et al. 2005). In Finland medically and psychosocially aimed efforts have been made over the past decade to help substance-abusing mothers together with their children (Pajulo et al. 2006, Salo et al. 2010), although not enough is so far known about how best to help these dyads. The psychosocial treatment resources are mostly implemented in residential care in the so-called third sector, i.e. the Federation of Mother and Child Homes and Shelters (Pajulo et al. 2008, 2012). However, treatment and especially treatment alternatives in outpatient care are available only to a few perinatal substance-dependent mothers, even though the public sector has the obligation to provide treatment.

The physical risks to the child caused by intrauterine drug exposure are less evident than those of alcohol. Many of the consequences may become apparent only in the long term, during the child's later development (Bandstra et al. 2010, Connors et al. 2004). In particular, opioids (buprenorphine, heroin and methadone) have been shown to produce neonatal abstinence syndrome (Salo et al. 2010), as well as later infant neurobehavioral deficits (Banstra et al. 2010). They also have been demonstrated to impede the progress of the child's development (Steinhausen et al. 2007) and interfere with mother-infant interaction (Salo et al. 2010).

Substance-abusing women have often been victims of relational trauma, i.e., emotional, physical and/or sexual abuse during their childhoods (Connors et al., 2004;

Freeman et al. 2002; Grella et al. 2005; Medrano et al. 2002). They are often victims of violence and meet untimely deaths (Hser et al. 2012, Kahila et al. 2010). Their attachment deficits and the trauma perspective especially should be considered when offering services (Connors et al. 2006; Suchman et al., 2010), because traumatic attachment experiences are easily activated in the perinatal period and transferred to the mother-child relationship (Hesse and van IJzendoorn 1998, Scheeringa and Zeanah, 2001). Thus today there is a challenge to develop treatment alternatives and accurately focused interventions for perinatal substance-abusing mothers (Pajulo et al. 2006, 2012).

Addressing to these questions, the aim of this dissertation was to develop a psychodynamic mother-infant group therapy (PGT) model for perinatal drug-abusing women and to explore its clinical effectiveness and applicability. Further aims were to gain a more profound understanding of the mental needs of these mother-infant pairs by combining the qualitative analysis of one therapy process with attachment based assessment methods. The most fundamental question is how to prevent the negative maternal burden from transferring to the next generation, in particular, when it comes to serious maternal history of trauma.

2 Review of the Literature

2.1 Bases of mother-infant therapies

2.1.1 Transition to motherhood

The use of psychoanalytic or attachment-based mother-infant interventions is justified in pregnancy because this period is critical in preparing a woman for motherhood and to adequately respond to the infant's developmental needs. The transformation process includes significant physiological, mental, and social reorganization (Stern et al. 1995, Stern and Bruschiweiler-Stern 1998). The mind of an expectant mother is open to the unconscious world and to more profound and stronger feelings (Stern 1995). A woman, in particular during her first pregnancy, does not merely go through a reorganization of the mental life, but creates a total new organization of her personality (Stern 1995). This process generally leads the woman towards more maturity, but a severe crisis may also stunt the maternal growth.

The prenatal activation of attachment-related experiences stimulates the mother to work on her own early attachment relationships, and these new reflections influence her to form a relationship with her own baby (Stern and Bruschiweiler-Stern 1998). It is crucial to recognize the maternal mental burden during the transitional time to parenthood in order to prevent negative transmission to the infant (Jacobvitz et al.

2006, Lyons-Ruth and Jacobvitz 2008). Thus mothers at risk may also have an opportunity to achieve a positive change.

2.1.2 Psychoanalytic perspective

The genetic psychoanalytical perspective assumes that the adult individual unconsciously expresses his/her childhood experiences through his/her personality, free associations, fantasies, and dreams. The analyst then interprets them for the patient to create insight for a resolution of the problems (Molnos 1995). However, psychoanalytical research cannot tell what actually occurred in childhood, it can only help to reconstruct patient's past experiences (Salomonsson 2010). In contrast to adult analyses, Selma Fraiberg and colleagues (1987) first described parent-infant psychotherapy where both parts were present. Mother-infant psychotherapy has been developed by many psychoanalysts or analytically informed therapists. Fraiberg et al. (1987) described three different intervention alternatives to support early parenting: (1) brief crisis interventions, (2) interaction guidance-supportive treatments, and (3) actual parent-infant psychotherapy. In parent-infant psychotherapy the therapist makes an attempt to simultaneously act as a supporter for the mother and to help her to see the baby as a separate person, free from mother's projections (Fraiberg et al. 1975).

Psychoanalytic theory highlights that the intimate bodily dialogue between the mother and her infant provokes powerful affects, unconscious and archaic sensations. The aim of parent-infant therapy is to link the mother's early experiences of nurture to the present interaction between her and her infant. Therapeutic work and positive mothering experiences are thought to help the mother to become more aware of her

dysfunctional representations and defenses (such as splitting, denial and projection). If the mother is preoccupied with her own emotional problems, she may easily transfer her negative states of mind to the interaction with the infant (Fraiberg et al. 1987, Stern and Bruschweiler-Stern 1998). In analytic psychotherapy the therapist listens to “the mother’s own cries” and lets her project her unresolved conflicts onto the therapist. This protects the child from being afflicted with the mother’s burdens and against the repetition of her own troubled past (Fraiberg et al. 1987).

2.1.3 Developmental psychoanalysis and neurobiology

Experimental infant research and developmental neurobiology offer another basis to parent-child interventions (Schore 2003, Siegel 1999) as well as developmental psychoanalysis (Stern 1995). The findings using dyadic mother-infant interventions also for infants with inborn problems have been encouraging. Stern and colleagues (1998) relied less on an analytic verbal interpretation, and coined the term “moments of meetings”, by which they proposed that the healing power of psychoanalytic therapy lies in the present, authentic person-to-person connection between patient and therapist. This makes it possible to create new mental organizations or reorganize a patient’s implicit procedural knowledge.

Positive and compensatory relational experiences can neutralize anger towards others. It is an integral part of psychotherapy that the therapist is internalized with positive emotions, because this can have an impact on the deep levels of the self, even in the organs and tissues of the body (Grinberg 1990). Consistently, the research in neurobiology and early parent-infant interaction (Schore 2001, Siegel 1999) has shown that early human interaction shapes the neural connections and activates the reward system connected with the attachment relationship (Bartels and Zeki, 2004).

For example, new synapses and grouping of neurons are first developed and later selectively pruned depending on the experiences the infant has in dyadic interaction with his/her parent (Schoore 2001). The changes in neural connections can be activated through a particularly strong emotional experience within a single relationship later in life, for example in psychotherapy. This may lie at the core of an integrating process which enables emotion regulation (Siegel 1999).

Affect regulation. Citing experimental evidence from infant research, Stern (1985) demonstrated that the newborn is immediately an active part of regulating the interaction with his/her parent. Attachment researchers have assumed that parent-infant early interaction creates the basis for the infant's ability for emotional and self-regulation. Tronick and Gianino (1986) first introduced the term "mutual regulation", which means a bidirectional reciprocal emotion regulation between the adult caregiver and the infant. As soon as the infant internalizes a generalized representational model of a responsive and soothing caregiver, it is possible that he/she, too, is able to begin to regulate and soothe himself/herself. On the other hand, the generalized model of an insensitive relationship may predict infant's inadequate self-regulation (Fonagy et al. 2002).

Parental hostile-intrusive behavior towards the infant comes into the focus when predicting the risk for parenting and child maltreatment (Farc et al. 2008) and attachment disorders (Lyons-Ruth et al. 1991, Swanson et al. 2000). These parental negative features have been shown to be especially damaging to small children because they directly disturb the child's developmental task to explore the environment. Thus, it may cause him/her stress, which is detrimental to his/her coping capacity (Swanson et al. 2000).

2.1.4 Attachment perspective

Attachment theory, as part of the newer relational models within psychodynamic theory, synthesized the best ideas of psychoanalysis, child development, neurobiology and cognitive sciences. The theory originates from the ideas of John Bowlby (1969/1982), and is a systematic approach containing a theory of normal development as well as the role of the developmental process underlying psychopathology (Sroufe et al. 1999). In contrast to psychoanalytic theory, attachment research is interested in observing the infant from an “outside” perspective in dyadic interaction with his/her caregiver. The concept of internal working models, i.e. the mental representations, forms the core of attachment theory. They are created in early interaction with caregivers through perceptions about whether oneself is worthy of care, other people reliable and the world predictable. During childhood the attachment system and working models become activated especially in distress and danger to maintain proximity to the caregiver, mostly to his/her parents (Stern 1995, Fonagy et al. 2002). In adulthood, significant life transition periods such as becoming a parent and traumatic experiences activate the attachment system (van IJzendoorn and Bakermans-Kranenburg 1997). In accordance with attachment theory, the individual’s prior history is a part of the current context and influences how he/she may select or interpret the later experiences and the available environmental supports (Sroufe et al. 1999).

Attachment theory has opened up new perspectives on relational interactions and enhanced modern psychotherapeutic work. Similarly to psychoanalytic thinking, the healing power of attachment theory-based interventions is considered to lie in the individual’s experience of becoming profoundly understood and represented in the

therapist's mind (Fonagy et al. 2002). For a pregnant woman it means that the therapy could create a safe environment and a secure base from which she can explore her motherhood, past and present negative experiences and losses (Bowlby 1975, Fonagy and Bateman 2006) in order to diminish the risk of infants' attachment disorders (Hesse and van IJzendoorn 1998).

The term "mentalize" refers to an individual's ability to understand him/herself and others in terms of mental states (feelings, beliefs, intentions, and desires), and to reason about his/her own and others' behavior in relation to these. The concept of reflective functioning enables an individual to understand another's behavior as meaningful and predictable. Thus in good parenting the parent appreciates the child's integrity, the adult's own emotions and thought as well as the intentional nature of his/her child's behavior (Fonagy et al. 2002, Slade, 2002). A good enough parent is emotionally open and available in the relationship with his/her infant and facilitates the infant's ability to regulate his/her emotions (Biringen 2000).

Mentalization-based mother-infant therapies focus on the infant's possible experiences, aiming to support mothers to recognize their infants' cues and underlying mental states that govern their behavior (Baradon et al. 2005, Lojkasek et al. 1994, Pajulo et al. 2006, 2008, Suchman et al. 2008). The focus is on the mother's present mental states and on linking current feelings and thoughts to subjectively felt reality. Today the interest of attachment research is in interventions directed at a more comprehensive change in maternal inner representational balance and working models (Fonagy et al. 2002, Mayes and Truman 2002). The idea is to improve mother's representational coherence and integration of intentional stages (Fonagy and Bateman 2006) so that she is able to regulate her own emotions in interaction with the child. Thus she can better keep her child's needs, wishes and emotions in mind and be more

sensitive in receiving her child's mental states and regulating them (Molitor and Mayes 2010, Pajulo et al. 2006).

2.1.5 Transmission of attachment security across generations

Negative intergenerational transmission of trauma and loss. According to both attachment theory and psychoanalytic theory the mother-infant interaction is a unique scenario, where maternal past and present unresolved and un-integrated experiences of traumas and neglect are transferred to the next generation (Fraiberg et al. 1987, Hesse and van IJzendoorn 1998). Beside parent's hostile-intrusive behavior, parent's unresolved losses and trauma create disorganization at both behavioral and mental levels, thus causing another major risk for the quality of parent-child interaction (Jacobvitz et al. 2006, Lyons-Ruth and Jacobvitz, 2008, Main et al. 2002). For example, maternal capacity to mentalize about one's own child has been shown to be weaker if the mother has been traumatized in her early attachment relationships (Fonagy et al. 2002). The significance of parental unresolved experiences in early parent-infant interaction can be observed from two perspectives: first, how much the parent's mind is preoccupied with disorganized experiences and second, how capable he/she is for primary preoccupation with the infant (Baradon 2010).

The effects of parental unresolved trauma on parent-infant interaction have been investigated both by examining the parents' internal working models or mental representations (Sleed and Fonagy 2010) and by observing the dyadic behaviors, whether they include secure or/and traumatogenic elements. Parental sensitivity has been shown to promote secure attachment, whereas unresolved trauma or loss experiences often produce breakdowns in the dyadic interaction and may be a risk for

developing infant disorganized attachment (Lyons-Ruth and Jacobvitz 2008, Main et al. 1985, van IJzendoorn 1995). In that case, the parent may be unpredictably available and at times distracted or scared. He or she may respond to the child by odd facial and vocal expressions and bodily movements. This kind of parental behavior may cause the infant to withdraw and to be afraid of the parent (Hesse and Main 2000). The infant may also respond in a similar strange way to the parent (Scheeringa and Zeanah 2001), e.g. to freeze and fall into a huddled posture on the floor (Main and Solomon, 1986, 1990). Fraiberg et al. (1987) proposed that traumatic experiences and unresolved conflicts in the mother's past, "ghosts", can often explain the occurrence of the infant's behaviors. It is noteworthy that in that case the infant is not directly traumatized by an event.

2.2 Substance-dependence and early motherhood

2.2.1 Background characteristics and cumulative stressors

The situation of becoming a mother is stressful and confusing for substance-abusing women, because pregnancy without drugs coerces them to face present problems and past disguised memories which have been forgotten and denied (Medrano et al. 2002). It is well documented that pregnant and postpartum substance-abusing women have an accumulation of psycho-social, medical, legal and economic stressors (Knight et al. 2001, Nair et al. 2003). The pregnancies are mostly unplanned and these mothers receive little social support from their partners or relatives (Suchman et al. 2005). Spousal problems are common, because their partners are usually substance-abusers,

too, and often behave violently and engage in criminal activities. The illegal drug abuse lifestyle is very dangerous, including violent relationships, conditions, and untimely deaths (Kahila et al. 2010, Nair et al. 2003). Thus social closeness with partners and closest relatives may actually increase substance dependent women's everyday burdens and drug abuse (Connors et al. 2004, Falkin and Strauss 2003). In pregnancy relations of this kind are especially risky, because the mother's energy should be aimed at rapidly abandoning the substances and trying to learn a normal lifestyle in order to protect her child.

Perinatal drug-abusing mothers have been found to suffer from various mental health problems, especially when it comes to poly-substance users (Kandel et al. 2001). Across studies (Field et al. 1998, Fraser et al. 2010, Howell et al. 1999, Oei et al. 2009) substance-abusing mothers have been shown to be especially susceptible to depression. For example, in a Finnish study 40% of pregnant women in residential care screened positive for depression (Pajulo et al. 2001). Personality disorders (Haller and Miles, 2004), anxiety (Haller et al. 1993), and bipolar affective disorders are also common among these women (Ashley et al. 2003). Furthermore, a growing body of research evidence shows that these women have often been victims of emotional, physical and/or sexual abuse in childhood (Connors et al. 2004, Freeman et al. 2002, Grella et al. 2005, Medrano et al. 2002), which is often associated with increased risk for post-traumatic stress disorder (PTSD) and other trauma-related psychiatric symptoms (Connors et al. 2006, Hien et al. 2004, Lara et al. 2009). The trauma background may have an association with the findings that addictive individuals often have emotional imbalance (Shore 2003), and borderline personality disorders (BPD) (Haller and Miles 2004). The attachment system of BPD individuals

is thought to be hyperactive and therefore prohibits the development of mentalization and its normal function (Fonagy and Bateman 2006).

2.2.2 Coping strategies among substance-abusing women

Substance-abusing women need highly effective coping capacities in order to deal with their accumulated problems. In alleviating mental health problems it is important that an individual attempts to change or remove the sources of stress, uses problem-focused coping, constructive thinking and is active in initiative-taking (Carver et al. 1989, Lazarus 2000). However, the situation is the opposite among drug-abusers. They have been reported to usually use ineffective avoidant and denying coping strategies, e.g. distraction, daydreaming and escapism (Burns et al. 2008, Wills et al. 1996). These strategies may have initially helped drug-abusing individuals to regulate and endure painful emotions and to distance memories (Khanzian 1985, Medrano et al. 2002), and thus the abuse itself could be understood as a consequence of an unsuccessful and dysfunctional coping effort. Unfortunately, chronic substance abuse has been shown to have the opposite effect in reducing the neurological response to stress, which means that the substance-abusing mother may find caring for a demanding infant particularly intolerable and unrewarding (Suchman et al. 2011).

2.2.3 Maternal substance-abuse and early interaction

Transition to motherhood. Becoming a mother is known to be very important for the identity of drug-abusing women (Brudenell 1997, Pajulo et al. 2006). These mothers

attach a high value to their new role as mothers and some of them expect motherhood to repair their entire lives. At the same time they often express deep fears of failing in motherhood and subsequently of losing their baby. Besides, the possible damage to the infant of exposure to drugs concern and make these women feel guilty (Mayes and Truman 2002). Substance-abusing mothers usually have fragile and unreal, either negative or idealized experiences and expectations of motherhood (Flykt et al. 2012, Suchman et al. 2005). They often struggle and attempt to seek a balance between the identities of being a mother versus that of an addict (e.g. Brudenell 1997). During pregnancy they may find new ways to break free from drugs and care for the health of the fetus. However, their maternal identity may revert to addict identity in the postpartum period when the child is no longer so dependent on the mother (Brudenell 1997, Kahila et al. 2010).

Mother-infant interactive behavior. According to earlier studies parental substance-abuse disorders have specifically been shown to be a risk factor for child abuse and neglect (Chaffin et al. 1996, Connors et al. 2004). Substance abuse in itself may be the source of maternal altered states of consciousness. From the point of view of the child, an intoxicated mother may be unpredictable, frightening and not emotionally available. Even though the mother becomes abstinent she needs help especially in emotional interaction with her infant (Jacobson and Jacobson 2001, Mayes and Truman 2002, Molitor and Mayes 2010). Recent research evidence has raised concerns about substance-abusing women's disruptive affect regulation, especially highly intrusive (Salo et al. 2010, Swanson et al. 2000) and hostile behavior towards the infant (Fraser et al. 2010, Johnson et al. 2002, Swanson et al. 2000). For example, the study by Fraser et al. (2010) showed that most (62%) of such mothers in treatment behaved intrusively, and almost half of them were also covertly/overtly hostile

towards their infants. Furthermore, mother's hostile and intrusive behavior has been demonstrated to be a significant predictor of high externalizing symptoms and overall problems of toddlers (Mäntymaa 2006). In addition, substance-abusing mothers have been found to be lower in sensitivity and generally poorer in emotional availability (Fraser et al. 2010; Salo et al. 2010), less adaptive in engagement (Molitor and Mayes 2010) and to demonstrate more passive/withdrawal towards their children than non-abusers (Burns et al. 1991).

Substance-exposed infants may also need support for their interaction due to their early regulatory difficulties. Their responsiveness and initiation towards the mothers have been shown to be poor (Molitor and Mayes 2010, Salo et al. 2010, Savonlahti et al. 2005, Tronick et al. 2005) and they have been demonstrated to be particularly vulnerable to maternal intrusive behavior. Their regulatory difficulties may manifest e.g. in feeding problems (LaGasse et al. 2003).

To sum up, a substance-abusing mother and her substance-exposed infant are reported to be difficult regulatory partner for each other, because the exposed child usually has a low ability to regulate his mental and behavioral states, and the mother often has a poor capacity to observe and understand the infant's signals (Pajulo et al. 2006). The support should be targeted at regulating mother's emotional imbalance and reactions, and at helping her to respond adequately to her infants' emotional cues and the distress and mental states underlying that behavior and their impact on the child (Molitor and Mayes 2010, Pajulo et al. 2006, Slade et al. 2005, Suchman et al. 2010, 2011).

2.3 Therapeutic interventions for pre- and postnatal substance-abusing mothers

2.3.1 Comprehensive treatment programs

Comprehensive programs have been developed for substance-dependent pregnant women and mothers of small children in order to consider maternal substance abuse, mental health problems, and to provide support in parenting skills (Field et al. 1998, Luthar et al. 2007, Moore and Finkelstein 2001, Volpicelli et al. 2000). The psychosocial treatment or rehabilitation is offered in conjunction with other additional onsite services, such as medical care, psychiatric services as well as child care. Residential treatment programs designed for early motherhood have often been applied to the most challenging mother-infant dyads (Pajulo et al. 2008). There is no evidence whether this is more effective than intensive outpatient care (Howell et al. 1999, Uziel-Miller and Lyons 2000). All in all, comparison between the treatment alternatives is difficult. The formats and durations of the intervention programs for perinatal substance abusers in outpatient treatment vary a lot (Catalona et al. 1999, Huebner 2002, Ernst et al. 1999, Stranz and Welch 1995). The content of treatment seems to be more important than its form. In particular, the psychological needs of substance abusing pregnant women should be sensitively met (Luthar and Walsh, 1995, Pajulo et al. 2010), especially at the beginning of the intervention (Luthar and Suchman 2000). Some authors (e.g. Suchman et al. 2005) recommend that interventions in early motherhood should “attach” these mothers to treatment offering them positive and new relational experiences with other adults and opportunities to succeed in the maternal role (Pajulo et al. 2006, Suchman et al. 2008). Thus it could

be possible to repair previous negative attachment based experiences (Luthar et al. 2007). Additionally it is important to take mother's trauma perspective into consideration when planning treatment programs for substance-abusing mothers (Connors et al. 2006, Pajulo et al. 2012).

Two main approaches of comprehensive treatment programs can be distinguished: One emphasizes practical and psychoeducational help and awareness of substance abuse and its causes and consequences (Black et al. 1994, Huebner 2002, Schuler et al. 2002). The other approach emphasizes the value of therapeutic work, sensitivity and mentalizing capacity in dyadic interaction (Pajulo et al. 2006, 2008, 2012, Suchman et al. 2008, 2010, 2011).

2.3.2 Psycho-educational interventions

Every mother-infant intervention probably includes elements of guidance, although in the psycho-educational interventions the guidance is more active and clear than in psychotherapeutic interventions. As an example, Strantz and Welch (1995) reported of two intensive outpatient treatment models for postpartum substance-abusing mothers. One intensive day-treatment program included substance abuse and recovery counseling, parent-infant training and a parent education class. Another intensive treatment program for pregnant and mothers of children under four years of age was reported by Volpicelli et al. (2000). The intervention was based on daily group counseling sessions and offered in conjunction with several additional onsite services including standard addiction treatment, sessions, a parenting skills class, psychiatric services, individual therapy, and child care.

2.3.3 Psychotherapeutic mother-infant interventions

Mother-infant psychotherapy has traditionally been used when an infant has developmental problems or/and there are signs of mother-infant interactional disturbances (e.g. Baradon 2005). In contrast to this, substance-abusing mothers as a high risk group need preventive interventions as early in pregnancy as possible (Pajulo et al. 2006, Slade 2002). The aim of the therapy is challenging, because it should simultaneously, and in a limited time, improve the mother's mental health, prevent relapses to substance taking, and promote better mother-infant interaction and healthy child development (Howell et al. 1999). The therapy should also be integrated into other supportive actions, because substance-abusing mothers especially need a lot practical help in coping successfully with the chaos in their everyday lives, in order to be able to concentrate on their "inner chaos" in therapy. Comprehensive treatment programs which direct women's attention from substances to their motherhood may also enhance their psychological functioning and mental health. Researchers have proposed that a mother's mind and brain reward system can be diverted from drugs to the child so that she is able to feel more success in the maternal role (Niccols et. al. 2010, Suchman et al. 2008, 2010).

Considering the trauma background, a core element in intervention for perinatal substance-abusing mothers is the prevention of transgenerational reproduction (Connors et al. 2004, Swanson et al. 2000). If the mother has experienced serious early trauma she is thought to benefit interventions focusing on "bodily-based affective communication" within intersubjective attachment bond co-created by patient-therapist (Schoore 2003).

Although the mother reduces or stops taking drugs, it is of utmost importance that the intervention is able to enhance the mother's ability to begin processing her feelings, the thoughts and conflicts evoked by the pregnancy. However, in short-term mother-infant therapies the therapist has to regulate and keep the discussions predominantly on a factual level in order to prevent the most painful unconscious experiences from emerging (Broden 2004, Polansky 2006). In all, mother-infant psychotherapy in the context of unresolved traumatic experiences should (1) improve the coherence of the mother's state of mind, (2) prevent the mother's harmful behavior (i.e., intrusive, frightening and frightened behavior and dissociation), and (3) reinforce the mother's emotional availability for the infant (Bakermans-Kranenburg et al. 2005, Baradon and Steele, 2008).

Psychodynamic mother-infant group psychotherapy. The healing mechanisms and curative factors in psychoanalytically based group therapy are thought to lie in the comprehensive processes of giving rise to feelings of hope, universality and altruism among the group members (James 2004, Trad 1994). The group is enabled to "practice" new modes of interaction with peers and achieve a more coherent sense of identity through relationship (Foguel 1994, Trad 1994). The social support from other members in trouble often provides a compensatory experience through connection and sharing similar life histories, guilt feelings and -shame (Paul and Thomson-Salo 1997, Smith et al. 2010).

Symbolically, the group as a whole can be understood as a matrix, or as a nourishing place in which something, new, good and unique is produced and developed (James 1984). From an attachment perspective, the therapeutic group can establish a medium where the members are allowed to form "a second attachment to the group mother", and to find lovable sides in themselves. Like a securely attached

child, the group members can feel themselves protected and safe, and little by little dare to explore their own thoughts and experiences (Foguel 1994). One main idea in psychodynamic group psychotherapy is that the therapist gives “a group as a whole” interpretations when collecting together actual group themes. The interpretations work as translations of the emotions and mental states of group members (Foulkes and Anthony 1990). Analogous to the mother in the early months of an infant’s life, the therapists verbalize the group’s desires, conflicts and fears, and seek and show ways of alleviating them. Every participant can take only the part of the interpretation which he/she is ready to accept. Therefore, “group as a whole” interpretations are often less threatening for participants. In this theory every integration of emotions and change in individual’s behavior first occur on the group level, and eventually thereafter also on a personal level (Foulkes and Anthony 1990).

In brief analytic group therapies, like those for substance-abusing mothers and their infants, the members’ attention should be focused on this very moment, “here-and-now”, and on their psychological needs and actual life situation . The transference phenomena should be initiated quickly (McKenzie 1990) and positive transference is desirable, although it is necessary also to interpret the more obvious negative transference (Paul and Thomson-Salo 1997). Mother-infant group psychotherapies require enthusiasm and a deep commitment and are challenging for the therapist (James 2004). In peer groups the mothers can reflect on each other’s parenting behavior and childcare practices and give each other advice about what to do in difficult situations (Harwood 2006, Polansky et al. 2006). This is considered helpful in a renewed attachment process (Fonagy and Bateman 2006, Harwood 2006).

Attachment-oriented mother-infant group psychotherapy. Until recently, there were few reports on applying attachment theory based methods to the explanations of

group-related processes. Reynolds (2003) introduced “Mindful Parenting Groups” to promote parental reflective capacity and attachment relationship between parents and infants in parent-infant group therapy for risk families. There are reports on mother-infant group therapies in general (Trad 1994, Paul and Thomson-Salo 1997, Reynolds 2000, James 2004), and concerning mothers and babies in pregnancy and postpartum crises (Pedrina 2004, Harwood 2006), and depression (Clark et al. 2003).

When it comes to substance-abusing mothers, there are some reports available of group therapies for mothers of children with a wide age span. In all, the peer groups among substance-abusers offer their members opportunities to practice new modes of interaction while sober (Flores et al. 2010). There is a report of a qualitative study of an attachment-based parenting group of 6 weeks’ duration for mothers with drug addictions (Polansky et al. 2006), and a 6 - month supportive and developmentally informed group psychotherapy for mothers addicted to heroin (Luthar and Suchman (2007). However, a recent study by Smith et al. (2010) reported on 10 weeks’ psychoanalytically and attachment-oriented mother-infant group therapies of high risk mother-infant dyads, which also included substance abusers. They noted that the social support for mothers by mothers was especially beneficial in the transition to motherhood. The authors also discovered that mothers’ deeply wounding experiences of past physical or sexual abuse were typically disclosed during the therapy process. They emphasized that the therapist should help the mother to ensure that she can process those traumatic experiences later, after the group therapy, and the therapist should get back and direct the focus of the group discussion to the current parenting issues. Nevertheless, it is important that the therapist is able to support the mother to contain simultaneously the “hurt-baby-within-her” and her current own baby in her mind (Smith et al. 2010).

2.4 Outcome studies on mother-infant interventions

2.4.1 Treatment completion and reduction of substance-abuse as criteria for intervention outcome

Treatment completion and decrease in substance abuse are traditionally assessed as criteria for effective treatment outcome among substance-abusing mothers. They often correlate with each other so that the longer the treatment, the more probable is the abstinence (Conners et al. 2006, Howell et al. 1999). Research has shown that parenting interventions are also able to enhance maternal success in abstinence (Black et al. 1994, Camp and Finkelstein 1997, Field 1998, Grella et al. 2000, Huebner 2002, Schuler et al. 2002) and treatment completion, especially, if the intervention begins in pregnancy and continues long enough, e.g. one year (Camp and Finkelstein 1997, Pajulo et al. 2006). Further, abstinence and treatment completion are more likely if the mother's specific needs are taken into consideration (Knight et al. 2001, Volpicelli et al. 2000), her psychiatric and substance abuse problems are not severe (Suchman et al. 2008), and her socioeconomic situation is stable. Methadone maintenance therapy, comprehensive services and arranged child care (Howell et al. 1999), as well as a stable network help the mother to engage in treatment and sustain abstinence. On the other hand, mother's poor early parenting (Cosden and Contez-Ison 1999) and bonding experiences (Suchman et al. 2005), exposure to traumatic experiences (Cosden and Contez-Ison 1999), as well as low educational level (Knight et al. 2001) have been found to diminish the likelihood of remaining in treatment. Integrated programs are often recommended in supporting substance-addicted mothers (Field et al. 1998, Niccols et al. 2010). However, a meta-analysis revealed that there were no

significant differences in effectiveness between integrated and non-integrated programs (Milligan et al. 2010).

2.4.2 Maternal mental health as a criterion of treatment effectiveness

There are some reports showing a decrease in substance-abusing mothers' distress (Huebner, 2002, Field et al. 1998; Suchman et al. 2010) and depressiveness after a mother-infant or mother-toddler intervention (Field et al. 1998, Smith et al. 2010; Suchman et al. 2010). The randomized pilot study by Suchman et al. (2011) showed that at six-week follow-up after individual 12-week mother-infant/toddler intervention mothers in the attachment-based intervention group reported fewer depressive symptoms than mothers receiving parenting education. Field et al. (1998) found a favorable although not clearly sustainable (at 12 months) positive effect on maternal depressiveness. Moreover, brief peer group psychotherapy for high-risk mothers and their infants alleviated postnatal depression during the mean 12-month follow-up (Smith et al. 2010). In general, integrated programs may be associated with a small advantage over nonintegrated programs in improving maternal mental health (Niccols et al. 2010).

2.4.3 Quality of mother-infant interaction as a criterion of treatment effectiveness

Table 1 presents a summary of studies that have positive changes in the mother-infant relationship as a result of successful intervention among the substance-abusing mothers. Typically intensity and study design have varied a lot in these studies, e.g.

the children's age span may be wide (e.g. Smith et al., 2010: from 2 weeks to 27 months; Suchman et al. 2010: from birth to 36 months), and the duration of an intervention may be from 8 weeks (Huebner 2002) to 18 months (Schuler et al. 2002). Thus, the comparison of their success and effective elements can be very complex. Additionally, drop-out rate may be high and sample sizes are mostly small. Only three controlled randomized trials are available (Black et al. 1994, Schuler et al. 2002, Suchman et al. 2010, 2011).

As Table 1 demonstrates, psycho-educational mother-infant interventions have seldom succeeded in enhancing the actual quality of dyadic mother-infant interaction although they have achieved improvements in parenting skills (Black et al. 1994, Huebner 2002, Schuler et al. 2000, 2002). The findings of a controlled study by Field et al. (1998), however, showed that mothers' ability to recognize their infants' cues and responding adequately to their needs improved more in a -month preventive postnatal intervention than in the non-treatment control group. There is evidence that attachment and mentalization-based interventions are able to improve representational capacity and reflective functioning (RF) among substance-abusing mothers both in outpatient treatment (Suchman et al. 2010, 2011) and a residential intervention (Pajulo et al. 2008, 2012). Twelve-week individual therapy contributed to higher maternal reflective functioning, representational coherence, sensitivity and positive care-giving behavior toward their children compared to mothers who received individual case management and parenting education. In the study by Pajulo et al. (2012) the average level of maternal RF increased significantly from pregnancy during the residential intervention. It is noteworthy that the more traumatization the mother had experienced during her lifetime, the less increase was found in RF level.

Among high-risk mothers, who also included substance-abusers and their children younger than 27 months of age, dyadic mother-infant interaction improved responsiveness more in a short-term analytic-attachment based group intervention than in the control group receiving routine care (Smith et al. 2010). Dyadic responsiveness was analyzed in that non-randomized study by mutual attention, positive affect, turn-taking, maternal pauses, infant clarity of cues, and maternal sensitivity. Furthermore, participation in group therapy may enhance mother's awareness of the risks of transferring their negative parental features to the child and reduce child maltreatment (Harwood 2006, Luthar et al. 2007).

In all, there is no research comparing psychodynamic group therapy and individually tailored treatment for perinatal substance-abusing mother-infant dyads. However, evidence from earlier research suggests that a therapeutic peer intervention focusing on mother-infant relationship and considering mother's trauma perspective would better contribute to success outcomes than conventional individual support and guidance. Additionally, in order to develop early therapeutic interventions, detailed case studies are needed combining psychotherapy with standardized attachment based assessment methods.

Table 1. Studies that assessed mother-infant interaction as an outcome of substance abusing mothers' intervention

<i>Study</i>	<i>Design and participants</i>	<i>Intervention</i>	<i>Mother-infant interaction outcome measurements</i>	<i>Results</i>
Black et al. (1994)	Randomized into an intervention (31) or comparison group (29). Sixty drug using pregnant mothers.	Psycho-educational parent skills training, 2 weekly home visits from pregnancy to 18 months postpartum.	HOME Scales (Caldwell & Bradley 1979)	At 18 months postpartum intervention group mothers scored higher than comparison mothers on 2/6 subscales: emotional and verbal responsibility and opportunity for variety in daily stimulation.
Field et al. (1998)	Not a really randomized study of 126 adolescent mothers in three groups: Poly-drug using 1) intervention or 2) control group and 3) non-drug user control group. Numbers of subgroups are not reported.	Psycho-educational 4 months rehabilitation program with several components. Parenting and interaction coaching in order to enhance the mothers' sensitivity to their infants' behaviour.	Feeding and Play Interactions (Field, 1980) Early Social Communication Scales (Seibert et al. 1982, 1987)	At 3 months postpartum intervention group scored higher than controls and at 6 months similar to non-drug controls. At 12 months infants in intervention group scored similar to nondrug-controls in responding and initiating.
Huebner (2002)	Non-randomized study to a residential drug-intervention (51) and to two nondrug interventions. 199 parents at risk for parenting problems.	Parenting education: Weekly parenting groups for 8 weeks. Children from 1 through 36 months.	Nursing Child Assessment Teaching Scale (Barnard 1978) HOME Scales (Caldwell and Bradley 1978)	At post-enrolment enhancement in children's expressiveness and responsiveness in drug intervention group more than in other groups. No improvement in maternal behavior.
Pajulo et al. (2008, 2010, 2012)	Non-randomized and non-controlled study of 34 pregnant and postnatal mother-infant pairs.	Residential intervention during pre- and postnatal period including working to enhance maternal reflective functioning in dyadic interaction.	Care-index (Crittenden 1993) Reflective functioning (RF) (Slade et al. 2002, 2005): Pregnancy Interview and Parent Development Interview	Mother-infant interaction at 4 months was weak and maternal sensitivity in 53% within the high-risk range. RF improved from pregnancy to 4 months postpartum.

<i>Study</i>	<i>Design and participants</i>	<i>Intervention</i>	<i>Mother-infant interaction outcome measurements</i>	<i>Results</i>
Schuler et al. (2000, 2002)	Randomized to home-visits intervention (67) or to tracking-visit control group (64) among drug abusing mothers.	Case management psycho-educational support to mother-infant interaction. Weekly home visits 6 months postpartum and biweekly visits from 6 to 18 months.	Feeding interaction ratings (Cowan & Cowan, 1992; Hutcheson et al.97)	At 6 and 12 months postpartum there were no group differences.
Suchman et al. (2011)	Mothers for children from birth through 3 years were randomized into MTP (23) or PE (24)	The Mothers and Toddlers Program (MTP) and the Parent Education Program (PE) are weekly individual interventions for 12 times. MTP aims to enhance maternal RF and soften distorted mental representations.	Parent Development Interview, PDI (Slade et al. 2002) Working Model of the Child Interview (WMCI; Zeanah and Benoit 1993) Nursing Child Assessment Satellite Training (NCAST) Teaching Scales (Barnard and Eyres 1979)	Post-treatment MTP mothers scored higher level of self-focused RF, representation quality and care-giving behavior than PE mothers. Child increased communication of MTP children behaviour: The difference sustained at 6-week follow-up.

3 Purpose of the study

The overall purpose of the study was to explore the clinical applicability of psychodynamic mother-infant group therapy (PGT) among perinatal drug-abusing women and their infants. Other aims were to achieve a more profound understanding of the needs of these mother-infant dyads in order to develop new and cost-effective treatment alternatives in outpatient treatment.

The detailed aims of this study were:

1. To develop and describe the psychodynamic oriented group intervention method for substance-abusing mothers and their children taking into consideration their feedback. (Study I)
2. To examine the impact of drug abuse on women's prenatal resources (social support and coping strategies) and mental health problems (depressiveness, pregnancy distress and hostility), and to analyze whether they predict postpartum mental health in different ways among the drug-abusing and non-using comparison mothers. (Study II)
3. To examine the intervention impacts (effectiveness) by comparing changes in maternal depressive symptoms and mother-infant relationship (maternal sensitivity, structuring, intrusiveness and hostility and child responsiveness and involvement) between the PGT and PSS and comparison groups. The intervention impact on

changes in maternal drug-abuse and program completion in PGT and PSS groups was moreover evaluated. (Study III)

4. To consider the factors which may mediate or prevent the intergenerational transmission of trauma and loss in early interaction to prevent infant's disorganized attachment, and to evaluate how the methods derived from attachment theory may demonstrate the effects of an intervention. (Study IV)

4 Participants and methods

4.1 Procedure

4.1.1 Psychodynamic mother-infant group therapy intervention (PGT) (Study I)

The idea of psychodynamic mother-infant group therapy came into existence during the time when the author was in advanced training for adult and child group psychotherapy. The author was also the person in charge of developing an outpatient family support center “Find the Diamonds” in Lahti Diaconia Foundation. This unit took part in a larger project of Päijät-Häme central hospital in Finland that involved developing a regional treatment model for perinatal substance-abusing women and a more systematic treatment referral policy.

The PGT intervention has also been applied in the public child welfare sector of social work in the Finnish city of Tampere. The focus of the outpatient family support centers is on parental support from mother’s pregnancy to toddlerhood, early parent-child interaction and child development among substance-abusing families. Parents are provided with a treatment network that includes a public health nurse, a social worker from the child protection agency, representatives from a psychiatric clinic and an addiction treatment unit (including substitute treatment) and usually a local family worker. The treatment contract is negotiated at the network meeting and includes drug-screening practices and the consequences of possible positive results.

The group therapy process begins in late pregnancy or during the first postnatal weeks and consists of 20-24 weekly three-hour group sessions and one weekly phone call. Therapy groups comprise three to four mother-infant dyads. The therapy proceeds with a loose structure with verbal instructions, coffee and lunch. In principle, educational guidance is not in use. One of the two therapists should be a trained group psychotherapist and also have experience of early dyadic interaction. Her co-therapist can be a nurse or a counselor from an outpatient family support center. She should take greater responsibility for practical issues including the network co-operation and arrangements for the urine screening tests.

Comprehensive experiences of security and appreciation are considered to be the main healing elements in the PGT intervention. The mothers are supported to be in touch with their own physical and psychological needs and expectations for care and comforting, which then enables them to understand better how their own behavior influences their infants. Mother's mental preoccupation with her own emotional troubles may easily transfer her negative patterns to her interaction with the infant. As in mentalization based interventions (Molitor and Mayes, 2010, Pajulo et al. 2006, Suchman et al. 2010), the therapist acts as a container and regulator of the mother's unbearable emotions by helping her to regulate her own emotions and to adequately recognize and respond to her infant's cues and distress. The aim is that the mothers derive joy from both normal everyday caring practices and their new motherhood (Pajulo et al. 2006, Suchman et al. 2011). The peer group provides opportunities to experience togetherness and share life histories and feelings, to practise new modes of interaction. These themes are considered essential in launching a renewed attachment process (Harword 2006, Luthar et al. 2007). It is noteworthy that mothers are mostly more tolerant of comments on and interpretations

of their talk and behavior from each other than from the therapist, e.g. aiming at supporting each other to remain abstinent and become a good mother.

The main goals of the PGT intervention are defined as follows:

- (1) To “attach” the addicted mothers to treatment enabling them to decrease or stop the substance abuse.
- (2) To provide the mothers with a secure therapeutic context in which they can reflect on present and past painful emotional experiences in order to better regulate them and become mentally more coherent (Connors et al. 2006, Suchman et al. 2010).
- (3) To support the mothers to recognize and respond to their infants’ needs in order to prevent the negative interactional models (e.g. affect dysregulation, maternal insensitivity and frightening behavior) from transferring to the infant.

4.1.2 Psychosocial support (PSS)

Psychosocial support provided various individually tailored treatment elements, although there was no systematic weekly participation schedule. It was an adjunct to the outpatient family support center and lasted on average 12 months. It started prenatally focusing on the dyadic mother-infant relationship to enhance maternal and child well-being. Appointments were arranged according to the mothers’ needs once or twice per week at the outpatient family support center or at home. The main idea of PSS was that each mother-infant dyad had one or two counselors or nurses who could commit to long-term support. They had no official competence in psychotherapy (individual, family or group psychotherapy), although they were experienced and trained in the treatment of early relationship and substance abuse.

4.1.3 Recruitment in Study I

The empirical material consisted of 16 mother-infant dyads who participated in six psychotherapy groups. In Study I, the staff in the local maternity clinic recruited motivated substance-abusing pregnant women and referred them to the group therapists for assessment. The mothers were expected to have motivation to examine their own internal world and to process the causes of their substance dependence (Appendix 1).

4.1.4 Recruitment in Studies II, III and IV

Staff identified pregnant women as needing treatment in two addiction psychiatry outpatient clinics via their case histories, self-reports of drug/poly-drug or a positive drug screen use after a long (more than 3 years) abuse history. The staff referred these mothers to the two outpatient family support centers and informed them about the two intervention options (PGT and PSS). Practical and ethical factors prevented the use of a randomized design to divide mothers into the two intervention groups. In order to provide appropriate services for all mothers in need of treatment, every mother's individual preference was taken into consideration as far as possible. Thus most mothers could make a choice between the two treatment interventions.

However, because the therapy groups were formed every 6th or 12th month, those mothers were excluded from the groups whose delivery did not coincide with the beginning of a new therapy group.

The staff informed the mothers about the aims of the research (i.e. learning about experiences in pregnancy and early motherhood), as well as its voluntary nature and procedure (Appendixes 2 and 4). Motivated perinatal mothers signed an

informed consent form (Appendix 3), were interviewed and completed the pre-intervention (T1: in the second or last trimester of pregnancy, or immediately after delivery) at their following appointment. Other assessments were at 4 months (T2) and at 12 months (post-intervention follow-up, T3). Further, a research assistant (students of psychology who were blind to other data) helped the mothers to understand and complete the questionnaire at T2 and T3 at the women's homes or in the outpatient family support centers. At both times the dyadic free-play interaction was videotaped.

Women in the comparison group were recruited consecutively at a maternity outpatient clinic in Lahti district. These mothers had medical risks due to e.g. gestational diabetes, abnormalities in ultrasound, pre-eclampsia, or symptoms of premature labor. Their exclusion criteria were reporting ever having used illegal drugs more than just experimentally, positive urine tests, more than light consumption of alcohol during pregnancy, and receiving any psychosocial treatment. Both the drug-abusing and the comparison groups underwent identical study procedures.

This research data was gathered by the Department of Psychology, University of Tampere as a part of their investigation material collection including home visits and assessments at T1, T2 and T3.

4.1.5 Participants in Studies II and III

One hundred and eight mothers were originally approached for the study, but in the drug intervention groups three mothers did not fulfill the criteria for drug abuse, two provided insufficient information and two declined to participate. Thus the participants numbered 101 mothers and their children (56.6% boys and 43.4% girls).

The material was collected during the years 2003 – 2008. Drug-dependent women participated either in psychodynamic group therapy (PGT; n = 26) or psychosocial support (PSS; n = 25) interventions at two outpatient family support centers in the Finnish cities of Lahti and Tampere. The author (RB) was the therapist for 18/26 mother-infant dyads and another group psychotherapist (SB-K) for 8/26 dyads. The comparison group comprised 50 non-substance abusing women. At T1 5 children were born in the PGT intervention and 2 in the PSS intervention group and therefore excluded from Study II. None of the comparison mothers declined to participate.

The flow chart in Figure 2 shows that 77% of the PGT mothers remained in the study throughout the follow-up, and 84% completed the therapy intervention. Similarly 72% of the PSS mothers remained in the study and 80% completed the intervention. Of the comparison mothers 78% completed the study. No difference was found with respect to drop-out rates between the two intervention (PGT and PSS) and comparison groups. There was more attrition among mothers with single marital status and with lower educational level. One child in the PSS group and 2 children in the PGT group were placed in foster homes and one child (in both PGT and PSS) in the father's custody during the first year, and are included in the drop-out rate.

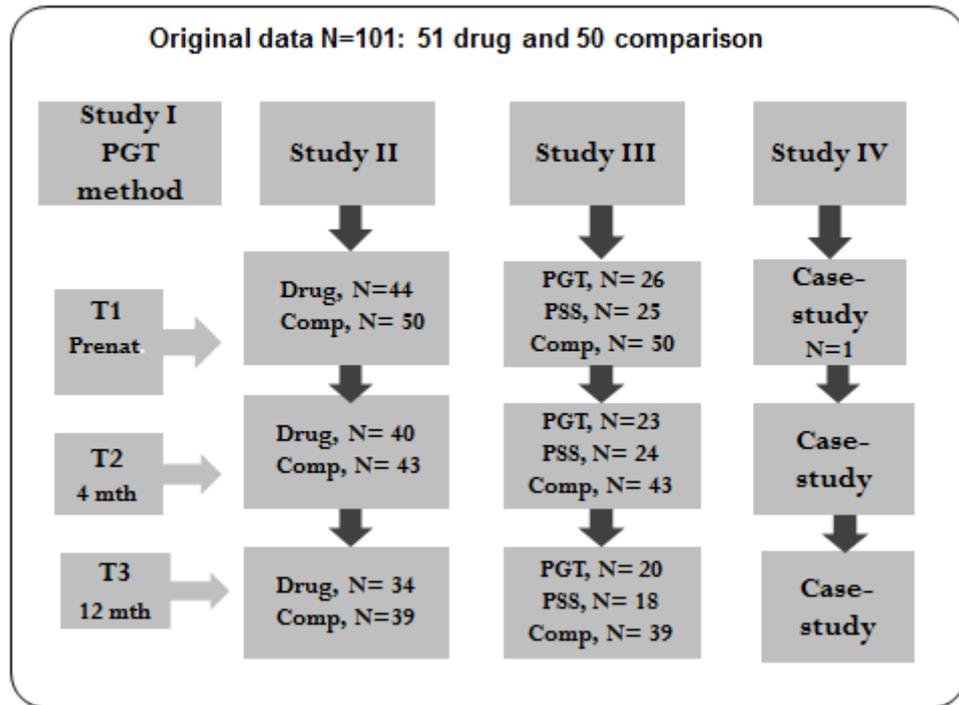


Figure 1. Flow chart of data collection (N = number of mother-infant pairs)

Table 2 shows that drug-abusing intervention groups differed from the comparison group in more frequent single marital status, in their lower level of education, and in lower economic status. Drug-abusing women were younger ($M=25.53+4.16$) than those in the comparison group ($M=29.24+5.02$), $t(98) = 4.05$, $p < .001$. The two drug-abusing groups were similar in all these variables. No differences were detected between drug-abusing and comparison women in pregnancy weeks, earlier obstetric complications and child's birth weight. However, the comparison women (who were at medical risk) reported pregnancy-related obstetric problems more often.

Table 2. Mothers participating in Studies II and III (This Table is based partly on the Table published in Infant Mental Health Journal 2012; 5: 520-534)

	PGT		PSS		Comparison		χ^2
	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	
Family structure							24.35***
Married	19.2	5	20.8	5	50.0	25	
Cohabiting	30.8	8	41.7	10	44.0	22	
Single	19.2	5	16.7	4	4.0	2	
Divorced	15.4	4	4.2	1	2.0	1	
First child ^a	40.0	10	45.5	10	46.0	23	
Multiparous ^a	60.0	15	54.5	12	54.0	27	
Education							40.03****
Basic education	46.2	12	72.0	18	12.0	6	
Vocational school	46.2	12	24.0	6	34.0	17	
College	7.73	2	0		32.0	16	
University	0	0	4.0	1	22.0	11	
Work situation							25.16***
Permanent work	11.5	3	8.0	2	60.0	30	
Unemployed	38.5	10	40.0	10	6.0	3	
Works at home	30.8	8	36.0	9	12.0	6	
Other	19.2	5	16.0	4	22.0	11	

^aNon-significant

4.1.6 The participants in Study IV

Study IV is a qualitative study of one substance-abusing mother and her infant in the context of relational trauma and losses (Appendix 5). The participant in Study IV was included in the formal data collection.

Linda

Linda was a 27-year-old woman who was 4 years of age at the time of her father's suicide. As a child she had no opportunity to grieve or talk about her dead father, and additionally she suffered from her step-father's maltreatment. She became pregnant in an unstable relationship because the father of the child abused substances. He committed suicide the same day that Linda realized that she was pregnant. However, Linda decided to keep the baby and to stop her own substance abuse, although she was totally alone throughout her pregnancy and extremely confused regarding her condition. She was moreover concerned about possible damage her substance abuse might have caused the baby before her pregnancy became known. The only support she had in the psychiatric clinic was appointments with different nurses every three weeks.

4.2 Measures in Studies II, III and IV

The research setting and measures are summarized in Table 3. Both drug-abusing and comparison group mothers completed the same questionnaires at pre-intervention (T1), 4 months postpartum (T2) and at follow-up 12 months postpartum (T3).

Table 3. Summary of measures used in Studies II and III

Substance-abusing women in PGT and PSS intervention and comparison groups	Pre-intervention T1 (2-3 rd trimester to one month)	Postpartum T2 (4 months)	Follow-up T3 (12 months)
<u>SELF REPORTS</u>			
<i>Demographic characteristics (II, III):</i>	X		
<i>Alcohol consumption (7 items from the Alcohol Use Disorders Identification Test, AUDIT, Saunders et al. 1993):</i>	X		
<i>Illegal drug taking</i> ^a :	X	X	X
1) taken before pregnancy			
2) changes in drug abuse during pregnancy			
3) substitute medication			
4) intravenous drug taking			
<i>Social support (II):</i>	X		
Perceived Social Support Scale-Revised (Parkes 1986)			
<i>Coping strategies (II):</i>	X		
Lazarus Coping Model (Lazarus 1993)			
<i>Depressive symptoms (II, III):</i>	X	X	X
10- item Edinburgh Postnatal Depression Scale, and 13 items from the Center for Epidemiological Studies Depression Scale			
<i>Pregnancy related distress (II):</i>	X		
20- item questionnaire (Levin 1991 and Saisto et al. 2001)			
<i>Hostility (II):</i>	X		
20-item questionnaire (Derogatis and Cleary 1997 and Cowen 1995)			
<u>OBSERVATIONAL METHODS</u>			
<i>Parent-infant interaction (III):</i>		X	X
Emotional Availability Scales (EAS; Biringen, 2008)			
Videotaped observations of mother-infant free play			
<i>Infant attachment classification (IV):</i>			X ^b
Strange Situation Procedure (Ainsworth et al. 1978 and Main and Solomon 1990)			
<u>INTERVIEW</u>			
<i>Mother's attachment representations (IV)</i>	X		X ^b
The Adult Attachment Interview (AAI, George et al. 1985)			

^a Drug taking self-report questionnaires were also presented to the comparison group, although drug abuse issues were relevant only to the drug abusing groups.

^b Strange Situation Procedure and the second Adult Attachment Interview were assessed at 15 months postpartum.

4.2.1 Self-reported measures

Background characteristics were elicited by a questionnaire designed for this purpose including level of education, employment status, economic status, age, marital status and number of children.

Substance abuse characteristics were collected by self-administered semi-structured questionnaire (Table 3). At T1 the participants were asked to indicate on a list of 8 illegal drugs which they had taken or experimented with (1=no; 2=yes: cannabis, LSD; amphetamine, ecstasy, heroin, sniffing medicaments, medicines and other (e.g. buprenorphin). Poly-drug abuse was taken to refer to four drugs or more. Alcohol consumption was measured using seven items of the Alcohol Use Disorders Identification Test (AUDIT) (Saunders et al. 1993). Moreover, mothers indicated how often and for how long they had taken each substance by responding to an open question. At T1 the women reported their substance abuse before pregnancy, and whether there had been changes in it during pregnancy (1=no change, 2=decreased, 3= stopped and 4= increased). At T2 and T3 the women reported their drug and alcohol abuse, and whether it had changed after the child was born (1-4). They also were asked about drug screening, the use of substitute medication and intravenous drug abuse.

Social support was evaluated by the Perceived Social Support Scale-Revised at T1, (PSSS-R) (Parkes 1986). Twelve items ascertain availability of practical and emotional help from family members and friends. The participants assessed on a 5-point scale how well the descriptions matched their present psychosocial situation. An average sum variable was constructed with reliability Cronbach's $\alpha = .89$.

Coping strategies were assessed at T1 by a Lazarus Coping Model including avoiding, active, cognitive reconstruction and social domains of coping (Lazarus 1993). The mothers were asked to think of different ways of dealing with painful experiences: What do you do, feel and think when you have bad experiences? Respondents were given four clusters of descriptions: First, denial and avoiding responses are e.g. 'I do not think of the whole issue' and 'I deny that the bad has happened'. Second, cognitive meaning giving responses are e.g. 'I attempt to understand what it is about' and 'I think about the reasons that led to what happened'. Third, active and constructive responses are e.g. 'I take care that nothing as bad can happen again' and 'I collect all my energy and attempt to change things'. Finally and fourth, seeking social support involve responses e.g., 'I like to share my bad experience with others' and 'I feel that I will recover when I get consolation and understanding from others'. Mothers responded to the four groups by reporting how well the descriptions matched their typical thinking and behavior (1=not at all, 2=hardly, 3= fairly well, and 4= completely).

Maternal depressive symptoms were screened at T1, T2, and T3 by a 23-item questionnaire consisting of the Edinburgh Postnatal Depression Scale (EPDS: Cox et al. 1987, translated into Finnish by Tamminen, 1990) and 13 items from the Center for Epidemiological Studies Depression Scale (CES-D; Radloff 1977). Both EPDS and CES-D consist of descriptions of depression related feelings, thoughts, and behaviors. Mothers answered on a 4-point scale (0-3) how well the description matches the severity and persistence of their symptoms during the previous seven days. According to the literature there are sufficient internal consistencies for EPDS (Cronbach's $\alpha = .87$ according to Cox et al., 1987) and for CES-D ($\alpha = .85-.91$ according to Himmelfarb and Murrell 1983). The discriminative validity and the split-half reliabilities have also been found to be good in the EPDS (Cox et al. 1987)

and for CES-D (Radloff and Teri 1986). Average sum variables were constructed for depressiveness in pregnancy (T1), at four months postpartum (T2) and at 12 months postpartum (T3). Their reliabilities of Cronbach's were $\alpha = .91$, $\alpha = .84$ and $\alpha = .83$ respectively. Combining the EPDS and the CES-D into an instrument may increase the probability of discovering more aspects of depression at different stages in the transition to motherhood (Mosack and Shore (2006), as well as to reduce mono-method bias.

Pregnancy related distress was measured at T1 by a 20-item questionnaire. It consisted of 13 items indicating pregnancy-related anxieties and worries by Levin (1991), e.g. 'I feel unsure about parenting responsibilities' and 'I feel that I am not yet capable to take care of my family'. Seven items indicate of fear regarding child's health and delivery (Saisto et al. 2001), e.g. 'I fear that the child will be not normal', 'I fear that I may hurt the baby', 'I fear childbirth'. An average sum variable was constructed with reliability Cronbach's $\alpha = .83$.

Hostility was evaluated at T1 by 20 items comprising feelings of anger, frustration, impulsivity and urge to hurt somebody, as well as hostility and cynicism. The questionnaire was derived from the SCL-90-R (10-item hostility scale by Derogatis and Cleary 1977) and aggressive attitudes by Cowen (1995). Hostile feeling states were exemplified e.g. by 'I lose my temper without any apparent reason', and by cognitive thoughts, such as 'I feel that life treats me unfairly'. In the behavior, hostility was displayed by descriptions such as 'I fear that I may do something bad to other people'. Participants answered on a 4-point scale how well the descriptions matched them in general (1 = Not at all; 4 = Fits completely). A sum variable was constructed, and its reliability was Cronbach's $\alpha = .88$.

4.2.2 Observational methods in Studies III and IV

Emotional availability scales (EA). Dyadic interaction (lasting 7-10 min) was assessed and coded at T2 and T3 on the Emotional Availability Scales (Biringen et al. 2000, 4th Edition with subscales), which describes overall parent-child relational quality (Emde 1980). The mother was asked to play with the infant as usual with play materials consisting of a ball, a doll, a mirror, blocks, and a teddy bear. The mother-infant interaction was assessed on 4 maternal scales (*Sensitivity*, *Structuring*, *Non-intrusiveness*, and *Non-hostility*) and 2 child scales (*Responsiveness to Mother* and *Involvement of Mother*). All scales range from 1 to 7 points. The clinical cut-offs are 5 points demonstrating that the scores under 5 indicate risk and the score over 5 normative interaction. *Sensitivity* refers to mother's genuinely positive affect and balanced awareness of the child's cues and well-timed, suitable, *responsiveness* to them. It also involves maternal negotiation skills in conflict situations and acceptance of her child. *Structuring* refers to mother's ability to structure or scaffold the child's environment and play. *Non-intrusiveness* refers to the degree to which the mother can be available without interfering with the child's space and autonomy. *Non-hostility* indicates maternal behavior that is free from impatience, harshness or malice. Child *Responsiveness* refers how well he or she responds to maternal bids and expressions. *Involvement* refers to the degree to which the child invites the mother to interact with himself or herself. The interaction quality was assessed by a reliable coder trained by Zeynep Biringen at a Helsinki workshop in 2008. Both coders were blind to maternal drug abuse status and other background information. The inter-rater reliabilities (Pearson's *R*) at T2 ranged from .82 to .97 and at T3 from .85 to .97. The differences were negotiated.

The Strange Situation Procedure (SSP) scoring and classification guidelines (Ainsworth et al. 1978) was used in Study IV for assessing infant security as well as Main and Solomon's (1990) scoring system for attachment disorganization. Scoring and classification of the infant in Study IV were completed by a reliable researcher, who was trained by Alain Sroufe and Elizabeth Carlson at the Institute of Child Development, University of Minnesota (USA) in 2004. *Secure (B)* infants easily seek contact with the caregiver upon reunion. They are open and free in emotional communication and show engaged exploration and play in the presence of the caregiver. *Avoidant (A)* infants are characterized by intense avoidance of proximity to or interaction with the caregiver upon reunion and show little or no distress during their absence. *Resistant (C)* infants are characterized by ambivalent behavior with the caregiver, particularly during reunion. They often seek contact and comfort from the caregiver, while simultaneously are unable to be comforted and often continue to cry and exhibit distress. The *disorganized-disoriented (D)* pattern was subsequently identified by Main and Solomon (1986, 1990) to account for lack of--or momentary breakdowns--in one of the organized behavioral strategies. *Disorganized* infants display behaviors characterized by apprehension of the caregiver or disorganization and disorientation to the Strange Situation environment. They exhibit contradictory, unpredictable, and inexplicable behavior patterns and they lack a clear, organized behavioral strategy (i.e., *security, resistance, or avoidance*) to cope with the demands of the Strange Situation.

4.2.3 Interview

Mother's attachment representations were assessed using *the Adult Attachment Interview (AAI)*, George et al. 1985), which has been translated and adapted for

Finnish language and culture (see Kouvo and Silvén, 2010). This is an hour-long semi-structured interview inquiring about the relationships with childhood attachment figures and the evaluations of these attachment-related experiences. Scoring and classification of the AAI were completed by a reliable researcher trained by Anders Broberg and Tord Ivarsson at the University of Gothenburg in 2004. The narratives of the interviewees are classified to one of three best-fitting organized attachment categories, *autonomous* (F) valuing attachment relationships, *dismissing* (Ds) of attachment relationships, and *preoccupied* (E) with attachment relationships. Besides organized categories, a secondary *unresolved* (U) category is assigned if lapses in reasoning or failures to maintain the collaborative discourse occurs when discussing loss or abuse experiences (Main et al. 2002, Hesse 2008).

Maternal AAIs and the changes before and after therapy were assessed as a means to understand the grief and activated trauma processes during the first year of mothering after the loss of the child's father.

4.3 Statistical analyses in Studies II and III

SPSS-15 software (SPSS Inc., Chicago, IL, USA) was used in all statistical analyses. The associations between categorical variables (e.g., group comparisons in demographic factors) were analyzed by X² – cross tables and mean comparisons between two classes with Student's t-tests. Because the drug-abusing and comparison groups differed in age, education, marital status, and economic status, they were used as covariants (ANOVA analyses) or control variables (regression models) in all analyses.

To analyze the role of the prenatal factors, multiple hierarchical regression analyses were conducted at T1 for predicting depressive symptoms at T2. In the first

step, the depressive symptoms variable at T1 was entered in order to control for the dependent variable. In the second step, the controlling variables of education, marital status and economic difficulties were entered in the third step, social support and coping strategies, and in the fourth, pregnancy-related distress and hostility were entered.

In Study III, repeated measures MANCOVAs with univariate statistics were used to examine the repeated measures design. The impact of the PGT and the PSS interventions on changes in mothers' depressive symptoms from pre-intervention (T1) through 4 months postpartum (T2) to follow-up at 12 months (T3), and on the quality of mother-child interaction from T2 to T3 were measured. The group (PGT, PSS and comparison) was the independent variable, and depressive symptoms and six Emotional Availability (EA) scales were the dependent variables. Marital status, education, economic status and age were used as covariates because the substance abusing and comparison groups differed significantly in these. MANOVAS were applied to compare changes in substance abuse severity in the drug-abusing intervention groups (PGT and PSS). Further one-way MANCOVAs with Tukey-b post-hoc analyses were applied to compare the EA scores between the groups at T2 and T3. Associations between categorical variables were analyzed by χ^2 tests.

4.4 Ethics

The study was approved by the Ethical Committees of Päijät-Häme Central Hospital and the City of Tampere, Finland, and the whole study was carried out according to the provisions of the Declaration of Helsinki.

5 Summary of the results

5.1 Clinical findings with respect to the PGT method (Study I)

The first aim of the study was to develop a psychodynamic oriented group intervention method for perinatal substance-abusing mothers and their children taking into consideration their subjective experiences and feedback. The analysis of the empirical data in Study I shows that mothers expressed feeling safe within the group, and they gradually experienced pleasure with their infants, peers and therapists. Contrary to earlier reports (e.g. (Grella et al. 2000, Stranz and Welch 1995, Volpicelli et al. 2000) claiming that addicted mothers had problems with participating in treatments, all the 16 mothers were able to complete the full therapy process. The most common wish on the part of the mothers was that the group therapy process would have been of longer duration. The mothers stated in any case that the best in the therapy has been the delicious food. They also expressed surprise and felt enthusiasm about their new experiences, as well as their ability to better control their overwhelming emotions.

It was of special importance to the mothers that the therapist continued with the mother-infant dyad after the end of group therapy until the follow-up treatment could start. Besides, the therapist wrote a summary concerning the therapy process and made a precise individual plan with the immediate social network.

5.2 Resources and symptoms in pregnancy among drug-abusing and comparison women and the predictors of postpartum mental health (Study II)

The second aim of this study was to examine the impact of drug abuse on mother's prenatal resources and her mental health problems and how they differently predict postpartum mental health between drug-abusing and other mothers. In comparison with non-substance abusing mothers, drug-abusing pregnant women reported being more alone in their motherhood, having financial difficulties and lower educational level. They also expressed more pregnancy-related distress, e.g. worries about pregnancy and motherhood, as well as more depressive and hostile symptoms. However, they received less social support from their significant others. When facing painful experiences, drug-abusing women more often used ineffective coping strategies, such as denial and avoidance and less often effective cognitive coping and meaning giving strategies than did the non-abusing mothers. Among drug-abusing women prenatal maternal hostility predicted anxiety symptoms when the child was four months and prenatal depressive symptoms predicted depressiveness when the child was 4 and 12 months old.

5.3 Substance abuse characteristics and treatment completion

(Studies II and III)

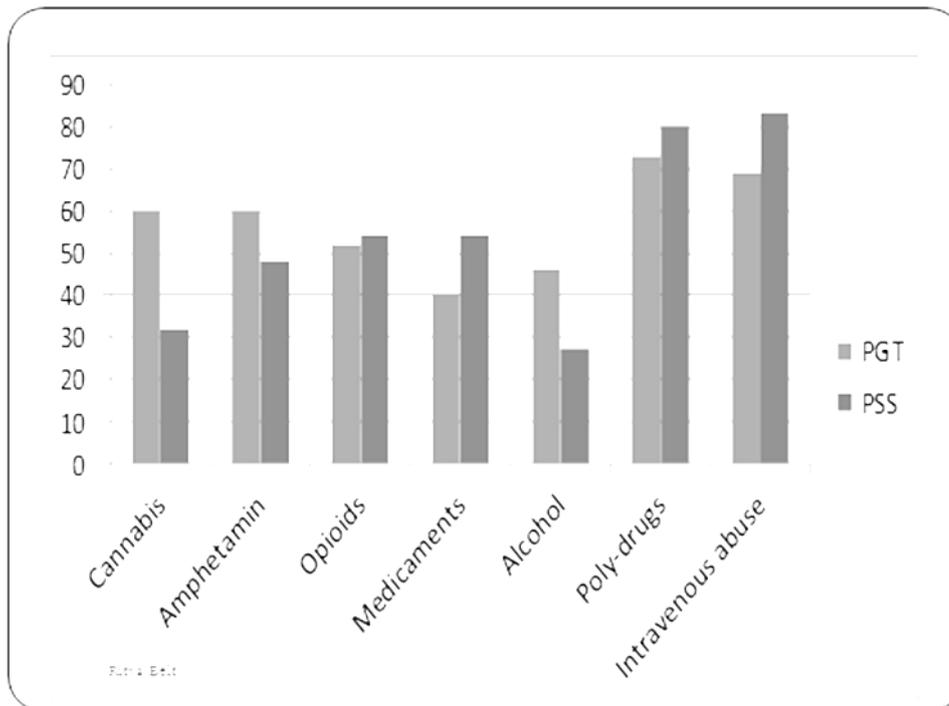


Figure 2. Self-reported substance-abuse (in percentages) at pre-intervention (T1)

The following aim (3) in this thesis was to compare the maternal drug abuse and program completion of the PGT mothers with those of the PSS mothers and of the non-drug abusing comparison mothers from pre-intervention to 12-month follow-up. Figure 2 shows that poly-drug abuse and taking hard illicit drugs were commonly reported at pre-intervention (T1) in both intervention groups. In the PGT group 73% of the women and in the PSS group 80% reported having taken at least 4 of the 8 illegal substances of interest regularly and for a long time (3 -16 years) in their lifetimes. There were no significant differences in the level of illegal poly-drug abuse between the intervention groups, although the PGT mothers more often reported

excessive alcohol consumption before pregnancy confirmation than did the PSS mothers ($\chi^2 = 14.01$, $p < .01$; $N=44$). All the women in both intervention groups reported having stopped or significantly decreased their consumption of illegal drugs during pregnancy.

As Figure 1 demonstrates, treatment commitment was high in both intervention groups (84% in PGT vs. 80% in PSS). The results in Table 4 show that about 80% of those in both intervention groups who persevered in the study reported being abstinent throughout the entire intervention period. Ten (40%) mothers in both intervention groups reported consuming small amounts of alcohol during the intervention. Moreover, 3 of the PSS mothers and one of the PGT mothers reported that newborn children had been in opioid detoxification.

Table 4. Self-reported abstinence and drug-abuse in the PGT and PSS intervention groups at pre-intervention (T1), 4 months p (T2) and at follow-up 12 months postpartum (T3) (This Table is based partly on the Table published in *Infant Mental Health Journal* 2012; 5: 520-534)

	<i>Pre-intervention (T1)</i>		<i>At 4 months postpartum (T2)</i>				<i>Follow-up 12 months postpartum (T3)</i>					
	PGT (n=26)		PSS (n=25)		PGT (n=23)		PSS (n=22)		PGT (n=20)		PSS (n=18)	
	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>
Abstinent throughout entire pregnancy	19.2	5	16.0	4								
Abstinent after pregnancy confirmation	46.2	12	44.0	11								
Decreased drug-abuse after pregnancy recognition	15.4	4	8.0	2								
Intravenous use ^a	69.2	18	83.3	20	8.7	2	4.5	1	15.0	3	0	0
Substitute medication	7.7	2	24.0	6	8.7	2	27.2	6	10.0	2	27.8	5
Abstinence ^b	80.8	21	88.0	22	78.3	18	77.2	17	90.0	18	83.3	15

Note

Differences in the distributed cases are due to missing values.

^aAt T1 data were based on women’s reports before they recognized pregnancy. ^bContradictory reporting: the same women reported having stopped drug abuse.

5.4 Intervention effects on maternal depressive symptoms (Studies II and III)

The next aim was to investigate the changes from pre-intervention to 12-month follow-up in maternal depressiveness and to make a comparison among the three groups (PGT, PSS and non-drug abusing comparison groups). Mothers in the PGT group reported more depressiveness than both the PSS and comparison mothers at all assessment points from pre-intervention through follow-up when the child was one year old. As Figure 3 shows, the depressive symptoms significantly decreased ($F_{Wilks', \text{Lambda}}(2.67) = 5.90, p < .004, \eta^2 = .15$) linearly in all groups throughout the transition to motherhood.

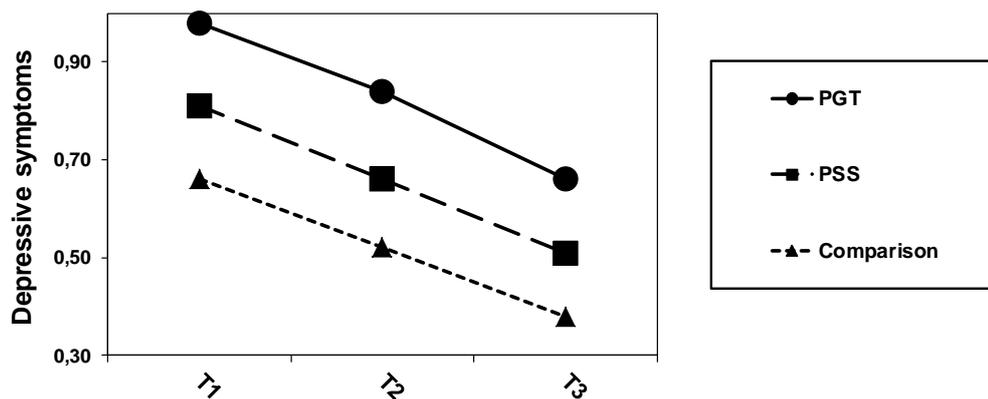


Figure 3. Change in mothers' depressive symptoms from pre-intervention (T1), through 4 months postpartum (T2) to 12-month follow-up (T3) in the psychodynamic group therapy (PGT), the psychosocial support (PSS) intervention and comparison groups (This Figure is based partly on the Figure published in *Infant Mental Health Journal* 2012; 5: 520-534)

5.5 Intervention effects on the quality of mother-child interaction (Study III)

The next aim was to examine the changes in mother-infant interaction from 4 months to 12 months postpartum and to compare the PGT mother-infant dyads with the PSS dyads as well as with the non-drug abusing dyads. Figures 4 and 5 demonstrate that drug-abusing mothers and their infants displayed poorer interactional quality on every EA dimension than those in the non-drug abusing comparison group during the interventions when the child was 4 months old. No significant differences between the PGT and the PSS groups were observed. However, a general improvement in mother-infant interaction was found in maternal sensitivity ($F_{\text{Wilk's Lambda}}(1,70) = 16.87, p < .0001, \eta^2 = .19$), structuring ($F_{\text{Wilk's Lambda}}(1,70) = 5.93, p < .02, \eta^2 = .08$), and in child responsiveness ($F_{\text{Wilk's Lambda}}(1,67) = 4.56, p < .04, \eta^2 = .07$) and involvement ($F_{\text{Wilk's Lambda}}(1,70) = 21.35, p < .0001, \eta^2 = .23$) in both drug-abusing groups at follow-up at 12 months postpartum. The drug-abusing groups did not yet reach the comparison group on those dimensions.

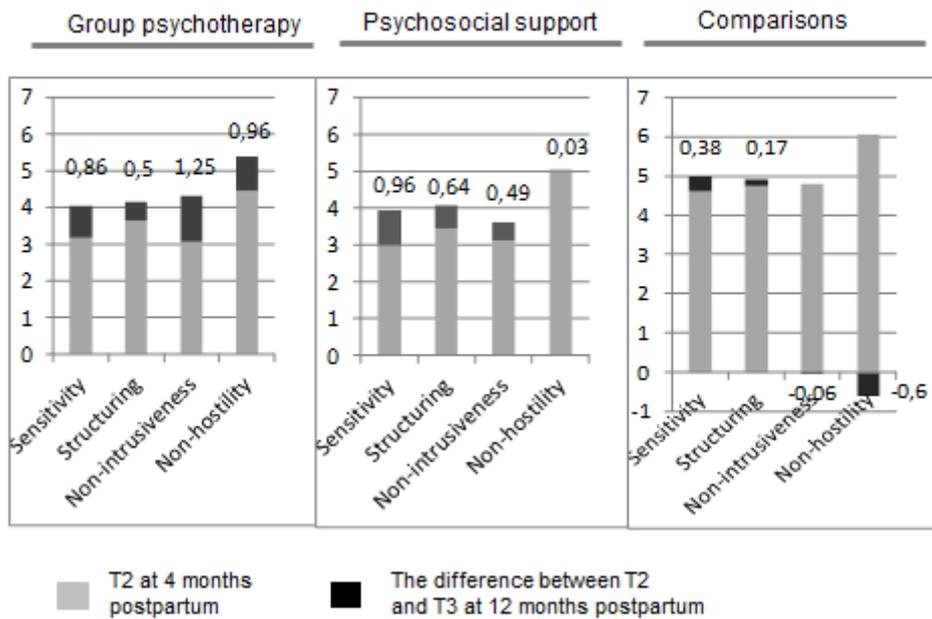


Figure 4. Changes of the scores in mothers' interaction with infant from 4 to 12 months (in Emotional Availability Scales)

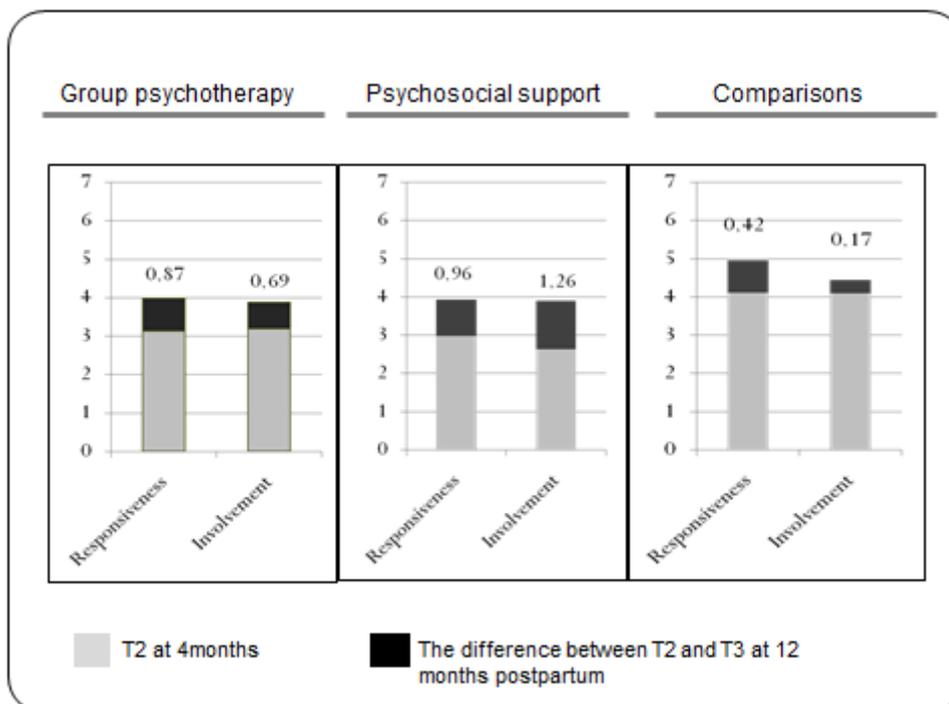


Figure 5. Changes of the scores in infants' interaction with mother from 4 to 12 months (in Emotional Availability Scales)

As Figure 6 shows, a significant positive change in maternal non-hostile behavior ($F_{\text{Wilk's Lambda}}(2,67) = 5.14, p < .008, \eta^2 = .14$) from 4 months to 12 months postpartum was found only in the PGT group to such an extent that the level reached that of the comparison group. Additionally, Figure 7 illustrates that non-intrusive maternal behavior approached that of the comparison group, increasing in both drug-abusing intervention groups ($F_{\text{Wilk's Lambda}}(2,67) = 3.10, p < .05, \eta^2 = .08$), but more markedly in the PGT group.

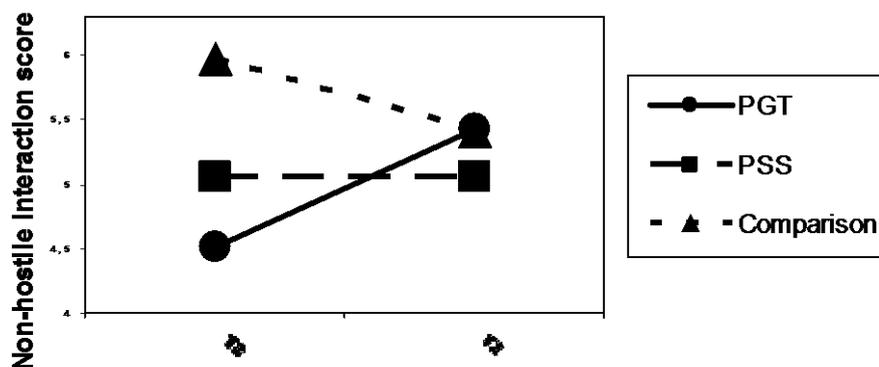


Figure 6. Changes in maternal non-hostility in Emotional Availability Scales from 4 months postpartum (T2) to 12 month follow-up (T3) in the PGT and the PSS intervention and comparison groups. Changes were statistically significant ($p < .008$) in the PGT intervention group (This Figure is based partly on the Figure published in *Infant Mental Health Journal* 2012; 5: 520-534)

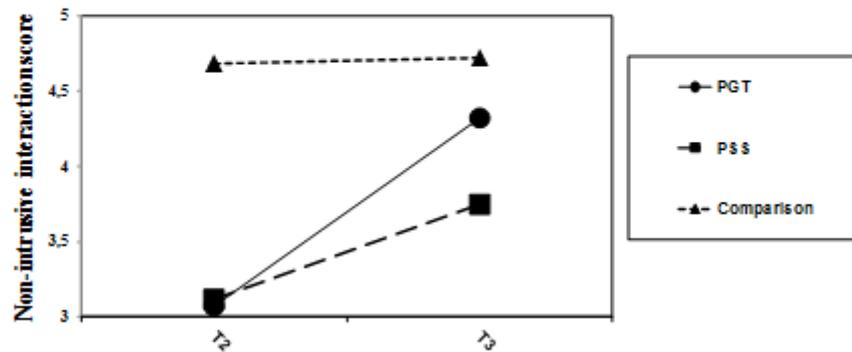


Figure 7. Changes in maternal non-intrusiveness in Emotional Availability Scales from 4 months postpartum (T2) to 12 month follow-up (T3) in the PGT and the PSS intervention and comparison groups. Changes were statistically significant ($p < .05$) in both intervention groups (This Figure is based partly on the Figure published in *Infant Mental Health Journal* 2012; 5: 520-534)

5.6 Factors that may mediate and prevent the intergenerational transmission of trauma and loss in the early interaction (Study IV)

The case-study demonstrated that maternal traumatic loss close to the birth of the child and its consequences had an influence on maternal mental function and created strange behavior toward the infant. The attachment theory approach was beneficial in addressing the comprehensive and complex changes in mother's state of mind in association with trauma and loss experiences, as well as in dyadic interaction in the

therapy process. In particular, the AAI was an important tool for understanding mother's childhood experiences and identifying her unresolved traumas and losses. The attachment-derived methods (AAI, EA and SSP) verified that the coherence of mother's state of mind improved, her strange behavior decreased and emotional availability to the infant likewise improved. These changes were also clearly reflected in the therapy sessions. The case study specifically illustrated that a secure therapy relationship offered the mother a safe place to explore her unresolved experiences and simultaneously to keep the child in her mind. This was a precondition for preventing intergenerational transmission and infant attachment disorder.

6 Discussion

The purpose of this dissertation was to explore the clinical applicability of psychodynamic mother-infant group therapy (PGT) to perinatal drug-abusing women and their infants. Other aims were to gain a more profound understanding of the mechanisms and intervention opportunities in preventing intergenerational negative transmission in early parent-infant interaction. To the best of the author's knowledge, this work is the first study to investigate the efficacy of psychodynamic group intervention among this highly risk and hard-to-reach mother-child group.

6.1 Strengths and limitations

The target group of substance-abusing perinatal mothers is likely the most challenging patient group in infant mental health and decidedly difficult to reach, as well as difficult to retain in interventions and research work (Pajulo et al. 2012). Thus developing and investigating perinatal interventions for substance-abusers is an extremely demanding task and drop-out may be high (e.g. Grella et al. 2000, Volpicelli et al. 2000). This study included both quantitative analyses in a longitudinal design (Studies II and III) and a qualitative analysis (Study IV), where the same patients were followed up for more than one year. The sample of the study was good enough as regards size, and the study was controlled by the non-substance abusing mother-infant pairs. Data collection was challenging among this high-risk group of women and the implementation of the studies required an extensive and engaged staff and research team. The collection of 51 drug-abusing mother-infant

dyads took six years. With respect to the heavy burden of long and numerous interviews, self-reports and observations, its acceptability and feasibility to the participants and the clinicians were remarkable.

At present, the inclusion of randomized clinical trials is recommended for intervention studies. However, the present non-randomized study is ethically more justifiable, respecting every mother's individual desire to make a choice between two treatment alternatives. This aspect may have positively influenced the outcomes in this study and is supported by reports that considering mother's specific needs may enhance abstinence and treatment completion (Knight et al. 2001, Volpicelli et al. 2000). Practically, psychotherapy groups were formed every sixth or twelfth month, and inclusion in the therapy group was also determined by the child's birth coinciding with the beginning of a new therapy group. The voluntary participation in the interventions and in the study is a strength, although is also a critical point making the participants not entirely representative of all substance-abusing women.

Other strengths of the study include the change of application of multiple methods to analyze the outcome of the interventions. The information was collected using a variety of assessment methods: self-reports, interviews, and observations including recent attachment derived methods. Although it cannot be generalized, the case-study (IV) illustrated that attachment-derived methods for assessing parental or infant's disorganized behavior are especially valuable in measuring intervention effectiveness (Benoit et al. 2001). The EA (in Studies III and IV) is a measure of dyadic interaction, theoretically based on the integration of attachment (Ainsworth et al. 1978) and emotional perspectives (Emde 1980, Mahler et al. 1975). The holistic viewpoint makes it especially suitable for studying drug-abusing mothers and their infants.

There are some limitations concerning the methods used in Studies II and III. Some of the questionnaire methods used in the present study have not been widely used or validated. The combination of EPDS and CED-D in a single instrument was chosen on the basis that it could evaluate more aspects of depression and reduce mono-method bias. It is possible to cast a wider net to identify depressive mood at different stages of mothering (Mosack and Shore 2006). Further, the self-administered semi-structured questionnaire was chosen to collect information on drug-abuse behavior. Self-report has limitations, because participants may underestimate the abuse and give excessively positive responses (Suchman et al. 2005). Additionally, the open questions were more time-consuming, less precise and more open to interpretation than yes/no questions. Finally, urine screens to detect drug-taking could be more precise, but they measure drug-taking over a short period of time, and do not reveal the actual pattern of ingestion.

The author's dual role as a therapist and a researcher was challenging, because the author had to be simultaneously immersed in the therapy process and also the object of the research. Drug-addicted mothers with their infants raise intense emotions and reactions, such as concerns about the children and sympathy for the mothers. In contrast to this, as a researcher, one is expected to maintain objectivity and neutrality. However, the authentic relationship with the group participants and therapy process yielded unique information on the mother-infant dyads' reality and their life-and-death struggle.

6.2 Results

6.2.1 Psychodynamic mother-infant group therapy

The PGT intervention seems to be a promising treatment option for those addicted women who are capable of committing to outpatient care and are motivated to explore the causes for their substance-dependence more profoundly, e.g. the trauma background. Besides, the therapy can serve as a diagnostic evaluation method to detect problems and dynamics in the mother, in the infant and in their dyadic interaction. The more deprived of care the mother has been in her childhood, the more important it is that the intervention offers her safe conditions to learn new ways of interacting with the baby and with other adults. Further, the group reveals the gravity of the mother's substance abuse problem and the stage of her recovery. Sometimes mothers need temporary outpatient or residential treatment for substance abusers during or after the group therapy. During the group process the mother becomes more conscious of her neglected traumatic experiences and mental problems, as well as of her need for medical and / or psychotherapeutic treatment. Finally, in the group the therapists are able to observe and assess the infant's emotional and physical development and refer him/her, if needed, to follow-up examinations.

6.2.2 Drug-abusing mothers' resources and mental burden during the transition to motherhood

The aim of Studies II and III was to gain more understanding to prevent drug-abusing mothers' stress and mental problems, as well as to enhance their resources to be

transferred from pregnancy to the postpartum period. As also noted in earlier studies (e.g., Knight et al. 2001, Nair et al. 2003, Suchman et al. 2005) the drug-abusing mothers in the present study suffered from an accumulation of burdensome life circumstances. They had more financial difficulties, lone mothering and lower education level and more troubles than mothers at somatic risk. It is paradoxical that the mothers in the most urgent need for help and support seldom received natural support and caring from their closest relatives. Additionally and in accordance with earlier studies (Burns et al. 2008, Wills et al. 1996), drug-abusing mothers used ineffective coping strategies when facing the new demands of pregnancy and painful experiences. As Study IV demonstrated, supporting and helping the mother to deal with the stress and to mobilize her resources in a safe therapeutic context were able to mitigate the negative model. This was a precondition to prevent transferring mother's mental problems into the mother-child relationship. New motherhood also meant an opportunity for positive life-change and self-realization.

Pregnant drug-dependent women reported higher levels of depressive and hostile symptoms than other mothers, as also in earlier research (Fraser et al. 2010, Howell et al. 1999, Pajulo et al. 2001). Maternal hostility in pregnancy predicted anxiety symptoms when the child was 4months old and depressive symptoms when the child was 12 months old. It is important to note the association between hostility, anxiety, and depressiveness and the changes in the symptoms. The findings corroborate the earlier literature concerning substance-abusing individuals' emotional imbalance (Schore 2003) and hostile behavior (Frazer et al. 2010, Johnson et al. 2002, Swanson et al. 2000). The positive intervention results in maternal hostility and intrusiveness in Study III may indicate that the PGT intervention especially offered substance-abusing mothers compensatory experiences to neutralize their anger and to better regulate their emotions (Grinberg 1990, Siegel 1999).

At baseline and through all assessment points the PGT mothers expressed significantly higher levels of depressive symptoms than the PSS mothers and comparison mothers. However, and consistent with Field et al.'s (1998) findings, maternal depressive symptoms decreased in both intervention groups. The decrease in depressive symptoms may at least partly reflect a normative tendency, because a less marked change in symptom reduction was also present in the non-substance comparison mothers. It may be that mothers who were more motivated and aware of their mental problems chose the PGT alternative. It is also possible that the secure atmosphere with the therapists and the awareness of a long enough therapy process right from the beginning "attached" the mothers so that they could admit their problems. This idea is supported by the finding based on the same data (Flykt et al. 2012) that the PGT mothers demonstrated increasingly more realistic and optimistic representations of themselves as mothers and of their infants from pregnancy to 12 months postpartum. In their representations they even came close to the normative comparison mothers.

6.2.3 Preconditions for program completion and abstinence among perinatal drug-abusing mothers

The high completion rate of 84% in the PGT intervention is encouraging, because previous research shows that at the most only half of pregnant or drug-dependent mothers of small children are able to build a working alliance (Grella et al. 2000, Pajulo et al. 2012, Stranz and Welch, 1995, Volpicelli et al. 2000). The results demonstrate that the consideration of substance-abusing mothers' specific mental and attachment needs are conducive to treatment completion (Pajulo et al. 2012, Suchman et al. 2011). Mothers in both the PGT and the PSS intervention were offered a

confidential and long alliance with the therapists or the counselors, and thus had an opportunity to repair previous negative attachment based experiences (Luthar et al. 2007). Substance-addicted individuals have often grown up in unstable attachment relations during their childhood and adolescence, which makes them particularly vulnerable to the fragmentation of treatment services (Luthar et al. 2007). In the PGT intervention, one of the aims was to offer mothers safe conditions to confront their mental problems and relational trauma experiences. It may be that especially positive relational experiences with other peers (Harwood 2006, Grella et al. 2000) as well as the experiences of success in the maternal role contributed to their commitment to treatment (Pajulo et al. 2006 and Suchman et al. 2008).

This study showed that mothers in both intervention groups (PGT and PSS) were motivated to be abstinent or to significantly decrease their substance abuse. Similarly to earlier studies, pregnancy recognition before the intervention was the most effective motive for stopping the use of substances (e.g. Tough et al. 2006). The treatment system in regional social and health care was able to identify these mothers early enough and refer them to treatment. Further, mothers' voluntary participation, motivation and strong commitment to the interventions might help them to maintain the high level of abstinence during the intervention. The results concur with some earlier studies that perinatal substance-abusing women may report high levels of abstinence from illegal drugs after residential treatment (68%: Namyniuk et al. 1997) or outpatient treatment (82%: Field et al. 1998). However, there are also findings showing higher ongoing drug abuse at the follow-up of perinatal outpatient interventions (57%: Black et al. 1994, 43%: Schuler et al. 2002) and residential treatment (51%: Conners et al. 2006).

6.2.4 Effects of interventions on mother-infant interaction quality among drug-abusing mothers

Effects of interventions on general mother-infant interaction. Drug-abusing women in both intervention groups (PGT and PSS) were assessed to be at high risk in dyadic interaction with their 4-month-old infants during the interventions. They were less sensitive and generally poorer in emotional availability in their behavior toward the child than were the non-abusing mothers. The findings are in line with earlier studies among these high risk mother-infant pairs (e.g. Fraser et al. 2010, Molitor and Mayes 2010, Salo et al. 2010).

Interestingly, at 12 months postpartum follow-up the difference between the dyadic interaction in the drug-abusing groups (PGT and PSS) and the normative mothers diminished. To the best of the author's knowledge, only one prior study (Field et al. 1998) has demonstrated a general improvement in dyadic interaction persisting through 12-month follow-up due to a postnatal intervention among substance-abusing mothers. However, there is evidence that throughout 6-week follow-up a mentalization based outpatient intervention was able to improve and sustain substance-abusing mothers' care-giving behavior better than a traditional parenting training intervention (Suchman et al. 2011). In a Finnish residential intervention maternal psychiatric disorders and traumatic experiences were associated with more difficulties in care-giving experiences with the infant (Pajulo et al. 2011). Thus it is possible that the positive changes in dyadic interaction in the present study reflect addicted mothers' feelings of safety and relief of sharing the mental burden.

Effects of interventions on maternal negative behavior. The aim of the PGT intervention (Study I) was to take into consideration both the mother's trauma

perspective and the infant's holding perspective by helping the mother to regulate her negative emotions and also simultaneously to direct her attention to her infant's reactions and needs. The trauma perspective is central, because pregnancy without substances compels the mother to face her painful experiences and present problems underlying the drug abuse (Medrano et al. 2002). This study demonstrated that only the PGT intervention could significantly influence maternal hostile behavior to the extent that the level of normative mothers was achieved in 12 months of follow-up postpartum. In addition, maternal intrusive behavior decreased especially in PGT. The result is encouraging, because these behaviors are especially characteristic of substance-abusing mothers (Fraser et al. 2010, Johnson et al. 2002, Salo et al. 2009, 2010, Swanson et al. 2000). The findings concur with the observation of Suchman et al. (2010, 2011) that supporting mothers to share and bear their own strong emotions makes it possible to enhance the interaction with the child to become more contingently sensitive, responsive and growth-promoting.

The activation of mothers' unresolved traumatic experiences may influence several maternal behavioral features with the infant (Main and Hesse 2000). Study IV demonstrated that the traumatized mother was at times distracted or scared and unpredictably and inconsistently available to the 4-month-old infant. It is possible that both recovering from substance abuse and traumatization were reasons inhibiting the mother from attending and responding to her infant's needs and communications (Kaiz et al. 2009). At that time, the dyadic interaction was assessed by the EA Scales in a high risk zone. However, at 12-month follow-up after the group psychotherapy and its tailored follow-up appointments, the general dyadic interaction increased and reached that of the normative mothers. The finding supports the observations of Pajulo et al. (2012) that substance-addicted mothers especially, with greater exposure to physical and emotional trauma, are extremely challenging in treatment. The

researchers found that among traumatized mothers the mentalizing function increased less than among other mothers during the mentalization-based 4-month intervention. Parents' posttraumatic distress and parental strange behaviors are especially burdensome to the child and threaten his/her security (Main and Hesse 1990, page 163, Scheeringa and Zeanah 2001).

6.2.5 Effects of interventions on infant's behavior

The infants in Study III became more responsive and involved in both intervention groups (PGT and PSS) although they showed more interactional problems throughout the study than did the comparison infants. There are only a few earlier studies that have analyzed whether these child interactional behaviors can be changed through interventions. Similar to the findings in the present study, Huebner (2002) and Suchman et al. (2010 and 2011) have reported child's increased communication in dyadic interaction with substance-abusing mother as a result of an intervention.

The low level of infant involvement and responsiveness in Study III is in accordance with that reported in earlier studies showing withdrawal and passivity among the infants of substance abusers (Fraser et al. 2010; Salo et al. 2010). This finding may indicate general infant passivity and early regulatory difficulties reflecting a child's decreased responses towards mother's insensitive behavior (Salo et al. 2010). Besides, maternal hostile and intrusive behavior may explain those behaviors in the infant. The research literature shows that these maternal behavior patterns may cause the infant to feel alone, frightened, confused and disorientated (Hesse and Main 2000). As Study IV demonstrated, these relational stressful situations may directly disturb the child's important developmental task to explore the surrounding and may threaten the child's coping capacity and formation of a

secure attachment (Bakermans-Kranenburg et al. 2005, Swanson et al. 2000). It is essential to detect maternal hostility and intrusiveness early enough as these features in dyadic problems have been shown to lead to later emotional regulation and externalizing problems in the child (Mäntymaa et al. 2004). Moreover, infant's poor involvement and responsiveness may reflect exposure to drugs. In accordance with mothers' reports in Study III, over 80% of the infants were exposed to substances at least until the mother realized she was pregnant.

From the point of view of the infant the decrease in maternal hostility and intrusiveness is of the utmost importance because these parental negative behavior patterns are particularly damaging to a drug-exposed infant (Swanson et al. 2000). An interesting question is why the infants of the PGT mothers did not show higher levels of improvement in responsiveness and involvement at 12-month follow up, although their mothers were less hostile and intrusive toward them. It is noteworthy that at 4months the PGT infants in Study III were more involved than the PSS infants. However, the PSS infants caught up with the PGT infants at 12 months. The duration of the PGT intervention may partly explain this phenomenon, because the PGT infants were only 4 – 7 months old when the group therapy process ended. The follow-up treatment was not as intensive as the group therapy. It may be that the PSS infants, in particular, could derive greater benefit from the longer lasting relationship with a familiar clinician. As the mothers in the PGT group in Study I reported they also desired a longer group therapy process. This is in line with Luthar et al.' (2007) perceptions that short-term group psychotherapy for addicted mothers may lose its positive effect if discontinued too abruptly. Continuing the mother-infant therapy into the child's second half year may be optimal for a dyadic attachment relationship to prevent maternal identity from reverting to addict identity (Bakermans-Kranenburg et al. 2005, Brudenell 1997).

6.2.6 Attachment-based therapeutic methods in preventing negative intergenerational transmission in early mother-infant interaction

In order to simultaneously support the mother and protect the infant, early dyadic interventions are needed to help the mother to sufficiently resolve her unresolved trauma and loss experiences (Scheeringa and Zeanah 2001). The AAI in Study IV before the mother-infant psychotherapy was able to recognize mother's mental functioning in relation to unresolved past and present experiences being parallel to Steele and Baradon's discoveries (2004, Baradon and Steele 2008). The pre-interventional AAI provided dynamic and valuable information for the therapist to pick up those themes later in the therapy process and to take into consideration both the mother's mental stage and child's need to be protected. The present case study illustrated that it is crucial to detect and address individual attachment patterns and risk factors beyond the mother's substance abuse in order to prevent the development of infant attachment disorder. In addition, like many substance-dependent women, the mother in the case study also sought positive religious experiences with a personal God. This could affect the psychological well-being as a new secure attachment relationship (Granqvist and Kirkpatrick 2008).

The attachment theory approach and the attachment derived methods were useful in addressing the complex and comprehensive changes in the maternal state of mind as well as in dyadic interactions in association with the therapy. The methods showed that the coherence of mother's state of mind increased, her strange behavior diminished and the dyadic mother-infant interaction became more reciprocal. These changes were parallel in the therapy sessions. Moreover, the case study demonstrated

that the EA could significantly help the therapist to recognize e.g. parental hostile and intrusive behavior characteristic of substance-abusing mothers.

7 Implications for clinical practice and future research

Substance-dependence in parents is increasingly a factor affecting young and older children referred to child mental health services, and often has serious and far-reaching and multiple consequences. In particular, substance-abusing pregnant mothers have cumulative physical and psychosocial problems awaiting a solution. Therefore developing new effective treatment methods targeting both the mothers' and the children's needs must begin during pregnancy, i.e. in the transition to motherhood. From a clinical standpoint, the findings of the present dissertation indicate, contrary to previous preconceptions, that drug-abusing mothers are highly motivated to engage in a therapeutic alliance, to stay in treatment and to grow as good mothers.

However, the success in treatment of the high risk perinatal mothers required several preconditions. First, there were outpatient family support centers for substance-abusing families. Second, the mothers in need were identified in regional public health care and referred to the units. Third, there were flexible and enthusiastic therapists and other professionals who could establish a long enough relationship (one year or more) with the mother-child pair. Substance-abusing women are especially vulnerable to the fragmentation of treatment services with multiple professionals because they usually have not had stable attachment relations during their childhood and adolescence. Fourth, there was collaboration with the treatment

units and mothers' natural and professional networks. Fifth, mothers needed individually tailored follow-up, because they were only in the initial phase of their recovery from drugs and in transition to parenthood. It is important to ensure a continued healing process until the next professional(s) is able to start, e.g. family worker, psychotherapist for the mother or parent-infant psychotherapist. At best, a recovering mother falls deeply in love with her infant and thus, cravings to care for the infant triumph over drugs. Sometimes the drugs get the upper hand and it is necessary to refer a mother with or without her child to inpatient treatment.

Substance-abusing mothers need safe conditions to feel holistically nurtured and protected. A tranquil, soothing and appreciative atmosphere with peers calms down mothers and supports them to get in touch with their own feelings and mood and to ponder how they can influence the child. The recent literature in attachment research and mentalization-based interventions highlights that parenting interventions should first focus on parents' overwhelmed emotions with current difficulties and after that go deeper to focus the attention on the child and other attachment issues (Suchman et al. 2011, 2012). Religion including a secure personal relationship with God and participating in church activities may also be a protective factor in a substance-abusing mother's life.

An intervention among substance-abusing mothers with their infants may function as an assessment to detect resources and problems in the mother, in the infant and in their early relationship. The peer group is effective to show the mothers' stage of the recovery from substance abuse, e.g. her relapses and her company with active abusers. During the process the mothers often become more aware of the need for medical and / or psychotherapeutic treatment. Furthermore, the parent-infant intervention offers the professional an opportunity to observe and assess the infant's mental and physical development.

The PGT intervention method can in part be adapted to other risk groups including cumulative problems like mother's post-traumatic stress disorders or other psychiatric disorders as well as in the context of child protection. The personnel in the outpatient family support centers which participated in the interventions had already taken into practice the background thinking of the PGT method. However, the full use of the method entails adequate training and treatment resources. With respect to severe maternal traumatization, trauma-focused individual or group therapy after the group psychotherapy and its follow-up is essential.

There is still scanty information on effective interventions in the difficult area of perinatal substance-abusing mothers. In Finland there is a residential parenting program including treatment units by the Federation of Mother and Child Homes and Shelters, as well as high-level research (Pajulo et al. 2012). However, in the public sector only the City of Tampere administration has developed a comprehensive treatment unit for families with substance abuse problems. Concerning research, there is information on only one randomized clinical trial evaluating the effectiveness of parent-infant psychotherapy (Suchman et al. 2011, 2012). Further, there is no earlier evidence of a mother-infant intervention resulting in a change for the better in maternal intrusiveness or hostility. This dissertation may contribute to the research by developing accurately focused peer intervention alternatives separately or as an adjunct to standard outpatient treatments. In particular, there is a need for future research to conduct more empirical studies to determine what intervention elements and in which order to treat substance-abusing mothers' relational traumatic experiences during the rapid periods of maternal and infant development.

8 Conclusion

It is possible to demonstrate the following findings in this dissertation:

Perinatal drug-abusing mothers seldom received natural support and caring from their closest relatives. When facing the new demands of pregnancy and painful experiences, they used ineffective coping strategies. However, a safe peer therapeutic context helped them to deal with the stress, to express emotions and thoughts and to mobilize their perinatal resources.

As far as substance-dependent mothers were recognized in social and health care and treatment was available, most of the drug-addicted mothers (more than 80%) were able to remain in treatment and maintain abstinence from drugs during the intervention. The secure atmosphere in the peer group and the opportunity to form a long enough trusting relationship with the therapist(s) as early as during pregnancy seemed to be essential for success.

Dyadic mother-infant interaction improved as a result of psychodynamic group therapy. It was especially noteworthy - and probably verified for the first time by the research among substance-abusing mothers - that maternal negative hostile and intrusive behavior patterns towards the infant decreased. The finding gives us hope to treat these challenging dyads, because these patterns are very common among

addicted parents and particularly damaging to the development of the substance-exposed infants.

A well-timed therapeutic intervention which takes into consideration both the mother's emotional and trauma perspective as well as the infant's holding perspective could be helpful to stabilize and normalize the mother-infant interaction. Attachment derived methods were beneficial in understanding the effects of the intervention.

The findings of the present study highlight the following aspects in the treatment of perinatal substance-abusing mothers' unresolved traumatic experiences:

- 1) Both the mother and the infant need a secure base (Bowlby 1969/1982) that provides them with a sense of security.
- 2) The mother needs to share her mental pain and grief with the therapist or other clinicians. The peer group may also prevent the negative burden from being transferred to the child.
- 3) The mother needs an opportunity and time to grieve.
- 4) The infant needs to be drawn actively into interaction with opportunities to play with other babies and adults.
- 5) When the maternal present loss/trauma activates past painful experiences, the mother should be assessed as to how much her mind is preoccupied with disorganized emotions and how capable she is for primary preoccupation with the infant.
- 6) The mother needs support and guidance to protect her child and to reflect on the child's mental states and reactions when disorganized. The aim is that the mother

learns to explore her and her child's minds, and through this the child can freely explore his/her mother's mind and spontaneously express his/her reactions.

7) A specialist in early parent-child interaction and an adult psychiatrist should together assess how to treat the mother and the child.

9 Acknowledgements

This study was carried out at the Department of Psychology, University of Tampere, and two outpatient family support centers, Päiväperho in Tampere City Child Care and the Diaconia Foundation in Lahti. I wish to express my warmest gratitude and respect to:

Professor Tuula Tamminen, MD, PhD, my supervisor and expert in international child psychiatry, for her criticism and constructive advice on integrating clinical and scientific perspectives.

Professor Raija-Leena Punamäki, PhD, my supervisor, the leader of the research material and the specialist in statistical analyses. I am indebted to her for statistical work and for always being available, incredibly flexible and supportive. She taught me to take the first steps in research and to work scientifically.

Professor Jorma Piha, MD, PhD, and Professor Hannele Räihä, PhD, the official reviewers for their optimism and constructive advice.

My co-author, Docent Marjukka Pajulo, MD, PhD for her skillful guidance. Her knowledge of substance abuse and early parenting has been the best in the field.

My co-author, Marjo Flykt, Psych. Lic. for collaboration and her expert scoring of the EAS. I also thank her for interesting discussions, advice and unforgettable conference journeys together.

My coauthor Anna Kouvo, Psych. Lic, for her great work in the AAI in the case study and for the deepgoing discussions concerning attachment theory.

My coauthor, Tiina Posa MD, PhD, for her excellent data collection among the comparison mothers. I also express my thanks to the Maternity Clinic in Päijät-Häme

Central Hospital.

Professor Zeanep Bringen, PhD (USA) and John D Haltican, PhD (USA), for their encouragement and guidance. Without their support the case study would not have been possible.

The staffs of Lahti Diaconia Foundation and Tampere Päiväperho, for their collaboration, support and interest in the exceptionally challenging data collection and clinical work with the mother-infant dyads. I owe my special gratitude to Päivi Backman and Pirjo Hämäläinen, the specially trained nurses and the first co-therapists in the mother-infant psychotherapy groups. I am also grateful to counselor Katja Perjola, who bore the main responsibility for the PSS mother-infant dyads. Additionally, I wish to thank Kari Vappula, TD, Timo Vikman, Psych. Lic, and Sirpa Behm-Kostiainen, the child group psychotherapist.

Ritva Kajamaa, Psych. Lic. and the trainer group psychoanalyst, who was the supervisor for mother-infant group therapies including this dissertation.

Virginia Mattila, MA, for her prompt, friendly and punctual responses in revising the English of this dissertation.

My dear mother who has always loved me and encouraged me to cope with challenges.

My deepest gratitude to my husband Eero, for his consistent and enormous support in writing scientific papers and sending them to manuscript centers. I owe special thanks to our son Antti, for his expert help with the computer as well as our daughter Nelli, for her knowledge in scientific psychology. In addition I wish to thank our first grandchild, Hugo for his engaging attraction to a lively early interaction.

I wish to cordially thank all the mothers and children who participated in this research giving us valuable information and experience. I am particularly grateful to

“Linda” and “Olivia” for their deep and sustained collaboration.

Finally, my dear Heavenly Father, who gave me this special mission in life to help substance abusing families. Without strong faith and hope I could not have managed this challenging task.

This dissertation was financially supported by grants from the Yrjö Jansson Foundation, the Finnish Cultural Foundation and the Medical Research Fund of Tampere University Hospital, which all are gratefully acknowledged.

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11 Appendices

Appendix 1

ASIA: LUPA ARTIKKELIN KIRJOITTAMISTA VARTEN

Hei Timanttien äiti-vauvaryhmissä olleet äidit!

Lähestyn teitä hyvät äidit asiassa, josta olen alustavasti puhunut monille teistä. Teen tällä hetkellä Tampereella tutkimusta äiti-vauvaterapiaryhmien vaikuttavuudesta. Sen pohjaksi yritän rakentaa teoriaa, miten äiti-vauvaterapiaryhmät syntyivät ja millaiseksi niiden sisältö kehittyi. Senhän me loimme yhdessä Timanteissa, siis te äidit ja teidän lapsenne sekä me ryhmien vetäjät (Päivi, Pirjo ja minä). Siitä olen edelleen teille kiitollinen ja uskon jatkossakin kaikkien uusiin ryhmiin pääsevien äitien olevan.

Nyt kysyn teiltä lupaa lainata joitain pieniä tilannekuvauksia ryhmien sisältä. Olen kirjoittanut juttua (n. 20 sivua) englannin kielellä. Suurin osa tekstistä on teoreettista, tieteellistä tekstiä, mutta havainnollistan teoriaa 16 äiti-vauvaparin kanssa tehdystä työskentelystä. Yleisten kokemusten lisäksi liitän tekstiin lyhyitä lainauksia. Ne kaikki on muutettu sellaisiksi, että niissä ei ole kenenkään teidän tai vauvojenne oikeita nimiä, vaan niiden tilalle on keksitty joku aivan toisenlainen englanninkielinen nimi ja tyttö- ja poikavauvatkin on sekoitettu siten, ettei ulkopuolinen mitenkään voi arvata kenestä puhutaan. Itse asiassa olen lainannut vain kolmen äiti-vauvaparin yksittäisiä tilannekuvauksia, joten suurinta osaa teistä tämä juttu koskee vain yleisesti.

Suunnittelen lähettäväni tämän artikkelin kansainväliseen lapsiterapialehteen (Journal of Child Psychotherapy), jota lukevat eri maiden lapsipsykoterapeutit ja varhaisen vuoro vaikutuksen terapeutit tai tutkijat.

Liitteenä on suostumusosio, jonka voit palauttaa mukana seuraavassa kirjekuussa (postimerkki mukana) tai jättää Timantteihin.

Mikäli haluat kysyä minulta tarkemmin tästä artikkelista ja/tai suhtaudut omalta osaltasi siihen kielteisesti, ota minuun yhteyttä.

Järjestän myös mielelläni yhteistapaamisen esim. Timantteihin, jossa voin antaa asiasta tarkempaa tietoa. Se olisi minulle muutoinkin hyvin mieleinen juttu, koska te kaikki tulitte minulle hyvin tärkeiksi ja näkisin mielelläni teidät ja lapsenne pitkästä ajasta.

Lahdessa 14.9.05

Parhain terveisin

Ritva Belt
Lastenpsykiatri
Lasten ryhmäpsykoterapeutti
p. 0400-363100
email: ritva.belt@phnet.fi
os. Kalliok. 11 D, 18100 Heinola

Appendix 2

ASIAKASTIEDOTE

Löydä Timantit –projektin tutkimus

Arvoisa tuleva äiti

Pyydämme Teitä ystävällisesti osallistumaan tutkimukseen, joka kohdistuu 'Löydä Timantit' –projektin asiakkaisiin. Tutkimuksen nimi on ”Hoidon vaikutus huumeriippuvaisten äitien hyvinvointiin, äiti-lapsi –suhteeseen ja lapsen kehitykseen: Monikeskustutkimus terapia- ja avohoidon tuloksellisuudesta”. Tutkimus suoritetaan Lahdessa ja Tampereella.

Tutkimuksen toteuttavat Päijät-Hämeen Keskussairaalan, Lahden Diakoniasäätiön ja Tampereen yliopiston Psykologian laitoksen tutkijat. Nämä yhteisöt ovat myös rahoittajia. Tutkimuksen tarkoituksena on kartoittaa terapian ja avokuntoutustoiminnan tuloksia. Tutkimukseen osallistuminen kestää kohdallanne runsaan vuoden ja siihen sisältyy haastattelu ja videokuvaus kahteen otteeseen, sekä kyselylomakkeiden täyttäminen kolmasti, sekä vielä myöhemmin yksi tarkistus kysely.

Tutkimukseen osallistuminen merkitsee seuraavia asioita:

1. Ensimmäinen haastattelu ja kysely ovat raskausajan lopulla. Haastattelu kestää noin tunnin, ja teille annetaan täytettäväksi myös 20 sivun pituinen kyselylomake. Kysymykset liittyvät mielialaanne, raskauteen ja sosiaalisiin suhteisiin.
2. Toinen kysely ja äiti-lapsi –videointi suoritetaan lapsen ollessa 4 kuukauden ikäinen. Haastattelut ja kyselyt koskevat äidin hyvinvointia, kokemusta lapsesta ja lapsen kehitystä. Äidin ja lapsen yhdessäoloa videoidaan noin 5 minuutin ajan.
3. Kolmas kysely ja videointi suoritetaan lapsen ollessa 12 kuukauden ikäinen. Jälleen kyselyt koskevat äidin hyvinvointia, kokemusta lapsesta ja lapsen kehitystä. Äidin ja lapsen yhdessäoloa videoidaan noin 5 minuutin ajan.

Tutkimukseen osallistuville ei koidu siitä haittoja. Tutkimukseen osallistuvan ei ole mahdollista saada taloudellista tai muuta hyötyä osallistumisesta.

Kaikki haastattelussa ja kyselyissä antamanne tiedot kerätään, käsitellään ja säilytetään täysin luottamuksellisesti ja nimettöminä. Kirjalliset tiedot ja videoidut äitiä ja lasta koskeva kuvamateriaali eivät missään vaiheessa ole muiden kuin vastuullisten tutkijoiden hallussa. Teidän antamanne tiedot säilytetään lukitussa tilassa, eikä tietoja niistä luovuteta ilman teidän erillistä suostumusta. Kaikkien tutkimukseen osallistuneiden tiedot ovat myös koodattuina numeroina, mutta niistä ei voi tunnistaa yksittäisiä vastaajia. Tutkimusaineisto hävitetään tutkimuksen päätyttyä vuonna 2008.

Mikäli haluatte osallistua tutkimukseen, pyydämme teitä allekirjoittamaan oheisen suostumuslomakkeen. Osallistuminen on vapaaehtoista ja teillä on oikeus kieltäytyä syytä ilmoittamatta. Kieltäytymisenne ei vaikuta mitenkään teidän ja lapsenne

oikeuteen saada tarvitsemaanne hoitoa ja Löydä timantit –projektin tarjoamia palveluja. Tutkimustulokset käsitellään luottamuksellisesti ja säilytetään nimettöminä. Tietoja käsittelevät ainoastaan tutkimuksen vastuuhenkilöt.

Olemme kiitollisia mahdollisesta osallistumisestanne ja vastaamme tutkimusta koskeviin kysymyksiin.

Vastaavat tutkijat

Ritva Belt, LL
Lastenpsykiatrian erikoislääkäri
Psyko-terapeutti
Lahden Diakoniasäätiö
puh. 03- 813 22 19

Tiina Posa, LT
Naistentautien ja synnytysten erikoislääkäri

Päijät-Hämeen keskussairaala
puh. 03-819 5653

Raija-Leena Punamäki, FT
Psykologian professori
Tampereen yliopisto
Puh. 03- 215 70 24

Haastattelijat
Päivi Backman
Avokuntoutuskeskuksen johtaja
Löydä timantit
Hämeenkatu 10, Lahti
puh. 044-713 22 19

Pirjo Hämäläinen
Diakonissa-sairaanhoitaja
Löydä timantit; Lahti
Lahden Diakoniasäätiö
puh. 044-71 32 318

Appendix 3

SUOSTUMUS

Löydä Timantit –tutkimusryhmä

”Hoidon vaikutus huumeriippuvaisten äitien hyvinvointiin, äiti-lapsi –suhteeseen ja lapsen kehitykseen: Monikeskustutkimus terapia- ja avohoidon tuloksellisuudesta”

Olen saanut sekä kirjallista että suullista tietoa yllä mainitusta tutkimuksesta ja minulla on ollut mahdollisuus esittää tutkijalle sitä koskevia kysymyksiä. Olen ymmärtänyt omat oikeuteni, tutkimuksen tarkoituksen ja olen selvillä tutkimuksessa käytettävistä menetelmistä. Minulla on käsitys siitä, mitä tutkimukseen osallistumiseen kuuluu.

Ymmärrän, että suostun tutkimukseen vapaaehtoisesti. Olen tietoinen siitä, että minulla on oikeus kieltäytyä tutkimukseen osallistumisesta milloin tahansa syytä ilmoittamatta, ja että kieltäytymiseni ei vaikuta mitenkään minun ja lapseni oikeuteen saada tarvitsemaamme hoitoa ja Löydä timantit –projektin antamia palveluja. Ymmärrän myös, että tiedot käsitellään luottamuksellisesti, niitä koskee vaitiolovelvollisuus ja ne säilytetään nimettöminä.

Annan siis luvan minua koskevien tutkimus- ja henkilötietojen käsittelyyn osana tutkimusta, ja luovutan ne tutkijoiden haltuun. Heidän tulee säilyttää ne lukitussa tilassa vuoteen 2008 saakka, jolloin ne hävitetään.

Vahvistan saaneeni potilastiedotteen sekä kopion vastaanotetusta suostumuksestani.

Lahdessa ____ päivänä _____ kuuta ____ 2004

Suostun osallistumaan tutkimukseen:

Allekirjoitus

Nimen selvennys

Henkilötunnus

Osoite

Puhelinnumero

Suostumuksen vastaanottaja

Lahdessa ____ päivänä _____ kuuta ____ 2004

Nimen selvennys

Arvo, ammatti

Yhteystiedot

Puhelinnumero

Appendix 4

Arvoisa tuleva äiti

Onnittelut Sinulle tulevan lapsesi johdosta. Toivomme teille kaikkea hyvää.

Olemme kiitollisia, että lupauduit osallistumaan tutkimukseemme. Vastauksesi ovat hyvin tärkeitä, sillä niiden avulla yritämme ymmärtää äidin hyvinvointia ja lapsen kehitystä.

Toivon, että voit vastata avoimesti ja luottavaisesti varsin henkilökohtaisiin ja perhettäsi kuvaaviin kysymyksiin. Tutkijoilla on täydellinen vaitiolovelvollisuus osallistujien suhteen. Tietoja käsitellään nimettömiä ja tutkimusraporteissa yksittäisten osallistujien tiedot eivät tule näkyviin. Tulokset raportoidaan 100 muun odottavan äidin antamien tietojen keskiarvoina.

Tämä haastattelu sisältää tehtäviä, jotka teemme yhdessä ja kysymyksiä, joihin sinun on mahdollista vastata itsenäisesti. Aloitamme haastattelulla.

Tietoja
haastattelusta

Osallistujan numero

Haastattelun päivämäärä

Haastattelija

Appendix 5

SUOSTUMUS ARTIKKELIN KIRJOITTAMISEEN

Osallistujan numero _____

Laajemman tutkimuksen nimi: ”Hoidon vaikutus huumeriippuvaisten äitien hyvinvointiin, äiti-lapsisuhteeseen ja lapsen kehitykseen: monikeskustutkimus terapian ja avohoidon tuloksellisuudesta”.

Olen saanut sekä kirjallista että suullista tietoa yllä mainitusta tutkimuksesta ja minulla on ollut tilaisuus esittää kysymyksiä siihen liittyen. Ymmärrän oikeuteni, tutkimuksen tarkoituksen ja olen selvillä tutkimuksessa käytettävistä menetelmistä. Minulla on käsitys siitä, mitä tutkimukseen osallistumiseen kuuluu. Ymmärrän myös, että tiedot käsitellään luottamuksellisesti, niitä koskee vaihtolovelvollisuus ja ne säilytetään nimettöminä. Itse yhteen äiti-vauvapsykoterapiaryhmään osallistuneena äitinä annan vapaaehtoisen suostumukseni lomakkeessa kuvatun artikkelin laatimiseen.

Annan luvan minua ja lastani koskevien tutkimus- ja henkilötietojen käsittelyyn osana tutkimusta ja luovutan ne tutkijoiden haltuun. Heidän tulee säilyttää ne lukitussa tilassa vuoteen 2009 saakka, jolloin ne hävitetään.

Vahvistan saaneeni potilastiedotteen sekä kopion vastaanotetusta suostumuksestani. Suostun osallistumaan tutkimukseen.

Tampereella ___päivänä ___ kuuta ___2008

Suostun osallistumaan tutkimukseen:

Allekirjoitus

Nimen selvennys

Henkilötunnus

Suostumuksen vastaanottaja

Tampereella ___päivänä ___kuuta ___2008

Allekirjoitus

Nimen selvennys

Arvo tai ammatti

Yhteystiedot

Puhelinnumero

Original communications

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Taylor & Francis (I)

APPPAH (II)

Wiley-Blackwell (III)

SAGE (IV)