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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, Lääkärinkatu 1, Tampere, on February 1st, 2013, at 12 o’clock.

UNIVERSITY OF TAMPERE
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 psykoanalyyttisen äiti-vauvyrhmäterapian käyttökelpoisuutta ja vaikuttavuutta äiti-vauvaparinen (26) hoidossa. Tuloksen luotettavuuden arvioimiseksi muodostettiin toinen interventioryhmä 25 huumetaustaista äidistä, jotka saivat yksilöllisesti suunniteltua psykososiaalista tukea. Toinen vertailuryhmä muodostettiin 50 äitiyspoliklinikasta raskaana olevista ei-päihdeongelmaisista naisista. Tutkimuksessa verrattiin keskenään huumeiden käyttäjiä-äitejä ja ei-päihdeongelmaisia äitejä tutkimalla päihdeongelmien vaikutusta raskaudenaikaisiin voimavaroihin ja mielenterveysongelmien 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. Interventiot vaikuttivat tekijöitä, jotka huomioimalla voidaan estää äidin negatiivisten kokemusten siirtymisen sukupolvelta toiselle varhaisessa vuoroaikakaudella lapsen kiintymyssuhteeseen vaurioitumisen estämiseksi. Tutkimus selvitti myös kiintymysuhdekirjaa perustuvien menetelmien käyttökelpoisuutta intervention vaikuttavuutta arvioitaessa.

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

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

Tämän tutkimuksen tulokset osoittavat päihderiippuvaisten äitien vahvan motiavaation 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 äidillä oli mahdollisuus turvallisesti, riittävän pitkäkestoiseen hoitosuhteeseen samana pysyvään työskentelyyn. Tämä oli myös edellytys sille, että äidit uskalsivat alkaa selvittämään elämän tilanteet sekä traumaattisia kokemuksiaan.

Tulokset tuovat uusia näkökulmia tarkkaan kohdistettujen menetelmien kehittämiseen ja kielteisten vuorovaikutustilanteen siirtymisen estämiseen sukupolvesta toiseen. Vaativahoitoisen asiakkaan ja hänen nopeasti kehittyvän lapsensa näkeminen kokonaisena pirstaleisessa sosiaali- ja terveydenhuollossa edellyttää sosiaali- ja terveydenhuollon työntekijöitä integroitua yhdessä toimimista, erilaisia hoitovaihtoehtoja sekä sitoutuneita työntekijöitä. Toimijoiden eri sektoreilla tulisikin yhdessä suunnitella kuka, miten ja missä järjestyksessä parhaiten hoidetaan äitien...
trauma- ja psyketaustaa sekä päihdeongelmaa ja miten samanaikaisesti voidaan estää pienen lapsen kehityksen vaurioituminen. Suuri haaste on löytää kustannuksiin nähden vaikuttavin hoitomuoto kulkein äiti-vauvaparille ja mielellään koko perheelle.
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<td>AUDIT</td>
<td>Alcohol Use Disorders</td>
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<tr>
<td>AAI</td>
<td>Adult Attachment Interview</td>
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<tr>
<td>ANCOVA</td>
<td>Analysis of Covariance</td>
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<td>BPD</td>
<td>Borderline Personality Disorders</td>
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<tr>
<td>CES-D</td>
<td>Center for Epidemiological Studies Depression Scale</td>
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<td>EAS</td>
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<td>EPDS</td>
<td>Edinburgh Postnatal Depression Scale</td>
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<tr>
<td>M</td>
<td>Mean (age)</td>
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<td>MANCOVA</td>
<td>Multivariate Analysis of Covariance</td>
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<td>NS</td>
<td>Non-significant</td>
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<td>PGT</td>
<td>Psychodynamic Group Therapy</td>
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<tr>
<td>RB</td>
<td>Ritva Belt, the author</td>
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<td>RF</td>
<td>Reflective Functioning</td>
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<tr>
<td>SD</td>
<td>Standard Deviation</td>
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<tr>
<td>SB-K</td>
<td>Sirpa Behm-Kostiainen, the other group psychotherapist</td>
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<tr>
<td>SPSS</td>
<td>Statistical Package for the Social Sciences</td>
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<tr>
<td>PSS</td>
<td>Psychosocial Support</td>
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<td>RCT</td>
<td>Randomized Clinical Trial</td>
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<td>SSP</td>
<td>Strange Situation Procedure</td>
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List of original communications

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


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, Conners 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 (Bandstra 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 (Conners 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 (Conners 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 Bruschweiler-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 Bruschweiler-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 (Schore 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 relacional 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 rom 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 (Conners 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 (Conners 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 (Conners 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, Conners 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 (Conners et al. 2006, Pajulo et al. 2012).


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 (Conners 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 (Schore 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

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>
<thead>
<tr>
<th>Study</th>
<th>Design and participants</th>
<th>Intervention</th>
<th>Mother-infant interaction outcome measurements</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black et al.</td>
<td>Randomized into an intervention (31) or comparison group (29). Sixty drug using pregnant mothers.</td>
<td>Psycho-educational parent skills training, 2 weekly home visits from pregnancy to 18 months postpartum.</td>
<td>HOME Scales (Caldwell &amp; Bradley 1979)</td>
<td>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.</td>
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<td>(1994)</td>
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<td>Field et al.</td>
<td>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.</td>
<td>Psycho-educational 4 months rehabilitation program with several components. Parenting and interaction coaching in order to enhance the mothers’ sensitivity to their infants’ behaviour.</td>
<td>Feeding and Play Interactions (Field, 1980) Early Social Communication Scales (Seibert et al. 1982, 1987)</td>
<td>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 non-drug-controls in responding and initiating.</td>
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<td>(1998)</td>
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<tr>
<td>Huebner (2002)</td>
<td>Non-randomized study to a residential drug-intervention (51) and to two nondrug interventions. 199 parents at risk for parenting problems.</td>
<td>Parenting education: Weekly parenting groups for 8 weeks. Children from 1 through 36 months.</td>
<td>Nursing Child Assessment Teaching Scale (Barnard 1978) HOME Scales (Caldwell and Bradley 1978)</td>
<td>At post-enrolment enhancement in children’s expressiveness and responsiveness in drug intervention group more than in other groups. No improvement in maternal behavior.</td>
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<tr>
<td>Pajulo et al.</td>
<td>Non-randomized and non-controlled study of 34 pregnant and postnatal mother-infant pairs.</td>
<td>Residential intervention during pre- and postnatal period including working to enhance maternal reflective functioning in dyadic interaction.</td>
<td>Care-index (Crittenden 1993) Reflective functioning (RF) (Slade et al. 2002, 2005): Pregnancy Interview and Parent Development Interview</td>
<td>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.</td>
</tr>
<tr>
<td>Study</td>
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<td>Schuler et al. (2000, 2002)</td>
<td>Randomized to home-visits intervention (67) or to tracking-visit control group (64) among drug abusing mothers.</td>
<td>Case management psycho-educational support to mother-infant interaction. Weekly home visits 6 months postpartum and biweekly visits from 6 to 18 months.</td>
<td>Feeding interaction ratings (Cowan &amp; Cowan, 1992; Hutcheson et al.97)</td>
<td>At 6 and 12 months postpartum there were no group differences.</td>
</tr>
<tr>
<td>Suchman et al. (2011)</td>
<td>Mothers for children from birth through 3 years were randomized into MTP (23) or PE (24)</td>
<td>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.</td>
<td>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)</td>
<td>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.</td>
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</table>
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 (Conners 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)

<table>
<thead>
<tr>
<th>Family structure</th>
<th>PGT</th>
<th>PSS</th>
<th>Comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Married</td>
<td>19.2</td>
<td>5</td>
<td>20.8</td>
</tr>
<tr>
<td>Cohabiting</td>
<td>30.8</td>
<td>8</td>
<td>41.7</td>
</tr>
<tr>
<td>Single</td>
<td>19.2</td>
<td>5</td>
<td>16.7</td>
</tr>
<tr>
<td>Divorced</td>
<td>15.4</td>
<td>4</td>
<td>4.2</td>
</tr>
<tr>
<td>First child⁴</td>
<td>40.0</td>
<td>10</td>
<td>45.5</td>
</tr>
<tr>
<td>Multiparous⁴</td>
<td>60.0</td>
<td>15</td>
<td>54.5</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Basic education</td>
<td>46.2</td>
<td>12</td>
<td>72.0</td>
</tr>
<tr>
<td>Vocational school</td>
<td>46.2</td>
<td>12</td>
<td>24.0</td>
</tr>
<tr>
<td>College</td>
<td>7.73</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>University</td>
<td>0</td>
<td>0</td>
<td>4.0</td>
</tr>
<tr>
<td>Work situation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Permanent work</td>
<td>11.5</td>
<td>3</td>
<td>8.0</td>
</tr>
<tr>
<td>Unemployed</td>
<td>38.5</td>
<td>10</td>
<td>40.0</td>
</tr>
<tr>
<td>Works at home</td>
<td>30.8</td>
<td>8</td>
<td>36.0</td>
</tr>
<tr>
<td>Other</td>
<td>19.2</td>
<td>5</td>
<td>16.0</td>
</tr>
</tbody>
</table>

⁴Non-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

<table>
<thead>
<tr>
<th>Substance-abusing women in PGT and PSS intervention and comparison groups</th>
<th>Pre-intervention T1 (2-3rd trimester to one month)</th>
<th>Postpartum T2 (4 months)</th>
<th>Follow-up T3 (12 months)</th>
</tr>
</thead>
</table>

**SELF REPORTS**

*Demographic characteristics (II, III):*  
*Alcohol consumption* (7 items from the Alcohol Use Disorders Identification Test, AUDIT, Saunders et al. 1993):  
*Illegal drug taking*  
1) taken before pregnancy  
2) changes in drug abuse during pregnancy  
3) substitute medication  
4) intravenous drug taking  
*Social support (II):*  
Perceived Social Support Scale-Revised (Parkes 1986)  
*Coping strategies (II):*  
Lazarus Coping Model (Lazarus 1993)  
*Depressive symptoms (II, III):*  
10- item Edinburgh Postnatal Depression Scale, and  
13 items from the Center for Epidemiological Studies Depression Scale  
*Pregnancy related distress (II):*  
20- item questionnaire (Levin 1991 and Saisto et al. 2001)  
*Hostility (II):*  
20-item questionnaire (Derogatis and Cleary 1997 and Cowen 1995)

**OBSERVATIONAL METHODS**

*Parent-infant interaction (III):*  
Emotional Availability Scales (EAS; Biringen, 2008)  
Videotaped observations of mother-infant free play  
*Infant attachment classification (IV):*  
Strange Situation Procedure (Ainsworth et al. 1978 and Main and Solomon 1990)

**INTERVIEW**

*Mother’s attachment representations (IV)*  
The Adult Attachment Interview (AAI, George et al. 1985)

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*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 $\alpha = .88$. 

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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 AAIs 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 χ2 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. (Grealla 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 postpartum (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)

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

Note
Differences in the distributed cases are due to missing values.
\(^a\)At T1 data were based on women’s reports before they recognized pregnancy. \(^b\)Contradictory 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 ($F_{Wilks'}\text{Lambda} = 5.90, p< .004, \eta^2 = .15$) 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 4 months 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 4 months 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.
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.
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10 References


(Ed.), Parent-infant relationships (pp. 87-115). Orlando, FL: Grune & Stratton.


Harwood I (2006): Head start is too late: Integrating and applying infant observation studies, and attachment, trauma, and neurobiological research to groups with pregnant and new mothers. Int J Group Psychother 56:5-29.


Main M, Hesse E (1990): Parents’ unresolved traumatic experiences are related to infant disorganized status: Is frightening and/or frightened behaviour the


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Tronick EZ, Gianino AF Jr (1986): The transmission of maternal disturbance to the infant. New Dir Child Dev 34:5-11.


Appendices

Appendix 1

ASIA: LUPA ARTIKKELIN KIRJOITTAMISTA VARTEN

Hei Timanttien äiti-vauvaryhmissä olette äidit!

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


Sunnittelen lähettävän tämän artikkelin kansainväliseen lapsiterapialehteen (Journal of Child Psychotherapy), jota lukevat eri maiden lapsipsykoterapeutit ja varhaisen vuorovaikutuksen terapeutit tai tutkijat.

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

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

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

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Appendix 2

ASIAKASTIEDOTE Löydä Timantit –projektin tutkimus

Arvoisa tuleva äiti


Tutkimukseen osallistuminen merkitsee seuraavia asioita:

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.


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.

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Appendix 3

SUOSTUMUS

"Hoidon vaikutus huumeriippuvuisten 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 kieltäytymisenä ei vaikuta mitenkään minun ja lapseni oikeuteen saada tarvitsemaamaa hoitoa ja Löydä timantit –projektin antamia palveluja. Ymmärrän myös, että tiedot käsitellään luottamuksellisesti, niitä koskee vaitiolovelvollisuus ja ne säilytetään nimettömänä.

Annan siis luvan minua koskevien tutkimus- ja henkilötietojen käsitteelyyn 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

116
Suostumuksen vastaanottaja

Lahdessa ___ päivänä ______ kuuta____ 2004

_________________________________________________

________________________________

Nimen selvennys

_________________________________________________

Arvo, ammatti

_________________________________________________

Yhteystiedot

_____________________________________

Puhelinnumero
Arvoisa tuleva äiti

Onnittelut Sinulle tulevan lapsesi johdosta. Toivomme teille kaikkea hyvää.

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

Toivon, että voit vastata avoimesti ja luottavaisesti varsin henkilökohtaisiin ja perhettäisiin kuvaaviin kysymyksiin. Tutkijoilla on täydellinen vaatiolovelvollisuus 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

118
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”.


Annan luvan minua ja lastani koskeviin tutkimus- ja henkilötietojen käsittelemiseen 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
Mother–infant group psychotherapy as an intensive treatment in early interaction among mothers with substance abuse problems

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Abstract  In this article we present a novel method of outpatient care: brief, dynamic mother–infant group psychotherapy with mothers who have substance use problems. In this therapy, substance abuse treatment is part of mental health and parenting interventions. The focus is on preventing disturbance in the mother–infant relationship in this high-risk group. The clinical material is taken from 16 mother–infant dyads from six psychotherapy groups, which met weekly over six months from pregnancy to postpartum. The therapy process consists of 20–24 three-hour sessions. The basis of the therapy is to offer mothers experience of care, which they, in turn, can give to their infants. In this paper we analyse the core therapeutic elements that may contribute to better mothering and child development. They involve: the group providing a symbolic maternal lap, and the meeting of the mothers’ and the infants’ needs. It is hoped that this may offer the mothers a new experience within which to reappraise their early memories. This may help prevent them from projecting traumatic past experiences onto their infants. Our analyses show that in the therapy, mothers, feeling safe within the group, gradually experienced pleasure with their infants and their peers. These effects, according to the mothers, were the most noticeable. Brief dynamic mother–infant group psychotherapy seems to be a promising form of treatment for those substance-abusing women able to commit to outpatient care and examine the causes of their drug dependence. The groups may also be used as a diagnostic tool to detect problems in early mother-baby interaction.

Keywords  Mother; infant; substance abuse; therapeutic group.

Introduction

Women with a history of substance abuse face a dilemma when becoming mothers. Many of them want to be good mothers, but are aware of the harm that their drug abuse could cause to their child’s health and development. Typically, substance-abusing mothers have multiple stressors and risks in their lives, both past and present, which demand particular treatments and interventions. They are often single parents who lack familial social support networks (Hans et al., 1999; Pajulo et al., 1999, 2001b;
Schuler et al., 2000), and frequently suffer from mental illness such as depression and anxiety (Hans et al., 1999; Luthar and Suchman, 2000; Pajulo, 2001). Their infants may have neurobiological problems due to drug exposure in utero, resulting in premature birth and low birth weight along with slow sensorimotor development (Mayes and Truman, 2002), which makes mothering and dyadic interaction more difficult.

Pregnancy provides psychological challenges and opportunities. There is evidence that substance-dependent women are often concerned about the well-being and development of their babies and they are willing to alter their drug-centred lifestyle and accept professional help during pregnancy (Hans et al., 1999; Pajulo et al., 2001b, 2004). They need effective help in reorganising both their external and internal worlds, through stopping their drug use and starting rehabilitation. This makes it possible for them to replace their drug-related social environment with one more conducive to being the mother of a newborn.

It is important to develop treatment methods for substance-dependent mothers which can enhance both maternal mental health and early mother–child interaction, promoting healthy child development and new social relationships. Effective treatment is essential because large numbers of substance-abusing women are of childbearing age. In a Finnish sample of pregnant women, the prevalence of drug abuse was 6% (Pajulo, 2001). Research suggests that the most effective treatment models are those which integrate substance-abuse treatment with mental health and parenting interventions (Field et al., 1998; Hans et al., 1999; Moore and Finkelstein, 2001), and which are initiated in pregnancy (Camp and Finkelstein, 1997; Pajulo et al., 2001b).

Aims of the study

In this article, we describe the psychoanalytically-oriented mother–infant group therapy developed in Finland by Ritva Belt. The aim of the project is to care for substance-abusing mothers in a holistic way, and support the mother–infant relationship right from the very beginning. This therapy integrates substance abuse treatment with mental health and parenting interventions. It is vital that the therapy should start as early as possible, ideally before delivery. This focus differs from that of conventional interactive parent–infant therapy, where the starting point is developmental problems and disturbance in the mother–infant interaction (Baradon, 2003). Our choice of group work rather than individual work is based on the assumption that the peer group could function both as a support for recovery and a pressure for abstinence. Being with fellow users allows mothers to share their often painful drug-related experiences, along with their feelings of guilt and shame. This analysis of the content of the therapy and its curative factors is based on clinical material from 16 mother–infant dyads participating in six therapy groups of 20–24 three-hour sessions. The mothers would have liked more sessions, but there were financial constraints.

The group as mother

Experiencing the group as mother (Scheidlinger, 1982) can provide mothers with a safe place in which to learn to enjoy motherhood and refrain from projecting past bad
experiences onto their babies. The therapeutic experience may function as an effective support against relapse (Moore and Finkelstein, 2001). Meaningful early interaction with the child and abstinence from drugs may open a new space in the mother’s mind. The pleasure the mother derives from her infant and the sharing of experience in the peer group are thought to be healing elements. Below, we present the theoretical perspectives underlying the intervention, its content and major features, followed by clinical vignettes.

**Structure and context of the group intervention**

Substance-dependent women face the complex daily social problems typical of marginalised groups. In order to concentrate on their inner chaos while in therapy, they need practical help to cope with the external chaos, demands of, and conflicts in their lives. Therefore, the outpatient project ‘Find the Diamonds’ has created a regional model for the treatment of pregnant substance-abusing women that includes a systematic pathway into different treatment alternatives. Referral into our brief dynamic mother–infant group psychotherapy is one part of this regional model. Working pairs of social worker/midwife and psychiatric nurse/psychiatrist recruit substance-abusing pregnant women or mothers at the regional prenatal clinics as potential participants. They are then referred to therapists for assessment; during assessment they are interviewed three to four times including, routinely, one home visit (James, 2004). The most important criterion for treatment is the mother’s motivation to recover and adhere to treatment.

The women are then provided with a treatment network that consists of professionals and those close to the mother. The network involves a social worker from the Child Protection Agency, professional representatives from a psychiatric clinic for drug abusers, a public health nurse and a local family worker. The treatment network includes the mother’s nuclear family and the people closest to her. It is important that the psychotherapy is an integral part of the mother’s life; therefore, one of the therapists in the mother–infant group is an active member of the treatment network. Ideally, the therapist will make contact with the mother’s partner or the father of the child. The treatment contract is negotiated and signed at the network meeting; it includes drug screening (urine analyses) and an explanation of the consequences of positive test results.

Outside the sessions, one of the two therapists is available by phone. This is essential for maintaining the strong holding position we are building. A follow-up meeting is arranged to take place four to six months after the group sessions are over. It is recommended that the mother begins the group therapy during the last trimester of pregnancy, or at the latest when the baby is two to three months old, because of the importance of the perinatal period for attachment. The group size remains small, preferably three or four mother–infant dyads, because of the need for intensive attention.

**The group room**

The group therapy room is designed to be a comfortable, home-like, child-friendly environment. It has a large table in the middle, surrounded by chairs and baby seats,
cradles, mirrors, mattresses and pillows. There are toys. In short, there are all the necessities for a mother and baby. Videos, a CD player and a video camera are available for supporting mother–child interaction. Next to the room there is a lavatory, a kitchen and a cupboard for therapy material.

The therapy

The therapy follows a loose structure. The first session involves instructions and agreement around rules and confidentiality. Therapy sessions start with coffee and home-made bread and there is a break for lunch. Apart from the initial instructions, we provide no further guidance.

In our therapy model there is a group therapist and a co-therapist, both women, to provide a model of two adults working together. The therapists share some communal tasks such as serving food and encouraging mother–baby interaction. They also have separate tasks. The group psychotherapist, who is a child psychiatrist, focuses on the group dynamics and the mothers’ insight into possible reasons behind their feelings, thinking and behaviour, including their use of substances. The co-therapist, who is a nurse, has responsibility for practical issues, including the therapy arrangements and liaising with the network. Group members can have individual or marital counselling, as well as phone contact with the therapists, between sessions.

Analysis

The analysis of our brief dynamic mother–infant group therapy presented here is based on 16 mother–child dyads; the mothers were between the ages of 18 and 28 years. What all our participants had in common was that they became mothers in highly conflictual, difficult circumstances. Most mothers (10 out of 16) began abusing drugs early on, before the age of 15. They had used various substances, but mostly amphetamines. Four of the mothers had been opioid-dependent and one had been in buprenorfin substitute care. Before or during the group process most of the mothers had begun antidepressant or other medication prescribed by a psychiatrist. If a baby had to stay in detoxification after birth, the mother would still participate in the group. It was hoped that the group would help her to keep her baby in mind (Slade, 2002).

Maternal substance abuse, mental health and parenting

Substance abuse can be understood as an attempt to cope with painful experiences and feelings, and defend one’s integrity by escaping conflicts and relying on excessive pleasure. It is possible that substance dependence developed as the result of a failure to solve a mental health problem. There is evidence that psychiatric disorders are common among substance-abusing mothers, and that these disorders often precede the abuse (Hans et al., 1999). Depression and anxiety disorders (Hans et al., 1999; Luthar and Suchman, 2000; Pajulo, 2001) and post-traumatic stress disorders (Luthar and Suchman, 2000) are commonly diagnosed along with substance abuse. According to a Finnish study (Pajulo et al., 2001a), 40% of pregnant substance-abusing women in
residential care had depression, diagnosed at six months postpartum. Hans et al. (1999) showed that among opioid-dependent pregnant women, 34% met lifetime diagnosis criteria for depression and 53% for personality disorder.

Furthermore, research shows that many substance-abusing women have had childhood experience of inadequate parental care or maltreatment (Luthar and Suchman, 2000; Savonlahti et al., 2004), and insecure parent–child attachment (Fonagy et al., 1997). Childhood sexual abuse is also a common feature, although estimates of its prevalence vary, ranging between 12% and 85% (Beckman, 1994). There is evidence of family problems in childhood such as transgenerational substance dependence, parental conflict and divorce (Camp and Finkelstein, 1997). A history of neglect and abuse in substance-abusing mothers often results in negative representations of motherhood and parenting (Pajulo, 2001).

Substance abuse undermines the protective maternal role and may cause problems in the mother–infant relationship. Research shows that substance-abusing mothers, compared to non-drug-abusing mothers, have a tendency to talk less to their infants and enjoy them less, and be either more passive or more intrusive in their interactions with the baby (Mayes and Truman, 2002; Pajulo et al., 2001b). Furthermore, opioid-dependent women have been found to be less responsive and harsher with their infants than non-drug-abusing mothers (Hans et al., 1999). Substance-abusing mothers display a low tolerance of frustration and poor self-esteem, on the one hand, but high expectations of motherhood on the other (Pajulo et al., 2000). Researchers agree that comorbid maternal psychopathology may have a more significant influence on the quality of parenting behaviour than drug use alone. Antisocial and personality disorders and depression constitute especially serious risks for negative parenting and a dysfunctional mother–child relationship (Hans et al., 1999).

Distortions in mother–child interaction, lack of nurturing experiences and insecure attachment pose serious risks for the infant's well-being and development (Jacobson and Jacobson, 2001). Frustration experienced by the mother in her interaction with her baby often precedes relapse, and is a predictor of neglect and abuse of the child (Black and Mayer, 1980). Rewarding and positive experiences with the infant may help break the vicious circle of traumatic childhood experiences, violent and abusive relationships and helplessness. The therapy provides mothers with a chance to acknowledge their own childhood experiences. By focusing on their concerns as parents, and recognising interpersonal and psychological needs, their ability to control their own behaviour and drug abuse may be improved. Frustration and helplessness can be replaced with joy and pleasure in their baby. It is important that substance-abusing mothers are seen as having the potential to be capable parents, and not only as possibly relapsing addicts (Hans et al., 1999; Luthar and Suchman, 2000).

The characteristics and effectiveness of mother–infant group therapy

Mother–infant groups for drug-dependent mothers are psychoanalytically-oriented and time-limited. In Molnos’s (1995) terminology they are ‘brief dynamic psychotherapy’ groups, which have a clearly defined aim. No research is available on brief psychoanalytically-oriented group therapies for substance-abusing mothers and their
infants. However, there have been analyses of the therapeutic effects of mother–infant group therapies in general (James, 2004; Paul and Thomson-Salo, 1997; Reynolds 2003; Trad, 1994) and studies with other client groups, such as mothers and babies in postpartum crisis (Pedrina, 2004). Reynolds (2003) introduced ‘mindful parenting’ groups to promote parental reflective capacity and the attachment relationship between parents and infants in parent–infant group therapy for at-risk families. Paul and Thomson-Salo (1997) state that peer support makes it possible for mothers to examine their feelings of guilt and blame, and that the group provides an opportunity for greater therapeutic identification, both with their own baby and with other mothers.

Luthar and Suchman (2000) developed supportive and developmentally-informed group psychotherapy for heroin-addicted mothers with children under 16. The relational psychotherapy mothers’ group (RPMG) is based on an add-on treatment approach which complements standard methadone counselling. After the 24-week treatment period, the mothers in the intervention group showed a lower level of risk for child maltreatment and a greater involvement with their children. The retention rate in therapy was as high as 86%. RPMG researchers recommend that half the group sessions should be focused on the mothers’ own psychological needs and only after that should they concentrate on specific parenting issues (Luthar and Suchman, 2000).

In the therapeutic group described in this paper, the mothers’ attention is focused on the here-and-now and the therapists actively facilitate transference phenomena (McKenzie, 1990). Positive transference is emphasised, although it is necessary also to interpret the more obvious negative transference (Paul and Thomson-Salo, 1997).

Psychoanalytically-oriented mother–infant group therapies are challenging for the therapist and require enthusiasm and commitment (James, 2004). The nature of drug dependency increases the challenge, and involves some specific skills. The therapist needs to show confidence in the drug-abusing mothers’ capacity for improvement. The therapist encourages the mothers’ insights and respects their common and unique experiences. It is important that the therapist has the psychological capacity to contain the intense negative feelings that mothers are likely to project onto her. With substance-dependent mothers, the negative transference usually emerges when the therapist has to set boundaries, such as drug-screening practices.

The therapist needs therapeutic knowledge and experience of both adults and children because she works simultaneously with the parent and the infant. She should know about infant psychology and early child development, and have experience of interactive treatment modes along with the ability to observe and listen (Cramer, 2000). An understanding of group processes is necessary, as well as the capacity to follow numerous dynamic patterns simultaneously (Rosenberg, 1993). Up-to-date information about drugs, addiction treatment and psychological dependency are relevant. For the therapist, it is important to understand the infantile aspects of the mothers evoked in the therapy (Mitrani, 2001). The therapist has to be aware of developing possessive love or overprotectiveness towards the infants. Naturally the therapist intervenes in situations where the child is at risk of neglect.

This group shares similarities with other client groups but also involves special and unique themes. Below, we look at therapeutic and curative elements and themes in the data. These include negative projections towards the infant, early unsatisfied needs of
the mothers, moments of meeting in the therapeutic interactions, the power of the peer group, and the group functioning as a mother’s lap.

**Preventing negative projections onto the infant**

Pregnancy involves drastic changes in a woman’s mental life, and often breaks down familiar defences, allowing aspects of the unconscious world to be revealed and creating new experiences. Women do not merely go through a reorganisation of their mental life, but create an entirely new personality organisation (Fraiberg et al., 1987; Stern and Bruschweiler-Stern, 1998). The mothers in our therapy groups had often used drugs during pregnancy, either at the very beginning, occasionally or throughout the pregnancy, thus compromising their unconscious world. It is of utmost importance that the therapy should enhance new mothers’ ability to process the feelings, thoughts and conflicts evoked by pregnancy. Recalling childhood and revisiting defences is important, because the mother who is preoccupied with her own emotional problems can easily transfer her distortions onto interaction with the infant (Fraiberg et al., 1987; Stern, 1998a). In the group, a special space is created where the past can reappear in the here-and-now interaction. Past emotional conflicts are relived and perhaps understood in the transference, the group process and mother–infant interaction, allowing the discovery of new solutions to old problems (Molnos, 1995).

Our data on mother–infant therapy provide examples of how a traumatic or emotionally deprived past interferes with mother–child relationships among substance-abusing women. Fraiberg et al. (1987) called these past painful experiences ‘ghosts’, and noted that unresolved conflicts and trauma in the mother’s infancy could often explain the occurrence of her infant’s symptoms. The intimate bodily dialogue between the mother and infant may provoke powerful affects, some unconscious, which the mother risks projecting onto the infant. Pleasure in the baby within the therapeutic group process can help a mother become aware of the dysfunctional defences that she has had to create in order to protect herself from frightening early experiences. These might include identification with the aggressor, splitting and projection. The uncovering and interpretation of the unconscious can neutralise their power, provide the mother with a safe place and protect the child from her unconscious projections (Watanabe, 1996). When the ‘ghosts have left the room’, the mother becomes the protector of her child against the repetition of her own troubled past (Fraiberg et al., 1987).

An important focus in the therapy is to link the mother’s early experiences of nurture to the current interaction between her and her baby. By stimulating early unconscious memories, the group provides material and experiences for new internal representations (Larney et al., 1997). Experiences with the therapists make it possible for the mothers to attempt to repair negative representations of their own mothers. Success with the baby can improve internal representations of themselves as mothers. There may be double identifications – the therapist and group members may identify with both the neglected child in the mother and with her real child. Our experience shows that interactions within the group and with the baby can also evoke traumatising experiences from the mothers’ pasts, as illustrated in the vignette below.
Clinical vignette no. 1

a) Mary is angry, demands a lot of attention from the therapists and ignores her baby. The therapists try to calm her down and ask her to tell them what has happened. She describes how her baby’s fingers had clung to her hair at home, and how it caused a strong reaction in her: ‘I lost my temper and I remembered how my mother dragged me by the hair with my feet 10 cm from the ground. I left the baby crying and I went to the balcony for a cigarette to calm my nerves.’ Later on Mary describes, ‘The things from childhood just flood into my mind, and disturb my concentration. Can a body remember? How I was exposed to something really evil.’ The therapists address the entire group. We discuss how important it is that the mothers learn to recognise and control their feelings and reactions well enough to prevent these from being passed on to the child.

b) Linda always feeds her baby with unheated milk. During lunch we discuss the memories that the mothers have of food when they were little children. Linda finds a connection between the cold bottle and her childhood experience. She remembers how her own mother and baby-sitter forced her to eat and drink food and liquids so hot that her mouth was burned over and over again.

Early unsatisfied needs of the mothers

Analysis of this group shows that only mothers whose own emotional needs are met and early frustrations recognised can satisfy the needs of their own infants. The more deprived the mother has been in her early childhood and the longer she has used drugs during the pregnancy, the more important it is to listen to her experience as a child. Like Luthar and Suchman (2000), we observed that at the beginning of the process, the mothers were often so needy that they had to be ‘fed’ first. In addition to listening to, identifying and interpreting a mother’s needs, an important symbolic way of feeding was the concrete pleasure of good food. During the therapy, some mothers realised that they had untreated eating problems and lack of body control; others put on weight.

Clinical vignette no. 2

Julia is a four-month-old baby girl, whose mother Ann is neglecting her needs. Even in the winter in the freezing cold, Ann dresses Julia lightly and gives her too little milk from a dirty feeding bottle. Ann is always very hungry and greedily eats the food that is served in the group. In the first sessions the therapists allow her to concentrate on her own needs, but gradually they and group members express their worry about the adequacy of Julia’s feeding and the warmth of her clothing. The therapists make a whole group interpretation of the mother/infant ravenous hunger and unsatisfied need, and how Ann very clearly expresses group members’ hunger for the group’s care. Other members of the group have already discreetly taken responsibility for the situation. In the following session one of the mothers brings her own baby’s nice warm clothes for Ann, who proudly puts them on Julia. The other mothers show how they prepare milk and gauge their babies’ hunger.
Ann feels that the group has understood her and appreciates her, and she accepts the advice. She soon dresses Julia warmly, gives her more food and holds her more closely. Gradually, Julia’s weight increases, and her interaction with Ann becomes more active, to the extent that Ann complains that she gets tired of Julia’s liveliness.

The therapists observed carefully and were aware of the mothers’ emotions and body language. They looked for signs of fatigue, illness, violence, drug use and variations in weight or skin colour. Therapists often asked how they could help the mothers feel comfortable. Many likened to be covered with a soft blanket and touched gently. The therapist needs to be aware of mothers’ experiences of being touched, and be sensitive to their reactions. Body language is often very revealing. When discussing unusual reactions and bodily fears, some mothers in our groups realised that they had been sexually or physically abused while using drugs. There were also those who suspected that they had suffered from childhood sexual abuse but had not received help or competent assessment.

Attachment, dependency and identification with the group are signs of how group participation can satisfy early needs. Women reported that they missed the group, and said, for example: ‘We have been sick, really. This group is the highlight of the week. It helps us to endure the greyness of the whole week. We have become group addicts!’ They would talk about missing their own mothers’ care and nurture, because it had not been adequately available or too enmeshed. They would wonder if the therapists were caring parents, who did not leave their children too early. They hesitated to fall into the group lap, fearing disappointment at the prospect of the ending of the group. When experiencing the ‘lap’ feeling, mothers had the courage to open up about sensitive situations and recognise their feelings of weakness when facing the responsibilities of a single mother. Fear of abandonment was present when they asked what would happen if they did not have the strength to live and take care of the baby. They asked what would happen if they found themselves battering their baby as their mothers had, or if they were to use drugs again or commit suicide. The fear of losing their child was overtly and covertly powerfully present in the group narratives.

With growing dependence on the group, the mother starts to perceive and experience the baby’s dependence on her as a mother. As stated by the therapists, ‘As you are allowed to be dependent on the group and on us, you seem to be able to bear the dependency of your own child.’ One mother responded with, ‘During the ending of the group, I found that I could manage better and am no longer so dependent on the group or anyone else.’

Moments of meeting in authentic interaction

Stern and colleagues (1998) suggest that the healing power of psychoanalytic therapy lies in a ‘new understanding of something more’ which is different from symbolic and verbal interpretation. Healing is possible when there is an authentic person-to-person
connection, called ‘moments of meeting’ between patient and therapist. Authentic interaction can create new mental organisations or reorganise a patient’s implicit procedural knowledge. This, in turn, affects her way of being with others, understanding and maintaining intrapsychic and interpersonal activity. ‘Moments of meeting’ are used either without or in addition to the analytic technique, and they are possible only in situations that are personal, shared and exponentially new (Stern et al., 1998).

In our groups we utilised ‘the transference of good grandmother’ and emphasised the mothers’ resources and positive assets more than psychopathology and conflicts (Stern, 1995). Mental integrity develops if love for other human beings can overcome destructive impulses. Then the internalised ‘other’ can reveal and free up genuine individual needs and decrease the projections that impoverish mental life. Good and compensatory experiences can neutralise anger towards others (Klein, 1984; Segal, 1988). Grinberg (1990) emphasises that if the therapist is internalised with love, this can affect the deep levels of the self, even within the tissues and organs of the body. Research in neurobiology and early parent–infant interaction has revealed the psychophysiological mechanisms through which comprehensive psychotherapeutic change works (Siegel, 1999). Early human interaction shapes the neural connections from which the conscious mind emerges. Later in life, changes in neural connections can be activated as a result of a particularly strong emotional experience within a single relationship, for example in psychotherapy or between mother and infant. We believe that therapy can strengthen or compensate for the patient’s earlier experiences and thus catalyse an internal resonance. This may be at the core of an integrating process which permits emotional regulation (Siegel, 1999).

These substance-abusing mothers typically carried their terrifying past experiences into the therapy, and it was imperative to find good new experiences in both themselves and other people. Our aim in the therapy was to encourage frequent ‘moments of meeting’ in which mothers could experientially construct new representations of their implicit memories of early painful experiences and distorted dependence. Identification with the therapists and other mothers was reflected as change in their interaction with their babies, which in turn increased the babies’ satisfaction and well-being.

**Clinical vignette no. 3**

Laura tells of her relationship to her baby in the womb: ‘If I tried to keep off the drugs I had terrible fears and guilt that I had harmed it. I watched it all the time, its development and movements. I did not dare to get attached to the baby or even have a look at him after the delivery, until someone else had checked him carefully for malformations.’

Laura was forced to stop breast-feeding after five months, during her child Andrew’s brief hospitalisation. Laura’s fear of losing her mind was activated in the group. She feels strongly that she has failed Andrew, and is afraid of having a breakdown and losing him. The therapist asks what kind of fantasy she has about
the way her mother nurtured her in the early months. Laura describes in detail the extreme circumstances they lived in, and how her mother began to lose her mind when Laura was one month old; she was placed in a children’s home. Laura is afraid of repeating the fate of her mother. The therapist summarises the similarities and suggests multilevel activation: Laura’s fear that Andrew is feeling deprived may activate in her some small baby feelings, but on the other hand Laura is afraid of losing her adult mind. What is different, however, is that now she is in touch with her emotions and the group is sharing her experiences and emotions. This helps her and the other group members to meet deep and fearful emotions from the past. Laura cries.

In the same group session, Andrew looks depressed. His state of mind seems to correspond to his mother’s mood when she was placed in the children’s home. The whole group concentrates on Andrew. After receiving attention from the group, the baby boy appears to cheer up. The therapist observes to Laura how breast-feeding had helped her to develop a fragile relationship, which seemed to be at risk because she had had to stop it. Laura is unable to make eye contact with the baby. The therapists console and encourage her and show her how to keep Andrew close to her breast and skin. In the next session Laura is calm. She says that she has sung a lot to Andrew during the past week. Contact between them is considerably better and the baby is more alert and active.

During the final sessions of the group, Andrew shows a strong attachment to his mother, and Laura responds positively to this. She holds the baby gently in her arms and looks at him calmly. She says that she enjoys the newly found contact with her baby. She has learned to feed him from a feeding bottle, just as if she were breast-feeding. Laura holds Andrew gently against her breast. Tears stream from Laura’s eyes. The baby falls asleep and looks happy in his mother’s arms, and she does not tire of holding and gazing at her baby. All the women in the group, mothers and therapists, are weeping.

Power of the peer group

The curative factors and healing mechanisms in mother–infant group therapy lie in the comprehensive processes of generating feelings of hope, universality and altruism among the group members (James, 2004; Trad, 1994). The group provides the mothers with opportunities to experience relationships with peers, practice new modes of interaction and achieve a coherent sense of identity through these relationships (Foguel, 1994; Trad, 1994). The mothers in our groups appreciated the presence of their peers in their healing process. They felt that only mothers with substance-abusing experiences could share their overwhelming feelings of guilt and shame, and understand what they were talking about. Shared past experiences made it possible for them to talk about their fears, worries about the future and despair at having caused damage to their child. They were very aware that they were at risk of being socially isolated when they kick the habit, because they have to leave their old friends and even partners in order to create new relationships in a non-drug-using culture.
Clinical vignette no. 4

a) As the group process advanced, we noted that the mothers were increasingly able to tolerate and appreciate observations and interpretations of themselves from the other members of the group. For example, during the early sessions of one group, Sarah describes her drug addict mother, and how Sarah herself was deprived of maternal nurture in her childhood. The other mothers become anxious and restless, and one of the mothers puffs: ‘You are doing the same to your baby that your mother did to you.’ Sarah does not comment, but does not deny it, either. The therapist states how, through Sarah, the group has got profoundly in touch with the reality of what it is to be a child in a family of drug-users. Through Sarah others are able to experience the fear and anger that they felt as children. Another mother adds that every mother, including Sarah, has a desire to guard her children against the negative intergenerational transmission of family problems.

b) In another group, we discuss Vicki’s drug relapse and its consequences on her own physical health and her baby boy’s well-being and development. The therapist interprets that perhaps she did it on behalf of the whole group, because in the previous session Kathy had expressed a strong fear of succumbing to drugs. The group-as-a-whole interpretation gently alleviates the guilt of all the mothers, as well as their fear and anguish. Kathy listens carefully and states gravely: ‘It sounded so horrible, what happened due to Vicki’s relapse, that I cannot just go and take drugs. I mean, I do not need them!’ In one of the groups, Susan vents her rage towards her peers about the way drugs have been found in her urine. Susan claims that someone has planted drugs in her urine, that Social Services just want to take her baby into care and that she thinks that not even the therapists believe her. The therapists acknowledge Susan’s disappointment and let the group discuss it. All ponder their worst fear – of losing their infants. They picture the scenes and the threats. Many are loyal to Susan due to their deep and painful understanding of her rage. However, in the course of a long discussion, they agree that drug screening is principally to serve their rehabilitation and protect their children. On the same day, Child Protection has to take Susan’s two-month-old child temporarily into care, and Susan is taken into residential care. Regional co-operation enables the mother–infant dyad to continue with the group to the end and Susan has the full support of the group.

The group as a mother’s lap

The group can be analysed as a matrix, which James (1984) has defined as ‘a place or medium in which something is bred, produced or developed’. The group as a global object acts as a strong transference trigger for early mother-objects (König and Lindner, 1994). If successful, group members perceive the group-as-a-whole as a maternal image at the deepest level, as the inside of the mother and the ‘mental womb’ (König and Lindner, 1994; Mitraní, 2001; Scheidlinger, 1982). According to our experience the group-as-a-whole can provide deprived mothers with a safe haven, a mother’s lap, which can enhance the integrative healing process.
Our mother–child group therapy accords with the ideas of Foguel (1994), who suggests that the first six months of a group may be comparable to early development in infants. In the beginning, psychic responses are experienced predominantly bodily and the mothers’ main concern is to feed the infant and secure the experience of nourishment and satisfaction. Foguel makes a comparison between a mother’s arms and the group: the group circle contains the space in which group communication models evolve. ‘The second attachment to the mother’ helps the group member to find her valued and beloved true self. She should no longer be afraid of dependence, and independence does not mean abandonment (Foguel, 1994).

We observed these developments in our mother–infant groups. There was an overwhelming ‘greediness’ for nurture at the beginning of therapy sessions. The therapeutic work revealed mothers’ expectations of the therapists as omnipotent mothers, who understand a child’s needs without words. The mothers in our groups were allowed to be small, wordless and dependent on the greater group. The group setting creates an atmosphere and state of mind of shared safety, and thus enables gradual verbalisation of experiences and emotions, enabling mothers to repair early painful experiences. Mothers are empowered to learn different ways of coping with their infants’ difficulties and enjoy motherhood.

One of the important tasks of the therapists and the group is to calm the mothers, so that they in turn are able to soothe their infants. The therapists created a cosy room for the mothers, even laying down mattresses on the floor. According to the mothers’ wishes, we listened to or sang lullabies, children’s hymns and nursery rhymes. We helped the mothers to find just the right position using pillows, and we covered them or wrapped them in a blanket. Occasionally we made a nest for a mother and her infant. We attached great importance to eye contact and we carefully noted the mothers’ and infants’ reactions and responded to them.

It was typical for a session to begin with a mother being nervous and ‘over-filled’, pouring out her anguish and anger over the therapists and the group. Gradually, after being heard, understood and comforted, the mother was soothed and calmed. The group could easily identify with her feelings of being bewildered, in need and fearing abandonment. The mothers eagerly participated in the experience of dispelling the anguish. Typically, during the last moments of the session, the mothers and infants were satisfied and enjoyed being together. At that time we could concentrate on wondering at and admiring the infants and their development. We often noticed the infants fall asleep, and sometimes the mothers as well. Often, after the early anguish and unloading, the feeling of lying on the mattresses was like being in a big lap. The therapists had filled up the mothers and the mothers had filled up their infants. We could feel integrity and comfort together, each group member privately and also as a shared experience.

We hypothesise that the calm here-and-now state of mind is important, because the mothers realise that this is what they had been aiming for through their drug abuse. Their experience in the group shows them that this can be achieved through other means. Mothers reported that, from the very beginning, they searched for instant satisfaction with drugs, and fast relief from agony. One unconscious motive for their
drug abuse had been to cover up loneliness and emptiness, and to prevent scary and hurtful experiences and emotions from rising into consciousness. In the therapy, the mothers were taught to feel gratification with the current, here-and-now relationship with the therapists, their babies and other mothers. The aim is for the mother to fall deeply in love with her infant. The mothers call this feeling a valuable treasure, ‘deep-lying-diamonds’: ‘This child has saved my life. I am able to love and be loved, I am invaluable to my own baby and I desire to put my baby’s needs before my craving for drugs.’ If one of the mothers relapsed or even thought of drugs, she would describe how sick and guilty she felt: the love for the infant functions like a moral ‘aversive reaction’.

Clinical vignette no. 5
The therapists are worrying about Cecilia during the first group sessions, because she pays inadequate attention to her baby girl, Susan. In the third session, Cecilia says that she put her two-month-old baby into night-care and went partying. In the next group session, the child sleeps for the entire three hours. This reflects powerfully what happens when the connections between mother, child and peers are broken. The therapists state how important it is to seek and find again the connection to the group and the therapists. In the following session, all the mothers wonder if a substance-addicted mother can be a good mother. During the sixth session, Cecilia tells of her fear of losing her baby, because she has been so unreliable. However, she now believes in herself more and enjoys being off drugs and being a mother. Cecilia uses gentle words, kisses her baby, sings and plays with her happy baby girl. The theme of this session is a mother’s experience of ‘getting drunk on being a mother instead of high on drugs.’

Psychic integration
There was scepticism around the idea of group psychotherapy with substance-abusing mothers. Drug-dependent clients often have difficulty remaining in treatment and the drop-out rate is high (Camp and Finkelstein, 1997; Luthar and Suchman, 2000). However, there were no dropouts in any of our six groups. The mothers themselves were surprised and enthusiastic about their new thinking and emotional experiences. They gradually became aware of their ability to integrate their past and present, conscious and unconscious mental states, feelings and thoughts. As we understand it, becoming a mother and enjoying both a widening space for their own emotional awareness and the care and safety of the group facilitated awareness and development.

The therapists frequently used group-as-a-whole interpretations when collecting together common themes. The interpretations worked as translations of the emotions and states of mind of both the infants and the mothers. Just as the mother does in the early months of an infant’s life, the therapists put the group’s desires, despair and fears into words, helping alleviate them. The integration of emotions, understanding and behaviour first occurs in the group and then it also becomes visible in the individual members (Foulkes and Anthony, 1990). For example, it may happen that in the first
sessions there is a shared split, with one member representing the good and the other representing the bad (Klein, 1984).

The breaking of habitual dysfunctional defences in a safe place is especially helpful for substance-abusing mothers. In the group they are capable of realising both their own unique and their shared reasons for substance abuse, which are often related to dysfunctional defences aimed at protecting them from painful experiences and conflictual feelings. This realisation often opens the road to experiential and emotional understanding of the reasons behind the drug abuse. In therapy one cannot change the past but with the help of mourning one can change one’s life narrative and feel that one can have better control of the mind and of life. With our mothers, the more time that had passed since the drug abuse, and the more flexibly the mother could use her ego defences, the more easily she could master her states of mind.

Input from other group members helped mothers to face painful memories. For example, in one group three mothers realised that they had experienced bullying in their school years, and eating disorders and panic attacks in their adolescence. They learned that these experiences had stuck in their minds, limiting their capacity to be available to their infants. The onset of the psychic integrative process involves feelings of security within the therapeutic setting. Some mothers had faced numerous losses and neglect, and therefore the end phase of group therapy had a particular meaning. It provided rich material for interpreting feelings of separation, loss, rage and abandonment (Molnos, 1995). We gave a lot of attention and time to the theme of separation towards the end of the group, and to the transitional period after the group. A specific individual follow-up plan was made with each mother’s immediate social network. In most cases one of the therapists continued to work with the mother and baby for three to ten months, until their life situation was more balanced and follow-up treatment had started. In the best case scenario, a mother enjoyed learning about herself, could mourn the past and could then reconstruct new representations of herself as a mother. Follow-up opportunities vary: day care centre, home help, family therapy, mother–child therapy, individual support or intensive psychotherapy. Combinations of these are also possible.

Clinical vignette no. 6

Emily describes the role of her drug use in youth as a medicine to anaesthetise her feelings. ‘When I had speed [amphetamines], I felt healthy. When I was not on drugs, and now afterwards, I felt that everything was sick: my mind, the whole world of narcotics, sex, being abandoned and abused and those horrifying memories and fears.’ She describes the nightmare of waking up clearheaded to chaos, realising that she had moved from being a problematic adolescent to the mother of a small baby. In that realisation she had to face her tormented internal self. She says: ‘New things come into my mind all the time and I am so confused by them. I know I am going where I can find my true self, but the help must be complete and long lasting. This is my last chance to repair those things that led me to use drugs. If I do not solve my problems, I will start using again and lose my baby.’
Conclusion

Analytic group therapy seems to be a promising form of therapy for those substance-abusing women who are able to commit to the group and form a treatment alliance. The selection criteria for the groups are of particular importance. Every group member should be sufficiently motivated to attempt to stop using drugs and work with the causes of her drug dependence. If the mother is still an active drug abuser, refuses urine analyses and/or uses strong denial and splitting defences, the resistance and negative transference in therapy may inhibit the work of the group (Bion, 1975) and even destroy the opportunities for other group members to make use of help. Drug relapses are, after all, common in groups where the members are in the recovery process. It is important that these members work on their relapse and accept the support of the group and the network.

We assume that the mothers’ strong commitment to the group process can be attributed to three issues: the therapists’ commitment, availability and faith in the participants’ mothering capacity; the symbolism of the group in terms of belonging and strength; and finally, the acknowledgement of concern for the well-being of the infant.

One of the therapists should also agree to remain involved with mother and baby, until they feel safe enough to leave and start work with the next worker. The ‘second attachment’ to the mother-group with its unique experiences helps the drug-dependent mother to find her valued self. She is in touch with her emotions and has experienced the start of a psychic integration process, the precondition for psychic growth.

The therapy group can function as a diagnostic assessment tool for detecting problems in early dynamics between the mother and infant. First, it can reveal how the mother was cared for in her early childhood. If this care was good enough, the mother can more easily enjoy her own motherhood and act as a good model for other mothers in the group. The more deprived the mother was in her early care, the more important it is that the peer group and therapists offer her a safe environment in which to learn new ways of interacting. Second, the group can uncover the gravity of the mother’s drug problem and her stage of recovery. Some of the mothers need temporary residential or outpatient care, during or after group therapy. Third, during the group process the mother may become more conscious of her own mental health problems and the need for medical and/or psychotherapeutic treatment. Finally, it is possible to observe and assess the infant’s emotional and physical development.

There has not been a follow-up study, but we are still in contact with the 15/16 group participants. The latest news concerning the mothers dates from spring 2006: one is dead, three have relapsed, eight are working or are in vocational training, two are at home with the children and two are temporarily out of work. Four mothers have given birth to a new child. In all, 11 of the 16 children are living with their mothers; two are with their fathers and three are in foster care.

Mother–infant group psychotherapy with substance-dependent mothers is a new area that needs further work and research. It is essential in order to understand the dynamics of the attachment relationship between the mothers and their infants, and to provide opportunities to enhance maternal reflective functioning (Reynolds, 2003).
As substance dependence is often comorbid with other diagnoses, it is necessary to understand the implications of maternal mental health.

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References


Transition to Parenthood Among Drug Abusing Mothers: Stressors, Supports, Coping and Mental Health

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Abstract: We examined the impact of drug abuse on prenatal resources (social support and coping strategies) and mental health problems (depressiveness, pregnancy distress and hostility), and analyzed whether they would differently predict postpartum mental health between drug abusing and non-abusing women. Drug abusing (n=44) and comparison (n=50) women participated in the second or third trimester (T1), and reported depressive and anxiety symptoms at four (T2) and 12 (T3) months postpartum. Results showed that drug abusing women had higher levels of prenatal depression, distress and hostility, and lower levels of social support, and coped more by using denial and avoidance and less with cognitive reconstruction than the comparison group. Prediction of prenatal resources and problems was somewhat group-specific: the prenatal depression predicted depressive symptoms, and cognitive constructive coping predicted low anxiety, especially in the drug abusing group. The findings emphasize the need for effective support for adequate coping strategies and early treatment of depression in drug abusing mothers in their transition to motherhood.

Key Words: Drug abuse, transition to parenthood, coping strategies, social support, depression, anxiety, hostility

Pregnancy is an important transition in a woman’s life, leading generally toward more maturity, but also signifying a severe crisis for

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many. Participants in our study are women whose pregnancies were shadowed by drug dependency and related risks. Distressed mothers easily project their emotional problems into the interaction with their infant (Stern & Bruschweiler-Stern, 1998), and it is therefore important to recognize risk factors already in pregnancy in order to prevent their transmission into motherhood. Our prospective study focused on prenatal mental health problems among drug abusing women and analyzed their impacts on depressive and anxiety symptoms postpartum. It is crucial to realize that pregnancy can also provide an opportunity for positive change, and accordingly we analyzed the role of social support and coping strategies in preventing symptoms among drug abusing mothers.

The psychological process of becoming a mother is often stressful and conflicting in conditions of substance abuse. Substance dependent women worry about the possible risks of the drug exposure on their infants (Mayes & Truman, 2002) and face an accumulation of social and psychological problems (Brady, & Sinha, 2005; Nair, Schuler, Black, Kettinger, & Harrington, 2003). A qualitative study by Brudenell (1997) revealed that women struggled and attempted to seek a balance between the identities of being a mother versus that of being an addict. During pregnancy they found new ways to recover from drugs and care for the fetuses’ health. However, their focus reverted from maternal identity into addict identity in the postpartum when the child was 4 – 11 months. The high risk of relapse among substance abusing mothers may have a connection with their fragile and conflicting, either negative or idealized, experiences and expectations of motherhood (Suchman, Slade, & Luthar, 2005), Substance dependent mothers give a high value to their new role and some of them expect the motherhood to repair their entire lives. At the same time they express deep fears of failing in motherhood and subsequently, of losing their baby (Belt & Punamäki, 2007).

There is evidence that substance abusing mothers are highly vulnerable to postpartum depression (Hans, 1999) and suffer from depressive symptoms already in pregnancy (Howell, Heiser, & Harrington, 1999; Pajulo, Savonlahti, Sourander, Helenius, & Piha, 2001). In a Finnish study 40% of pregnant substance abusing women in residential care screened positively for depression (Pajulo et al., 2001). Epidemiologic data confirms the high prevalence of mental health problems among substance dependent mothers (Ashley, Marsden & Brady, 2003; Johnson, Brems, & Burke, 2002). Conners et al. (2004) found a prevalence of 58% with mental health problems of depression and anxiety in a sample of 3000 mothers with long-term
substance abuse. Personality disorders (Haller & Miles, 2004) and bipolar affective disorders (Ashley et al., 2003) are also documented among drug abusing women. Psychiatric comorbidity is found to be more common among poly-substance users than among heavy alcohol drinkers (Kandel, Huang, & Davies, 2001). Furthermore, high levels (42%-84%) of sexual or/and physical abuse in childhood have been reported among substance abusing women (Freeman, Collier, & Parillo, 2002; Medrano et al., 2002), which often associates with increased risk for PTSD and other trauma-related psychiatric symptoms (Conners, Grant, Crone & Whiteside-Mansell, 2006; Hien, Cohen, Miele, Litt, & Capstick, 2004).

The accumulation of social, legal and economic stressors is common among substance abusing women (Knight, Logan Nair, & Simpson, 2001; Nair et al., 2003). Their pregnancies are often unplanned and they receive little social support from their partners or relatives (Pajulo et al., 2001b; Suchman et al., 2005). Their partners can be substance abusers themselves, behave violently and engage in criminal activities, which exacerbate spousal problems. In the study by Conners et al., (2004), 79% of family members of seriously substance dependent mothers were involved in substance abuse related activities. The social support received from partners and closest relatives can thus be counterproductive by actually increasing women’s drug abuse (Falkin & Strauss, 2003). Stressful and abusive relations are especially detrimental in pregnancy, when the mothers aim at rapidly recovering from drug addiction and try to learn a normal lifestyle in order to protect their children.

To deal with the accumulated mental health and social problems, drug abusing women would need highly effective coping capacities. However, the opposite seems to be true according to the research on coping strategies among drug abusers. Problem-focused coping, involving active initiative taking, constructive thinking and attempts to change or remove the sources of stress, is considered effective in attenuating mental health problems. On the contrary, emotion-focused coping strategies, consisting of distraction, daydreaming and escapism, are generally considered ineffective (Carver, Shayer, & Weintraub, 1989; Lazarus, 2000). These ineffective coping strategies in turn are common among drug abusers (Burns, Feaster, Mitrani, Ow, & Szapocznik, 2008). In a prospective community study students who used distraction, daydreaming and other avoidant coping strategies, were more likely to be cannabis users (Wills, Pierce, & Evans 1996). Substance abuse itself is sometimes understood as a consequence of unsuccessful and dysfunctional coping efforts that were aimed at
protecting oneself from painful memories and insecurity. Coping through avoidance and denial may have initially helped substance abusing women to regulate and endure painful emotions (Khantzian, 1985; Medrano et al., 2002). Conflicting feelings of helplessness and emotional venting were typically combined with avoidant coping among substance abusers (Najavits et al., 1996).

**Aims of the Study**

The first aim of the study was to examine how social support, coping strategies and mental health problems differ between drug abusing women and their comparison group in pregnancy. We hypothesized that drug abusing women would show higher levels of depressive, distressing and hostile symptoms and lower levels of social support and adequate coping strategies. The second aim was to examine whether resources (social support and coping strategies) and symptoms differently predict depressive and anxiety symptoms during the postpartum among drug abusing and comparison mothers. We hypothesized that drug abusing mothers are more vulnerable in the transition to motherhood than the comparison mothers (i.e., scarce prenatal resources and severe mental health symptoms predict postpartum mental health problems especially among drug abusers). The substances referred to in this study included illicit drugs, alcohol, tranquilizers and sleeping pills, anabolic steroids, sniffing medicaments and over-the-counter medicines.

**METHOD**

**Participants and Procedures of the Study**

Participants in the drug abusing group were recruited from two pregnant women interventions involving psychodynamic group therapy or psychosocial support at two outpatient Family Support Centers. All the pregnant women had a history of illegal drug use or poly-substance use. The comparison group consisted of women with medical risks recruited from a maternity clinic. The sample consists of 94 women, 44 belonging to drug abusing and 50 to comparison group, who participated in the second and the last trimester of pregnancy (T1) and when the child was 4 months (T2) and 12 months (T3). The original data were 106 women. Seven mothers were excluded from the drug abusing group, because they had given birth before T1 assessment. Three mothers were omitted due to insufficient criteria of substance use and 2 because of insufficient data. The dropout rates
were 8% (n=4) in the drug abusing and 12% (n=7) in the comparison group from T1 to T2, and respectively n=5 and n=6 from T2 to T3.

The drug abusing women were referred by the staff of two addiction psychiatry outpatient clinics and by social workers in outpatient clinics. Participation to both therapy and support interventions was on a voluntary basis. The comparison group mothers were recruited at a maternity outpatient clinic in southern Finland. They visited the clinic for medical risks such as gestational diabetes, abnormalities in ultrasound, or premature labor symptoms. Exclusion criteria were ever usage of illegal drugs (self-report and urine tests), and non-moderate consumption of alcohol during pregnancy. Smoking was not a criterion for exclusion criteria for either group.

At the T1 assessment, the staff in the outpatient Family Support Centers informed drug abusing women about the study before they participated either psychotherapeutic group therapy (PGT) or psychosocial support (PSS). Detailed descriptions of the interventions and their effectiveness will be reported elsewhere (Belt et al., personal communication). The staff in the maternity clinic recruited consecutive clients in their second and third trimesters to participate as a comparison group. In both groups the information included description of the purpose of the study (aiming at understanding psychosocial conditions in pregnancy and the transition to parenthood), the voluntary nature and procedure of the study. The future mothers who were willing to participate in the study signed an informed consent form and completed the T1 questionnaire at the following appointment. The T2 and T3 assessments were conducted by trained research assistants (students of psychology) at the women’s homes or in the outpatient Family Support Centers.

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.

Measures

Both drug abusing and comparison group women completed the same questionnaires at T1, T2 and T3. Questions concerning illegal drug abuse were not relevant for the comparison women, but served as a double check of the exclusion criterion.

Demographic factors at T1. The women provided the following information by marking the right alternative: Education (basic education including primary and secondary school, vocational
training, college and university education), employment (permanent work, unemployed, housewife, student or other) and marital status. Length of marriage/cohabiting and number of children were also elicited by an open-ended question. Economic situation was indicated by two questions focusing on difficulties paying bills (1= extremely difficult, 5= not at all difficult), and sufficiency of salary/money to cover monthly family maintenance (1= More than sufficient, 4= Not sufficient).

**Obstetric issues at T1.** First, women were presented with a list of 6 pregnancy-related medical problems and asked to indicate whether they had them (1= no, 2= yes: high blood pressure, high sugar level, bleeding, early labor pains, threatened miscarriage, and abnormalities in ultrasound). A sum variable was formed to indicate their occurrence, and ranging between 0-6. Second, women reported whether they earlier had experienced 5 other obstetric problems (miscarriage, extra-uterine pregnancy, abortion, infertility, or serious infection). Similarly, a sum variable was constructed from previous obstetric problems ranging between 0-5.

**Drug abuse at T1 and T2.** Drug abuse was assessed by presenting a list of 7 drugs and asking women in drug abuse group to indicate which they had used or experimented with (1=no 2=yes: marijuana, LSD; amphetamine, ecstasy, heroin, sniffing, medicaments, and other, e.g., buprenorphin). Further, they indicated how often they had used each drug by an open question. At T1 women reported their drug abuse before pregnancy, and whether it had changed during the pregnancy (1=no change, 2=decreased, 3= stopped and 4= increased). At T2 women reported the drug use after the child was born, and whether there had been changes in drug use after the child was born (1-4). They were further queried as to whether they had used intravenous drugs (1=no, 2=yes), substituted medication (1=no, 2=yes), or had been harmed by illegal drug abuse (1=no, 2=yes) at both T1 and T2.

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

**Depressive symptoms at T1, T2, and T3.** Depressive symptoms were measured by a 23-item questionnaire that consisted of the ten-item Edinburgh Postnatal Depression Scale (EPDS; Cox, Holden & Sagovsky, 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 involve descriptions of depression related feelings, thoughts and behaviors, and respondents answer on a 4-point scale (0-3) how well the description fits the severity and persistence of their symptoms. The time reference is the previous week. We extended the use of the EPDS in order to increase variation of depressive tendencies. The literature reports 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 & Murrell, 1983). Discrimination validity and split-half-reliabilities have also been found to be good for EPDS (Cox et al., 1987) and for CES-D (Radloff & Teri, 1986). In this study, average sum variables were constructed for depressiveness in pregnancy and at four months postpartum. Their reliabilities of Cronbach's were $\alpha = .91$ and $\alpha = .84$ respectively.

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

**Coping strategies at T1.** These were measured by a Lazarus Coping Model comprising avoidance, activeness, cognitive reconstruction and social domains of coping (Lazarus, 1993). The participants were asked to think of different ways of dealing with painful experiences: What do you do, feel and think when you have bad experiences? They were given four groups of descriptions: Denial and avoiding involved responses e.g. 'I do not think of the whole issue' and 'I deny that the bad has happened', and cognitive meaning-giving responses e.g. 'I attempt to understand what it is about' and 'I think about the reasons that led to what happened'. Active and constructive responses are e.g. 'I take care that nothing bad can happen again' and 'I collect all my energy and attempt to change things', and, finally, 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'. Participants responded to the four clusters as to how well the descriptions fit their typical thinking and
behaviour (1=not at all, 2= hardly, 3= fairly well, and 4= completely).

Anxiety symptoms at T2 and T3. These were assessed by a 17-item scale, including the seven items of the GHQ-Anxiety scale and seven items from the Beck Anxiety Inventory (BAI) (Beck, Ebstain Brown, & Steel, 1988). The GHQ-Anxiety scale describes feelings of being under constant pressure, worry and panicking, while BAI includes somatic indicator of anxiety such as fierce heart beating, hands sweating and headaches. Both scales have been found reliable and valid among Finnish adults (Punamäki, et al., 2006; Tuisku et al., 2006). The participants rated how often they had experienced each symptom over the past month on a 5-point scale ranging from 1 (Not at all) to 5 (All the time). The reliability of anxiety symptoms was $\alpha = .84$.

**RESULTS**

**Descriptive Statistics**

Table 1 shows that the drug abusing women had lower educational levels, poorer economic situations and more often unstable work than the women in comparison group. For instance, more than a half of drug abusing women had a basic education, while the corresponding share was 12% among comparison women. Only one drug abusing mother and about a fifth of the comparison group had a university degree. The groups also differed in their marital status: a fifth of the drug abusing and a half of the comparison women were married. The share of ‘other’ such as being widowed was exceptionally high among drug abusing mothers. Educational level, civic status and economic situation (indicated by difficulty of paying bills) are included as covariants in the subsequent analyses. Women were 22-42 years old ($M=34.98$, $SD=4.11$). There were no age differences between the groups ($t(94)= -0.91$, $p=ns$) and in the number of children.

Obstetric characteristics in drug abusing and comparison groups. The pregnancy weeks ranged between 22-41, the mean being $35.01\pm 4.08$. No differences were found between substance abusing and comparison groups in pregnancy weeks ($t(94)= 0.88$, $p=ns$) earlier obstetric complications ($t(94)= 0.50$, $p=ns$) and child birth weight ($t(94)= 0.39$, $p=ns$). Pregnancy-related obstetric problems were more common in the comparison group ($M=1.46+ 1.01$) than drug abusing ($M=0.77+ .96$) women ($t(94)= -3.35$, $p=.0001$).

Results revealed that *drug abuse behavior* substantially changed in transition to motherhood. All the drug abusing participants reported at T1 having used cannabis before pregnancy recognition,
nearly all (95.2%) had used amphetamine, 85% reported medical misuse (including tranquilizers), and about a half (47.5%) had taken heroin. Of the women 80.9% had taken drugs intravenously.

All drug abusing women reported changes in drug abuse during the pregnancy: 12% (n=5) had decreased usage and 88% (n=39) had stopped. At T2 postpartum, six (15%) of 40 drug abusing women reported illegal drug abuse and three reported using drugs intravenously. Almost one fourth of women reported receiving substitute medication.

Table 1
Percentages and frequencies of demographic and economic characteristics of drug abusing and comparison women

<table>
<thead>
<tr>
<th></th>
<th>Substance abuse</th>
<th>Comparison</th>
<th>$\chi^2$ value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Basic education</td>
<td>58.1</td>
<td>25</td>
<td>12.0</td>
</tr>
<tr>
<td>Vocational school</td>
<td>34.9</td>
<td>15</td>
<td>28.0</td>
</tr>
<tr>
<td>College studies</td>
<td>4.9</td>
<td>2</td>
<td>38.0</td>
</tr>
<tr>
<td>University degree</td>
<td>2.3</td>
<td>1</td>
<td>22.0</td>
</tr>
<tr>
<td>Work situation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Permanent work</td>
<td>11.6</td>
<td>5</td>
<td>60.0</td>
</tr>
<tr>
<td>Without work</td>
<td>44.2</td>
<td>19</td>
<td>6.0</td>
</tr>
<tr>
<td>House wife</td>
<td>32.6</td>
<td>14</td>
<td>12.0</td>
</tr>
<tr>
<td>Student</td>
<td>2.3</td>
<td>2</td>
<td>2.0</td>
</tr>
<tr>
<td>Other</td>
<td>9.3</td>
<td>4</td>
<td>20.0</td>
</tr>
<tr>
<td>Civic status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>22.7</td>
<td>10</td>
<td>50.0</td>
</tr>
<tr>
<td>Co-habiting</td>
<td>34.1</td>
<td>15</td>
<td>44.0</td>
</tr>
<tr>
<td>Single</td>
<td>18.2</td>
<td>8</td>
<td>4.0</td>
</tr>
<tr>
<td>Divorced</td>
<td>10.4</td>
<td>5</td>
<td>2.0</td>
</tr>
<tr>
<td>Other</td>
<td>13.6</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>Number of children</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>None</td>
<td>47.6</td>
<td>20</td>
<td>47.9</td>
</tr>
<tr>
<td>1</td>
<td>31.0</td>
<td>13</td>
<td>33.3</td>
</tr>
<tr>
<td>2-4</td>
<td>21.4</td>
<td>9</td>
<td>18.8</td>
</tr>
<tr>
<td>Difficulty of paying bills</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not at all</td>
<td>31.4</td>
<td>11</td>
<td>72.0</td>
</tr>
<tr>
<td>Somewhat difficult</td>
<td>62.9</td>
<td>22</td>
<td>24.0</td>
</tr>
<tr>
<td>Very difficult</td>
<td>5.7</td>
<td>2</td>
<td>4.0</td>
</tr>
<tr>
<td>Sufficiency of money</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sufficient</td>
<td>13.6</td>
<td>6</td>
<td>64.0</td>
</tr>
<tr>
<td>Moderately</td>
<td>56.8</td>
<td>25</td>
<td>28.0</td>
</tr>
<tr>
<td>Insufficient</td>
<td>29.5</td>
<td>13</td>
<td>8.0</td>
</tr>
</tbody>
</table>

Note: *** p < .001; **** p < .0001; N=94.
The differences in numbers are due to the missing values.
Table 2  
Means, standard deviations and ANCOVA statistics of support, coping responses, distress and psychiatric symptoms among drug abusing and comparison groups in pregnancy at T1

<table>
<thead>
<tr>
<th>Resources</th>
<th>Drug abusing group</th>
<th></th>
<th>Comparison group</th>
<th></th>
<th>Effect size</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$M$</td>
<td>$SD$</td>
<td>$M$</td>
<td>$SD$</td>
<td>$F$-values</td>
</tr>
<tr>
<td>Social support</td>
<td>4.24</td>
<td>.08</td>
<td>4.67</td>
<td>.09</td>
<td>12.04***</td>
</tr>
<tr>
<td>Coping strategies</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Denial and avoidance</td>
<td>2.22</td>
<td>.15</td>
<td>1.74</td>
<td>.14</td>
<td>4.48*</td>
</tr>
<tr>
<td>Cognitive meaning giving</td>
<td>3.11</td>
<td>.11</td>
<td>3.42</td>
<td>.10</td>
<td>3.98*</td>
</tr>
<tr>
<td>Active and constructive</td>
<td>2.88</td>
<td>.12</td>
<td>3.10</td>
<td>.11</td>
<td>1.50</td>
</tr>
<tr>
<td>Seeking social support</td>
<td>2.90</td>
<td>.14</td>
<td>3.13</td>
<td>.13</td>
<td>1.25</td>
</tr>
<tr>
<td>Symptoms</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pregnancy-related distress</td>
<td>2.15</td>
<td>.09</td>
<td>1.76</td>
<td>.08</td>
<td>8.49**</td>
</tr>
<tr>
<td>Depressive</td>
<td>0.90</td>
<td>.07</td>
<td>0.66</td>
<td>.06</td>
<td>5.51*</td>
</tr>
<tr>
<td>Hostility</td>
<td>2.27</td>
<td>.07</td>
<td>1.79</td>
<td>.07</td>
<td>18.07****</td>
</tr>
</tbody>
</table>

Note: $df = 1, 92$. Education, civic status, economic difficulties and pregnancy weeks at T1 are included as covariants.  
*p < .05, **p < .01, ***p < .001, ****p < .0001
Support, coping and mental health in pregnancy

The group differences in prenatal resources and symptoms at T1 were analyzed by one-way ANCOVAs, using education, marital status, economic status and gestation weeks as covariants. As hypothesized, Table 2 shows that drug abusing women reported a lower level of social support and higher levels of depressive and hostile symptoms and pregnancy-related distress than comparison women. Also, drug abusing women coped more often by denial and avoidance and less often by employing cognitive meaning-giving strategies when facing traumatic stress.

Of the covariants, marital status was significantly associated with social support (F(1,90) = 4.63, p < .03, \( \eta^2 = .05 \)), education with active coping (F(1,90) = 4.15, p < .05, \( \eta^2 = .05 \)) and seeking social support as coping (F(1,90) = 4.00, p < .05, \( \eta^2 = .05 \)), and economic difficulties with hostility symptoms (F(1, 90) = 4.64, p < .03, \( \eta^2 = .05 \)). We subsequently examined interactions between the group and significant covariant variables in order to see whether the hypothesized group effects were neutralized or sustained. Only the Group X Education -interaction effect on seeking social support as coping proved significant (F(1,83) = 2.78, p < .05, \( \eta^2 = .09 \)), indicating that in the substance abusing group low educational level was associated with low support-seeking coping, whereas in the comparison group education was not associated with social coping.

Prenatal predictors of postpartum mental health

Multiple hierarchical regression analyses were conducted to analyze how prenatal resources and symptoms at T1 predict depressive and anxiety symptoms postpartum at T2 and T3. In the first Step, prenatal depressive/distress symptoms were entered in order to control for the dependent variables. The group (dummy variable 0=Drug abusing 1=Comparison group) was entered in the second Step, the resources (social support and coping strategies) in the third and the symptoms (prenatal depressive/distress symptoms and hostility) were entered in the fourth Step. Because we hypothesized that the prenatal resources and symptoms would differently predict postpartum mental health among drug abusing and comparison women, we added the interaction terms between the group dummy variable and resources (Step 5) and symptoms (Step 6). All the predictors and interaction terms were first cantered, as suggested by Aiken and West (1991) in order to avoid multicolinearity.
Table 3  
*Multiple stepwise regression main effect and interactional models of prenatal resources and symptoms (T1) predicting depressive symptoms 4 (T2) and 12 (T3) months postpartum*

<table>
<thead>
<tr>
<th>Predicting variables</th>
<th>Postpartum 4 months (T2)</th>
<th>Postpartum 12 months (T3)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>△ R² β</td>
<td>Step 1 β</td>
</tr>
<tr>
<td>Step 1 Depressive symptoms T1</td>
<td>.27 ****</td>
<td>.52 ****</td>
</tr>
<tr>
<td>Step 2 Group (Drug=0; Comparison=1)</td>
<td>-.06 **</td>
<td>-.26 **</td>
</tr>
<tr>
<td>Step 3 Resources T1</td>
<td>.06</td>
<td></td>
</tr>
<tr>
<td>Social support</td>
<td>-.16</td>
<td>-.16</td>
</tr>
<tr>
<td>Denial &amp; avoidance coping</td>
<td>.01</td>
<td>.01</td>
</tr>
<tr>
<td>Cognitive reconstruction</td>
<td>-.17+</td>
<td>-.20*</td>
</tr>
<tr>
<td>Active and constructive</td>
<td>-.15</td>
<td>-.15</td>
</tr>
<tr>
<td>Seeking support</td>
<td>.03</td>
<td>.03</td>
</tr>
<tr>
<td>Step 4 Symptoms T1</td>
<td>.00</td>
<td></td>
</tr>
<tr>
<td>Pregnancy-related distress</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hostility</td>
<td>.05</td>
<td>.09</td>
</tr>
<tr>
<td>Step 5 Group X Resources - Interactions</td>
<td>.03</td>
<td></td>
</tr>
<tr>
<td>Step 6 Group X Symptoms - Interactions</td>
<td>.05</td>
<td></td>
</tr>
<tr>
<td>Regression models</td>
<td>F (17,64) = 3.49, p &lt; .0001; 48% explained</td>
<td>F (17,59) = 2.86, p &lt; .001; 45% explained</td>
</tr>
</tbody>
</table>

Note: The β-values of Steps 5 and 6 interaction effects between the group and resources and symptoms are not presented due to save place.  
Step 3 include the impact of all variables statistics represent figures at the final step, when all variables were entered into the equation  
+ p < .10  *p < .05  **p < .01  ***p < .001  **** p < .0001
Results in Table 3 reveal that the regression models were significant for depressive symptoms at T2 (48% variation explained) and T3 (45% variation explained). The significant main effect models (β-values of Step 4) indicate that depressive symptoms were most likely at T2 among women, who were depressive already in pregnancy, belonged to the drug abusing group and used low level of cognitive restructuring coping strategies. The predictors of T3 maternal depressive symptoms were somewhat different (β-values of Step 4): depressive symptoms were most likely among drug abusing women who used low levels of denial and avoidant coping strategies and had shown a high level of hostility.

The Group X Symptoms-interaction effect models were marginally significant for depressive symptoms at T2 (F(3,64) = 2.19, p=.09, R2 Change = 5%) and T3 (F(3,59) = 2.50, p = .06, R2 Change = 7%). Significant Group X Prenatal depressive symptoms –interactions were found both at T2 (β = -.33, t = - 2.21, p< .03) and T3 (β = -.42, t = - 2.60, p< .01). In accordance with the vulnerability hypothesis, Figure 1 illustrates that a high level of prenatal depressive symptoms predicted high postpartum depressive symptoms especially in the drug abusing group.

Figure 1. Group X Prenatal depressive symptoms –interaction effects on Depressive symptoms at 12 months postpartum
Table 4
Multiple stepwise regression main and interaction effect models of prenatal resources and symptoms (T1) predicting anxiety symptoms 4 (T2) and 12 (T3) months postpartum

<table>
<thead>
<tr>
<th>Predicting variables</th>
<th>Postpartum 4 months (T2)</th>
<th></th>
<th>Postpartum 12 months (T3)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ΔR²</td>
<td>β</td>
<td>β</td>
<td>β</td>
</tr>
<tr>
<td>Step 1 Pregnancy-distress T1</td>
<td>.30****</td>
<td>.50****</td>
<td>.40****</td>
<td>.40****</td>
</tr>
<tr>
<td>Step 2 Group (Drug=0; Comparison=1)</td>
<td>.11****</td>
<td>-.37***</td>
<td>-.38***</td>
<td>-.30***</td>
</tr>
<tr>
<td>Step 3 Resources T1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social support</td>
<td>03</td>
<td>03</td>
<td>03</td>
<td>03</td>
</tr>
<tr>
<td>Denial &amp; avoidance coping</td>
<td>-02</td>
<td>-03</td>
<td>-05</td>
<td>-05</td>
</tr>
<tr>
<td>Cognitive reconstruction</td>
<td>-17</td>
<td>-18+</td>
<td>-14</td>
<td>-15</td>
</tr>
<tr>
<td>Active and constructive</td>
<td>-02</td>
<td>-01</td>
<td>-01</td>
<td>-02</td>
</tr>
<tr>
<td>Seeking support</td>
<td>05</td>
<td>01</td>
<td>02</td>
<td>00</td>
</tr>
<tr>
<td>Step 4 Symptoms T1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depressive symptoms</td>
<td>06*</td>
<td>05</td>
<td>01</td>
<td>01</td>
</tr>
<tr>
<td>Hostility</td>
<td>.36**</td>
<td>.36**</td>
<td>.37**</td>
<td>.36**</td>
</tr>
<tr>
<td>Step 5 Group X Resources – Interactions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 6 Group X Symptoms – Interactions</td>
<td>.05</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regression models</td>
<td>F (17,64) = 4.83, p &lt; .0001; 57% explained</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>F (17,59) = 4.80, p &lt; .0001; 58% explained</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: The β-values of Steps 5 and 6 interaction effects between the group and resources and symptoms are not presented due to save place. Step 3 include the impact of all variables statistics represent figures at the final step, when all variables were entered into the equation + p < .10 * p < .05, ** p < .01, *** p < .001, **** p < .0001
Results in Table 4 show that the regression models were significant for anxiety symptoms at T2 (57% variation explained) and T3 (58% variation explained). The significant main effect models ($\beta$-values of Step 4) indicate that drug abusing women using low levels of cognitive coping strategies and showing high hostility were most likely to suffer anxiety symptoms when the child was four months (T2). The predictors of T3 (child 12 months) maternal anxiety symptoms were similar to depressive symptoms: drug abuse, low levels of denial and avoidant strategies (marginally) and high level of hostility.

Although the Group X Resources -interaction effect regression models were non-significant for anxiety symptoms at both T2 and T3, the significant Beta-value of the Group X Cognitive coping –interactions at T2 ($\beta = -.24, t = -2.54, p< .01$) indicated that a low level of cognitive reconstruction coping strategies predicted postpartum anxiety especially in the drug abusing women. Figure 2 illustrates that drug abusing mothers who used high level of cognitive reconstruction coping strategies showed similar level of T2 anxiety symptoms as comparison group.

Figure 2. *Group X Cognitive coping -interaction effects on Anxiety symptoms at 4 months postpartum*
DISCUSSION

We considered it important to study both negative and positive aspects in the lives of the drug abusing women during the crucial transition period to motherhood. The dual design captures the phenomenon that although pregnancy increases stress and risks among drug abusing women, it can also mean an opportunity for positive life-change and self-realization. We were especially interested in whether resources and symptoms differently predict postpartum mental health between the drug abusing and other mothers.

Similar to earlier studies (e.g., Nair et al., 2003), our results confirmed that substance abusing women have an accumulation of burdensome life circumstances. They reported more economic difficulties, lone mothering and low education than comparison group. Research has demonstrated that social support especially from a spouse and own mother is important in pregnancy and can prevent postpartum depression (Field, et al., 2003). The drug abusing women in our study lacked this support and caring, which meant a kind of vicious circle exists in their lives. Women who were the most urgently in need of help had the least opportunity to receive adequate support.

Our results substantiated a high level of depressive symptoms across the transition to motherhood among drug abusing mothers, thus concurring with the earlier findings of elevated depression prenatally (Howell, Heiser, & Harrington, 1999; Pajulo et al., 2001a) and postpartum (Pajulo et al., 2001b). Drug abusing mothers in our study reported more distress than comparison group involving worries about pregnancy, birth, the child and motherhood. They also had a considerably higher level of anxiety symptoms postpartum, which indicated accumulated vulnerability in early motherhood. Moreover, they expressed more hostility, including angry feelings, bitterness and urge to behave aggressively than the comparison women. We could not find earlier research on hostile feelings among pregnant substance abusing women, but clinical observations confirm the phenomenon. Stress and distress in pregnancy can mean a double risk for the future child, as maternal drug abuse can increase toxic impact on fetus development (Mayes & Pajulo, 2006) and maternal stress, depression and hostility contribute to unfavorable fetus development such as over activity, elevated heart rate and possible growth delays (Field et al., 2003).

Reducing maternal stress and hostility in pregnancy is further important, because parental hostility forms a risk for child abuse (Farc, Crouch, Skowronski, & Milner, 2008). Parental hostile-intrusive
behavior toward the infant is found to predict insecure and disorganized attachment styles (Lyons-Ruth & Jacobvitz, 1999) and developmental problems later in childhood (Nix et al., 1999). Our results specified that maternal hostility in pregnancy predicted anxiety symptoms postpartum when the child was four months and depressive symptoms when the child was 12 months. It would be therefore important to tailor treatments for substance abusing mothers that allows them to work through hostility and frustration already in pregnancy. Pregnancy-related distress did not predict mental health problems in transition to motherhood, indicating that focused and specific worries, anxieties and fears were not necessarily transferred into future, while more generalized feelings of anger and frustration do form a risk.

As another example of a vicious circle in risk mothers’ lives, our results revealed that drug abusing women lack effective coping resources. Their coping strategies involved less cognitive restructuring and more denial and avoidance than the coping non-abusers. This concurs with the arguments that substance abusers tend to deny and ignore traumatic experiences and avoid painful feelings (Khantzian, 1985; Medrano et al., 2002).

Drug abusing mothers showed higher depressiveness and anxiety than comparison women when their children were four and twelve months. The predictors of these symptoms were somewhat group-specific, which suggests the salience of unique underlying mechanisms among drug dependent mothers in their transition to parenthood. Consistent with our vulnerability hypothesis, prenatal depressive symptoms predicted postpartum depression among drug abusing women more persistently than among non-abusers. Against our vulnerability hypothesis, adequate coping resources, here cognitive strategies, were effective in preventing anxiety especially among drug abusing women. Their ability to mobilize prenatal resources can thus be crucial in preventing the transfer of mental health problems into the mother-child relationship. Our results are thus encouraging in showing that although substance abusing women had less access to resources in the face of the new demands of pregnancy, adequate coping strategies worked effectively among them.

The limitations of the study include a fairly small sample size, non-random assignment to the two intervention groups and self-reported mental health and substance usage. Mothers reported low substance consumption during and after pregnancy. Drug dependent mothers may underestimate their drug use (e.g., because the use is criminal and they have strong fears of losing custody of their children).
may therefore give more positive responses (Comfort et al., 2003; Suchman et al., 2005). Corroborating self-reports with the objective assessments such as urine drug screening would be recommended. The relatively low drop-out rate suggest that the mothers were motivated to participate in treatment, and were thus not representative of all substance abusing women. On the other hand, drug abusing mothers’ low dropouts are in the line with Luthar, Suchman, and Altomare (2007) who reported high retention rates in mothers’ short-term psychotherapy groups.

Our comparison mothers belonged to an obstetric risk group, and subsequently there were no significant group dissimilarities in the child’s birth weight or length. Generally the infants of substance abusing mothers have been found to be at risk of neonatal problems and low birth weight (Mayet, Groshkova, MacCormack, & Strang, 2008). Another explanation for normative neonatal status is the intervention including the reduction in substance abuse or abstinence from intoxicant substances. We have to keep in mind that the mothers in the comparison group apparently got less systematic psychological support than the drug abusing mothers participating in therapeutic and supportive interventions. Another interesting discovery is the high and fairly similar response rates postpartum between the intervention and comparison groups.

CONCLUSIONS

Early motherhood and a substance abuse problem make an exceptionally demanding combination, and there is a great need to develop intensive and accurately-focused clinical interventions that start during pregnancy. The aim of these interventions would be that as many mothers as possible could reach adequate interaction and parenting capacities with her child, and also remain the main caregiver for her child. However, it is very important to be realistic and fully aware of the particularly weak starting points that these mothers have, both in practical and in psychological spheres of life. At the same time, one should cherish the aspect of “hope” and be open to the possibility of change for the better. Individual differences among drug abusing mothers should be considered and the help should be tailored accordingly. The present study was an attempt to increase our knowledge of the psychological circumstances in which the drug abusing mothers and their babies start their shared lives, and how those circumstances differ from “ordinary” mother-baby dyads. Although preliminary, our findings encourage us to believe that it is
It is possible to reduce the transfer of negative burdens on mother-child interactions by helping the mother cope effectively and enjoy social and psychological support during the transition from pregnancy to postpartum.

References


ABSTRACT: The purpose of this controlled study was to examine the outcome of psychodynamic mother–infant group psychotherapy (PGT) outpatient intervention for drug-abusing perinatal mother–infant dyads. PGT comprised 20 to 24 weekly 3-hr sessions with 3 to 5 months of follow-up. A comparison intervention group was formed of mothers participating in individually tailored psychosocial support (PSS) lasting, on average, 12 months and providing mother–infant support and practical counseling. We hypothesized that positive changes would occur in maternal drug abuse, mental health, and mother–infant interaction, especially in the PGT group due to its more intensive therapeutic focus. Participants were 26 drug-abusing dyads in PGT, 25 in PSS, and 50 dyads in a non-drug-abusing comparison group. Assessments were pre-intervention and at 4 and 12 months’ follow-up, including maternal depressive symptoms and mother–child interaction assessed by the Emotional Availability Scales (EA). As hypothesized, in dyadic interaction maternal hostility decreased significantly in the PGT group, and intrusiveness decreased in both intervention groups, but especially in the PGT group. However, both interventions showed a general improvement in the quality of mother–infant interaction. They also succeeded in sustaining high maternal abstinence, treatment retention, and alleviating depressive symptoms. The findings are discussed in relation to preventing negative transgenerational interaction patterns in the high-risk dyads.

There is a call for treatment programs that not only identify and assess perinatal substance abusers but also motivate them to better prepare for motherhood. Research has shown that most substance-abusing women are willing to accept professional help to find a new identity as a successful mother rather than as a drug addict as far as appropriate treatment alternatives are available (Belt & Punamäki, 2007; Luthar, Suchman, & Altomare, 2007). The perinatal period poses a challenge for providing effective intervention programs for mother–infant dyads because addicted mothers often have a limited “time of soul-searching,” and the infants are at high risk for physical and emotional problems (Howell, Heiser, & Harrington, 1999; Tronick et al., 2005). The present study examines the success of two different interventions in helping these women to grow into motherhood and abandon drugs.

NEED FOR INTERVENTIONS FOR PERINATAL SUBSTANCE-ABUSING MOTHERS

There is no irrefutable evidence of the superiority of residential treatment or intensive outpatient care among substance-abusing
perinatal mothers (Howell et al., 1999; Uziel-Miller & Lyons, 2000). The content of treatment appears to be more important than the form it takes. The psychological needs of these women should be the basis of the programs (Howell et al., 1999; Luthar & Walsh, 1995; Nair, Schuler, Black, Kettinger, & Harrington, 2003) and be integrated with standard addiction treatment and parenting services in a synergistic way (Field et al., 1998; Niccols et al., 2010; Suchman et al., 2010). The most comprehensive and costly treatment interventions should address mothers with severe psychiatric problems (Hall et al., 1997; Ingersoll, Knisely, Dawson, & Schnoll, 2004). Mothers’ attachment deficits and traumatic experiences especially should be considered (Conners, Grant, Crone, & Whiteside-Mansell, 2006; Suchman et al., 2010) because early traumatic attachment patterns are easily activated in the perinatal period and transferred to the mother–child relationship (Main & Hesse 1990; Scheeringa & Zeahah, 2001).

Due to the severity of the psychological problems in this population, substance-abusing mothers need help especially in emotional interaction with their infants and toddlers (Jacobson & Jacobson, 2001; Mayes & Truman, 2002; Molitor & Mayes, 2010; Suchman, DeCoste, McMahon, Rounsaville, & Mayes, 2011). Compared to non-substance-abusing mothers, the parenting problems of substance-abusing mothers often include poorer sensitivity and generally weaker emotional availability (Fraser, Harris-Britt, Thakkallapalli, Kurtz-Costes, & Martin, 2010) as well as negative or maladaptive engagement with the infants (Johnson et al., 2002; Molitor & Mayes, 2010; Tronick et al., 2005). These problems also may manifest in maternal hostile and/or intrusive (Fraser et al., 2010; Johnson et al., 2002; Salo et al., 2010) or passive/withdrawal behaviors (Gottwald & Thurman, 1995), all of which are especially detrimental to the security of the infant (Main & Hesse, 1990, p. 163). Moreover, substance-exposed infants may be more challenging to care for because of their behavioral dysregulation and need for detoxification due to the neonatal abstinence syndrome (Bandstra et al., 2010). These infants often prove to be passive and withdrawn, and poor in responsiveness and initiation toward the mothers (Molitor & Mayes, 2010; Salo et al., 2010; Tronick et al., 2005).

Interventions aimed at substance-dependent mother–infant dyads should first “attach” these mothers to treatment so that they can decrease or stop their substance abuse. This may be possible by giving them positive and new relational experiences with other substance-free adults (Luthar et al., 2007; Suchman, Slade, & Luthar, 2005) and providing opportunities to succeed in the maternal role (Pajulo, Suchman, Kalland, & Mayes, 2006; Suchman et al., 2010). Second, the interventions also should offer the mothers a therapeutic context in which they can reflect on the past and present emotional experiences that led to substance abuse (Belt & Punamäki, 2007). Third, the interventions should help the mothers to regulate their own emotions and to adequately recognize and respond to their infants’ emotional cues and distress underlying their behavior; in other words, enhancing maternal reflective capacity (Molitor & Mayes, 2010; Pajulo et al., 2006; Suchman et al., 2010). Ultimately, interventions should prevent infant attachment disorders (Melnick, Finger, Hans, Patrick, & Lyons-Ruth, 2008; Swanson, Beckwith, & Howard, 2000).

TREATMENT COMPLETION, REDUCTION OF SUBSTANCE ABUSE, AND MENTAL HEALTH SYMPTOMS AS CRITERIA FOR INTERVENTION OUTCOME

Remaining in treatment and reduction of substance abuse are traditionally assessed as criteria for effective treatment outcome among substance-abusing mothers. Better treatment completion correlates with reduction in substance abuse and longer posttreatment abstinence (Conners et al., 2006; Howell et al., 1999). Some studies have shown that receiving parenting interventions increases maternal success in reduction of substance abuse (Catalona, Gainey, Fleming, Haggerty, & Johnson 1999; Ernst, Grant, Streissguth, & Sampson, 1999; Field et al., 1998; Suchman et al., 2010) and in treatment completion, especially if mothers have an opportunity to build a trusting relationship with a clinician (Suchman et al., 2010). Note that mother’s poor bonding experiences (Suchman et al., 2005) and exposure to childhood trauma, especially sexual abuse (Cosden & Cortez-ISON, 1999), have been found to diminish the likelihood of remaining in treatment. The severity of maternal psychiatric problems has been shown to be associated with treatment retention. For example, Haller et al. (1997) found that 66% of mothers (including perinatal women) with mild psychopathology, 45% of moderate psychopathology, and 29% of severe psychopathology were able to complete a 6-month residential treatment program.

Integrated treatment programs directing women’s attention to her motherhood may improve psychological functioning and mental health, with the assumption that the focus of a mother’s mind and brain reward system is transferred from drugs to the child and that she feels success in the maternal role (Niccols et al., 2010; Suchman et al., 2010). Some studies have found that mother–infant or mother–toddler interventions can decrease distress and depressive symptoms among substance-abusing mothers (Huebner, 2002; Field et al., 1998; Smith, Cumming, & Xeros-Constantinides, 2010; Suchman et al., 2010). The study by Field et al. (1998) showed a favorable, but not clearly sustainable (at 12 months), positive interaction effect on maternal depressiveness. The randomized pilot study by Suchman and colleagues (2010; Suchman et al., 2011) demonstrated that although an individual 12-week mother–infant/toddler intervention decreased maternal depressive symptoms more than did parent education, the opposite was found at the 6-week follow-up. Furthermore, brief peer-group psychotherapy among high-risk mothers and their infants decreased postnatal depression during the 12 months’ follow-up (Smith et al., 2010).

QUALITY OF THE PARENT–CHILD RELATIONSHIP AS A CRITERION OF INTERVENTION EFFECTIVENESS

In some studies, changes in the mother–infant relationship have been measured as an outcome of successful intervention among substance abusers (for a review, see Suchman, Pajulo, DeCoste,
Psychoeducational mother–infant interventions have shown improvement in parenting skills, although they have seldom succeeded in enhancing the actual quality of dyadic mother–infant interaction (Black et al., 1994; Huebner, 2002; Schuler et al., 2002; Schuler, Nair, Black, & Kettinger, 2000). However, a controlled study by Field et al. (1998) demonstrated that a 4-month preventive postnatal intervention could improve mothers’ ability to recognize their infants’ cues and to respond more adequately to their needs, as compared to mothers in the nontreatment control group. The findings indicated general improvement in mother–infant interaction at 3 months in the intervention group, and the positive effects were sustained until 12 months’ postpartum. Black et al. (1994) also showed that maternal responsiveness reached a higher level in the home visiting intervention group than it did in the comparisons (no home visits) at 18 months’ posttreatment. Furthermore, Huebner (2002) demonstrated an improvement in children’s responsiveness to the mothers at 8 weeks’ postenrollment on a short psychoeducational program.

Attachment and mentalization-based interventions, in outpatient treatment (Suchman et al., 2010; Suchman et al., 2011) and a residential intervention (Pajulo et al., 2012; Pajulo, Suchman, Kalland, Sinkkonen, & Mayes, 2008), have demonstrated improvements in substance-abusing mothers’ representational capacity and reflective functioning. Mothers who received 12-week individual therapy displayed higher reflective functioning, representational coherence, sensitivity, and optimal caregiving behavior toward their infants and young children than did mothers who received individual case management and parent education. Moreover, the 6-week follow-up group differences were sustained, and the children’s communication improved in the individual therapy group (Suchman et al., 2011). Some studies also have shown that participation in group therapy could improve mothers’ awareness of the risks of transferring the negative parenting patterns to the child, thus reducing child maltreatment, although the results were not long-lasting (Harwood, 2006; Luthar et al., 2007). A nonrandomized study by Smith et al. (2010) found that among high-risk mothers (which also included substance abusers) and their children under 27 months of age, the dyadic interaction improved in responsiveness more in a short-term, analytic-attachment-based group intervention than it did in the control group who received routine care. Dyadic responsiveness was operationalized as mutual attention, positive affects, turn-taking, maternal pauses, infant clarity of cues, and maternal sensitivity. Nevertheless, no previous research has compared psychodynamic group therapy and individually tailored treatment among perinatal substance-abusing mother–infant dyads.

**RESEARCH CONTEXT**

### Outpatient Substance-Use Treatment

During the last 10 years, psychoanalytic mother–infant therapy groups (PGT) for substance-abusing mothers have been held at two outpatient treatment units in Finland. A third-sector outpatient care unit was a part of a larger project of Päijät-Häme central hospital that involved developing a regional treatment model for pregnant substance-abusing women and a more systematic treatment-referral policy. The mother–infant group intervention model thereafter has been applied in the public child-welfare sector of social work in the city of Tampere. The units had close cooperation with child protection services. They focused on parental support from mother’s pregnancy to toddlerhood, early parent–child interaction, and child development within the context of parental substance abuse. Mothers were provided with a treatment network that included a social worker from the child protection agency, representatives from an addiction treatment unit (including substitute treatment) and a psychiatric clinic, a public health nurse, and usually a local family worker. The treatment contract was negotiated at the network meeting and also included drug-screening practices (urine analyses) and the consequences of possible positive results.

### PGT

This study examines the impact of PGT that consists of 20 to 24 weekly sessions for 5 to 6 months starting prenatally, each session with a duration of 3 hr. Therapy groups comprise three to four mother–infant dyads. In addition, one of the two therapists is available by telephone on weekdays between the sessions. The inclusion criterion for PGT is the mother’s motivation to examine her own internal world and to process the causes of her drug addictions. Practically, groups were formed every 6th or 12th month, and inclusion in the therapy group also was determined by the child’s birthday coinciding with the beginning of a new therapy group. The therapy proceeds with a loose structure with verbal instructions, lunch, and coffee. Otherwise, no educational guidance is provided. One of the two therapists is a trained group psychotherapist and also has experience in early dyadic interaction. The other cotherapist is a nurse or a counselor from an outpatient addiction-treatment unit. She has a greater responsibility for practical issues such as the connections to the network and arrangements for urine-screening tests. The group members are allowed in an emergency to have individual counseling with the therapists (for a more detailed description of the method, see Belt and Punamäki (2007) and Punamäki and Belt, in press).

The main healing elements consist of comprehensive experiences of security and appreciation. The mothers are helped first to be in touch with their own physical and psychological needs and expectations for soothing and care, which then makes it possible
for them to more clearly understand how their own behavior influences their infants. If the mother is preoccupied with her own emotional problems, she may easily transfer her disruptive and dysfunctional defenses to her interaction with the infant. Therefore, the therapist’s task is to act as a container and regulator of the mothers’ intolerable emotions by helping them to regulate their own emotions and to adequately recognize and respond to their infants’ emotional cues and distress (Molitor & Mayes, 2010; Pajulo et al., 2006; Suchman et al., 2010). First and foremost, the mothers are supported to find pleasure and to enjoy both normal everyday caring practices and the new motherhood (Pajulo et al., 2006; Suchman et al., 2011). The peer group provides opportunity to feel togetherness, train new modes of interaction, and share life histories and feelings, which are considered essential in launching a renewed attachment process (Harword, 2006; Luthar et al., 2007).

The aims of the PGT intervention are (a) to “attach” these mothers to treatment so that they can decrease or stop their substance abuse, (b) to offer the mothers a therapeutic context in which they can reflect on the past and present difficult emotional experiences (Conners et al., 2006; Suchman et al., 2010) so that (c) the negative interactional patterns (e.g., affect dysregulation, maternal insensitivity, and frightening behavior) might be prevented from transferring to the infant. The therapy group also can function as an assessment to detect problems and dynamics in the mother and the infant as well as their early interaction. After the end of group therapy, the therapist continues treating the mother–infant dyad for 3 to 6 months, until the follow-up treatment (the next professional) is able to start. During these appointments, the therapist writes a summary and reviews it with the mother. A precise individual plan is made collaboratively with the mother and her immediate social network.

Psycosocial Support Intervention (PSS)

PSS was an adjunct to standard outpatient treatments and provided various individually tailored treatment elements, but did not have a systematic weekly participation schedule. It usually lasted for more than 8 months and, on average, lasted 12 months. PSS started perinatally, focusing on the dyadic mother–infant relationship to enhance maternal well-being and to prevent disturbances in child development. The main idea of PSS was that each mother–infant dyad had one or two nurses or counselors who could commit to long-term support. They had participated in various educational courses and were experienced in the treatment of early relationship and substance abuse, but had no official competence in psychotherapy (individual, family, or group psychotherapy). Appointments were arranged according to the mothers’ needs once or twice per week at the outpatient units or at home.

Research Questions

Our first research question was how the two intervention groups, PGT and PSS, affect intervention completion and maternal drug abuse. We hypothesized that the systematic therapeutic elements and focus on maternal attachment and psychological needs in PGT would be associated with higher intervention retention and abstinence from drugs in the PGT group when compared with the PSS group.

Second, we examined whether the PGT and PSS interventions could decrease maternal depressive symptoms from pre-intervention (T1) through 4 months’ (T2) to 12 months’ (T3) postpartum and how the intervention groups differed from the non-drug-abusing comparison women. We hypothesized that maternal depressive symptoms would diminish in both intervention groups, but especially in PGT due to its systematic focus on maternal psychological needs and more intensive therapeutic elements.

Our third research question was whether the PGT and PSS interventions were able to improve the quality of the mother–child relationship from 4 months’ to 12 months’ postpartum and how the intervention groups differ from the non-drug-abusing comparison mother–infant dyads. We hypothesized that both interventions would improve the quality of dyadic interaction in maternal sensitivity, structuring, nonhostility, and nonintrusiveness as well as in child involvement and responsiveness because both aimed at helping parents in their early relations. However, we expected more positive changes in PGT than in PSS mother–infant dyads due to its focus on supporting mothers in the peer group to regulate their own emotions and to learn dyadic emotion recognition and regulation.

MATERIALS AND METHODS

Recruitment

The staff in two addiction outpatient psychiatry clinics identified pregnant women as needing treatment via their case histories, a positive drug screen, or self-report of drug/polydrug use after a long (>3 years) abuse history and referred them to the two outpatient treatment units (where the two interventions were available). The staff in these units informed participants about the two intervention options (PGT and PSS). Mothers could choose between the two treatment alternatives, but the inclusion criteria for PGT included some limitations. Practical and ethical considerations impeded the use of a randomized design to divide mothers into the two intervention groups. To provide appropriate services for all mothers in need of treatment, the principle was to respect every mother’s individual preference as much as possible.

The staff informed the women about the purpose of the study (i.e., learning about experiences in pregnancy and early motherhood) and its voluntary nature and procedure. Those perinatal women who were willing to participate in the study signed an informed consent form and were interviewed and completed the pre-intervention (T1) questionnaire at their following appointment. A research assistant was available to help them to understand and complete the questionnaire. Other assessments were at 4 months (T2) and at 12 months (postintervention follow-up, T3). The T2 and T3 assessments in both drug-abusing and comparison groups were conducted by trained research assistants (students of psychology who were blind to other data) at the women’s homes or...
and the whole study was carried out according to the provisions of Päijät-Häme Central Hospital and the City of Tampere, Finland. The study was approved by the Ethical Committees procedure was identical for both the drug-abusing and the comparison group. The exclusion criteria in the comparison group were reporting ever having used illegal drugs (more than testing), positive urine tests indicating abnormalities in ultrasound, or premature labor symptoms. The exclusion criteria in the drug-abusing group were having gestational diabetes, preeclampsia, or rapid onset of preterm labor. The sample was 101 Finnish mothers and their children (56.6% boys, 43.4% girls). Drug-abusing women participated either in PGT (n = 26) or PSS (n = 25) interventions. The comparison group consisted of 50 non-drug-abusing women. The flowchart of the study is presented in Figure 1. The original sample included 108 women, but in the drug-abuse groups, 2 mothers declined to participate, 3 did not fulfill the criteria for drug abuse, and 2 women had insufficient information. For 5 PGT and 2 PSS mothers, the T1 pre-intervention measure was completed after the birth of the child. None of the comparison mothers declined to participate.

Of the 26 mothers assigned to PGT, 20 (77%) remained in the study throughout the follow-up, and 22 (84%) completed the therapy intervention. Correspondingly, of the 25 mothers in PSS, 18 (72%) stayed in the study, and 20 (80%) completed the intervention. Thirty-nine (78%) of the 50 comparison mothers completed the study. No difference was found with respect to dropout rates between the two intervention (PGT and PSS) and comparison groups, χ²(2, 101) = 1.84, p = .40. Two children in PGT and 1 child in PSS were placed foster homes and 1 child (in both PGT and PSS) was in the custody of the fathers during the first year; they are included in the dropout rate.

The attrition analyses are based on comparisons between the T1 baseline participants (n = 101) and the noncompleters at both T2 and T3 (n = 24); that is, 77 women participated at all assessment points. Attrition was independent of a woman’s employment situation, χ²(4, 101) = 6.75, p = .15. parity, χ²(2, 97) = 1.21, p = .55, and economic status, t(98) = 1.15, p < .25. There was more attrition among mothers with lower educational level, χ²(3) = 14.66, p < .01, and with single marital status, χ²(4) = 16.04, p < .01. Depressive symptoms at baseline did not differ between dropouts and study participants, t(99) = −0.64, p < .53.

Measures

Both drug-abusing and comparison-group mothers completed the same questionnaires at T1, T2, and T3. Questions concerning illegal drug abuse were not relevant for the comparison women but served as a double check of the exclusion criteria.

Background characteristics were elicited by a questionnaire and included level of education, employment, economic status, marital status, and number of children. The response alternatives are presented in Table 1. The obstetric issues of the sample are described in detail in Rönnemaa, Pajulo, Posa, and Tamminen (2009).

Substance-abuse characteristics. The self-administered, semi-structured questionnaire was constructed to collect information about drug-abuse behavior. The women indicated on a list of eight illegal drugs which one(s) they had taken or experimented with [1 = no, 2 = yes: marijuana, LSD, amphetamine, ecstasy, heroin, sniffing medicaments, and other (e.g., buprenorphine)]. The polydrug-abuse variable referred to four or more drugs. At T1, the women reported their drug abuse before pregnancy and whether it had changed during pregnancy (1 = no change, 2 = decreased, 3 = stopped, and 4 = increased). At T2 and T3, women reported their drug abuse and whether there had been changes in it after the child was born (1–4). Further, they indicated how often and for how long they had been taking each drug by responding to an open question. Alcohol consumption was assessed using seven items of the Alcohol Use Disorders Identification Test (Saunders, Aasland, Babor, de la Fuente, & Grant, 1993).

Maternal pre- and postnatal depressive symptoms were measured at T1, T2, and T3 by a 23-item questionnaire consisting of the 10-item Edinburgh Postnatal Depression Scale (EPDS: Cox, Holden, & Sagovsky, 1987) and 13 items from the Center for Epidemiological Studies Depression Scale (CES-D: Radloff, 1977). Both the EPDS and the CES-D involve descriptions of depression-related feelings, thoughts, and behaviors, and respondents answer

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Figure 1. Flowchart.
on a four-point scale (0–3) how well the description fits the severity and persistence of their symptoms. The time reference is the previous week. The literature has reported sufficient internal consistencies for the EPDS (Cronbach’s $\alpha = .87$; Cox et al., 1987) and for the CES-D ($\alpha = .85–.91$; Himmelfarb & Murrell, 1983). Discriminative validity and split-half reliabilities also have been found to be good in the EPDS (Cox et al., 1987) and for CES-D (Radloff, 1977). In this study, average sum variables were constructed for depressive symptoms at T1 (Cronbach’s $\alpha = .91$) T2 ($\alpha = .84$), and T3 ($\alpha = .83$). We extended the use of the EPDS to increase the variation in depressive symptoms, evaluate more aspects of depression, and reduce mono-method bias. Mosack and Shore (2006) also recommended combining the EPDS and the CES-D into an instrument that casts a wider net to identify depressive mode at different stages of mothering.

**Parent–infant interactions.** As shown in Table 1, dyadic interaction lasting 7 to 10 min was assessed and coded at T2 and T3 with the Emotional Availability Scales (EA; Biringen, 2008), fourth edition (with subscales). The mother was asked to play with the baby as usual, and the play material consisting of a ball, blocks, mirror, doll, and teddy bear was provided. The mother–child interaction was evaluated on four maternal scales (Sensitivity, Structuring, Nonintrusiveness, and Nonhostility) and two child scales (Responsiveness to Mother and Involvement of Mother), all on 7-point scales (e.g., 1 = highly insensitive; 2.5/3 = somewhat insensitive; 4 = inconsistently sensitive/apparently sensitive; 5.5/6 = bland sensitive; 7 = highly sensitive). The clinical cutoffs are 5 points, showing that scores under 5 indicate risk and scores over 5 indicate normal interaction. **Sensitivity** refers to mother’s balanced and genuinely positive affect; awareness of her infant’s cues; and appropriate, well-timed responsiveness to them; acceptance of the infant; and negotiation skills in conflict situations. **Structuring** refers to mother’s ability to structure or scaffold the infant’s environment and play. **Nonintrusiveness** refers to the degree to which the mother can be available without interfering with the infant’s autonomy and space. **Nonhostility** refers to maternal behavior that is free of impatience, harshness, and/or malice. **Child Responsiveness** describes how well the infant responds to maternal bids and expressions. **Involvement** refers to the degree to which the infant invites the mother to interact with him- or herself. The interaction quality was assessed by the second author, who was trained by Zeynep Biringen and is a reliable coder of EA. Ten percent of the videos, randomly selected, also were coded by another reliably trained coder. At the time of coding, both coders were blind to maternal drug-abuse status and other background information. The interrater reliabilities (Pearson’s $R$) at T2 ranged from .82 to .97, and at T3 ranged from .85 to .97. The differences were negotiated. Eight of the videos that proved most difficult to score were jointly coded with the method trainer (Z. Biringen). The coders were blind to treatment assignment.

**Statistical analyses.** First, one-way multivariate analysis of covariance (MANCOVAs) with Tukey’s $b$ post hoc analyses were applied to compare the EA scores of the intervention groups and the comparison group at T2 and T3. If there were significant differences in pre-intervention depressive symptoms and in EA scores at T2 between the PGT and PSS intervention groups, the scores were controlled in subsequent analyses. Second, repeated measures MANCOVAs with univariate statistics were used to examine the impact of the PGT and the PSS interventions on changes in mothers’ depressive symptoms from the 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. The group (PGT, PSS, and comparison) was the independent variable, and depressive symptoms and six EA scales were the dependent variables. Marital status, education, economic status, and age were used as covariates in all analyses because the substance-abusing and comparison groups differed significantly on these characteristics. The two drug-abusing intervention groups (PGT and PSS) did not differ in demographic factors, and thus multivariate analysis of variance (MANOVA) was applied to compare changes in their substance-abuse severity. Associations between categorical demographic and drug-abuse variables were analyzed by chi-square $\chi^2$ tests. SPSS-15 software (SPSS Inc., Chicago) was used in all statistical analyses.

**RESULTS**

**Demographic and Substance-Abuse Characteristics**

The percentage distribution of demographic variables at pre-intervention is presented in Table 1 for women enrolled in the PGT, the PSS, and the comparison groups. Significant group differences show that the drug-abusing intervention groups had a lower level of education and lower economic status than did the comparison women. The drug-abusing women were more often single (17–19%) than were the comparison mothers (4%). The drug-abusing women were younger ($M = 25.53 \pm 4.16$ years) than were those in the comparison group ($M = 29.24 \pm 5.02$ years), $t(98) = 4.05$, $p < .001$. The two drug-abusing groups were similar in all these variables.

Table 1 shows that taking hard illicit drugs and polydrug abuse were commonly reported at pre-intervention (T1) in both intervention groups. Nineteen (73%) women in the PGT group and 20 (80%) women in the PSS group, $F(1, 50) = 0.83$, $p = n.s.$, reported having used at least four of the eight illegal substances asked about regularly and for a long time (3–16 years). PGT mothers ($n = 44$) more often reported excessive alcohol consumption before pregnancy confirmation than did PSS mothers, $\chi^2 = 14.01$, $p < .01$. All women in both groups reported having stopped or significantly decreased their use of illegal drugs during pregnancy.

**Intervention Effects on Treatment Completion and Substance Abuse**

Our first research question was how the PGT and PSS intervention groups affect intervention completion and abstinence. The treatment commitment was high in both intervention groups (84 vs. 80%, respectively). Thus, the hypothesis that the group therapeutic...
context (PGT) would provide higher commitment than would PSS was not substantiated.

Our hypothesis concerning the superiority of the PGT over the PSS intervention was not supported concerning the changes in drug abuse, which showed a considerable decrease in both intervention groups from T1 to T2, and sustaining until T3. The results in Table 2 show that about 80% of those who remained in the study in both intervention groups reported being abstinent during the entire intervention period. Twenty (77%) of the PGT group and 18 (72%) of the PSS group mothers reported that they had given urine samples before the delivery, and 18 (78.2%) versus 17 (77%) mothers did so after the child was born. At all assessment points, there were more mothers on substitute medication in the PSS group than in the PGT group, but the differences were statistically nonsignificant. At T3, mothers in the PGT group reported more occasional use, but again, the difference was not significant. Concerning alcohol consumption at T2 (4 months’ postpartum), 10 (40%) mothers in both intervention groups reported consuming small amounts of alcohol. Moreover, 3 PSS mothers and 1 PGT mother reported that their newborn child had been in opioid detoxification.

### Intervention Effects on Maternal Depressive Symptoms

Our second research question concerned whether the PGT and PSS interventions could alleviate maternal depressive symptoms. Our hypothesis was not supported concerning PGT intervention effectiveness in relation to that of PSS. The interaction effect between group and change in depressive symptoms was not significant. The results in Figure 2 show that depressive symptoms significantly and linearly decreased from pre-intervention (T1) through 4 months’ postpartum (T2) to follow-up T3 in all groups, $F_{\text{Wilks' } A}(2, 67) = 5.90, p < .004, \eta^2 = .15$. The significant between-subjects ANCOVA, $F(2, 67) = 4.52, p < .01, \eta^2 = .12$
TABLE 2. Self-Reported Drug Abuse in the Psychodynamic Group Therapy (PGT) and Psychosocial Support (PSS) Intervention Groups at Pre-Intervention (T1), at 4 Months’ Postpartum (T2), and at the 12-Month Follow-Up (T3)

<table>
<thead>
<tr>
<th></th>
<th>Pre-Intervention (T1)</th>
<th>4 Months’ Postpartum (T2)</th>
<th>12-Month Follow-Up (T3)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PGT (n = 26)</td>
<td>PSS (n = 25)</td>
<td>PGT (n = 23)</td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Illegal Drug Use</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Occasional drug abuse</td>
<td>19.2</td>
<td>5</td>
<td>8.0</td>
</tr>
<tr>
<td>Intravenous use(^a)</td>
<td>69.2</td>
<td>18</td>
<td>83.3</td>
</tr>
<tr>
<td>Substitute medication</td>
<td>7.7</td>
<td>2</td>
<td>24.0</td>
</tr>
<tr>
<td>Abstinence(^b)</td>
<td>80.8</td>
<td>21</td>
<td>88.0</td>
</tr>
</tbody>
</table>

Note. Differences in the distributed cases are due to missing values.
\(^a\)At T1, data were based on women’s reports before pregnancy was recognized.
\(^b\)Contradictory reporting: The same women reported having stopped drug abuse.

revealed that the PGT group had higher levels of depressive symptoms than did both the PSS and comparison groups at all assessment points. Of the covariates, economic hardship proved significant. The repeated measures MANOVA for depressive symptoms was rerun with the interaction term between the dichotomized economic difficulties and change. The significant change effect was sustained, \(F_{\text{Wilks}}'s \Lambda(2, 70) = 10.74, p < .0001, \eta^2 = .23\), while the economic and change interaction terms did not reach statistical significance.

**Intervention Effects on Quality of Mother–Child Interaction**

Our third research question was whether the PGT and PSS interventions could improve the quality of the mother–infant relationship and how the drug-abusing groups differed from the non-drug-abusing comparison group. Table 3 presents the means and standard errors of EA mother and infant scores at 4 months’ postpartum (T2) and at the 12-month follow-up (T3). The significant \(F\) values and post hoc analyses revealed that the drug-abusing groups differed from the comparison group in all EA scores at T2, but there were not significant differences between the PGT and the PSS. At T3, the substance-abusing groups differed from the comparison group in all but Nonintrusive and Nonhostility EA scores. The covariates were not significant.

Significant Group \(\times\) Change MANCOVA interaction effects were found on maternal nonhostility, \(F_{\text{Wilks}}'s \Lambda(2, 67) = 5.14, p < .008, \eta^2 = .14\), and nonintrusive \(F_{\text{Wilks}}'s \Lambda(2, 67) = 3.10, p < .05, \eta^2 = .08\) interaction behaviors, indicating intervention effectiveness. Figure 3a illustrates, as hypothesized, that a significant increase in maternal nonhostile behavior from T2 to T3 was found in the PGT group whereas no positive change was observed in the PSS group. Further, Figure 3b reveals that nonintrusive maternal interaction behavior increased in both drug-abusing intervention groups, but especially in the PGT, as hypothesized.

The significant main effects indicate a general increase in maternal sensitivity, \(F_{\text{Wilks}}'s \Lambda(1, 70) = 16.87, p < .0001, \eta^2 = .19\), structuring, \(F_{\text{Wilks}}'s \Lambda(1, 70) = 5.93, p < .02, \eta^2 = .08\), as well as in child responsiveness, \(F_{\text{Wilks}}'s \Lambda(1, 67) = 4.56, p < .04, \eta^2 = .07\).
and child involvement, $F_{\text{Wilks}}\Lambda(1, 70) = 21.35$, $p < .0001$, $\eta^2 = .23$, from T2 to T3. Thus, similar to the comparison groups, these positive mother–infant interaction patterns increased in both drug-abusing groups. The nonsignificant Group × Change interaction effects defeat the hypothesis of the PGT group’s more beneficial changes concerning the EA scores (i.e., maternal sensitivity and structuring, and child responsiveness and involvement). Table 3 and Figure 3a and 3b illustrate instead that nonhostility in the PGT intervention group reached the same level as that in the comparison group, and the level of nonintrusiveness approached that of the comparison group.

The covariates were nonsignificant in the repeated measures MANCOVAs on all EA scores except education for maternal non-hostile behavior. New analysis including a dichotomized education variable (basic education vs. vocational studies) sustained the result on the significant increase of nonhostility in the PGT group, and the level of nonintrusiveness approached that of the comparison group.

Because the PGT and PSS intervention groups differed significantly in their depressive symptoms at pre-intervention T1, we reran the repeated measures MANCOVAs on the EA scores from T2 to T3 using T1 depressiveness as an additional covariant. The results substantiated the earlier Group × Change interaction effects, thus suggesting that the nonhostility increased only in the PGT group, $F_{\text{Wilks}}\Lambda(1, 62) = 4.99$, $p < .01$, $\eta^2 = .15$, and nonintrusiveness especially in the PGT group, $F_{\text{Wilks}}\Lambda(1, 62) = 4.06$, $p < .02$, $\eta^2 = .12$, as hypothesized when controlling for their depressive symptoms.

**DISCUSSION**

In this controlled longitudinal study, we examined the treatment outcomes of PGT, a 20- to 24-week outpatient intervention for perinatal drug-abusing mothers. We compared intervention completion and changes in substance abuse, depressive symptoms, and mother–infant interaction with drug-abusing mother–infant dyads who received individually tailored PSS. Our hypothesis that the PGT intervention could be more successful than could PSS was substantiated only concerning mothers’ hostile and intrusive interaction patterns with the infant. The quality of mother–infant interaction in the PGT intervention reached the same level as the non-substance-abusing comparison dyads at T3 concerning nonhostility and approached the level of nonintrusiveness. Contrary to our hypothesis, both interventions were successful in treatment completion and maintaining maternal abstinence, and in alleviating depressive symptoms. In addition both enhanced the quality of mother–infant dyadic interaction during the first year of the child, similar to the comparison dyads. The results thus show substance-dependent mothers’ powerful natural motivation to grow into motherhood and to abandon drugs, when adequately supported.

**Intervention Completion, Reduction in Drug Abuse, and Mental Health**

The high completion rate (∼80%) in the present study corroborates earlier studies that have shown that the consideration of

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**TABLE 3. Mother–Child Interaction Quality (Emotional Availability, EA) in the Psychodynamic Group Therapy (PGT) and Psychosocial Support (PSS) and Comparison Groups at 4 Months’ Postpartum and at the 12-Month Follow-Up**

<table>
<thead>
<tr>
<th></th>
<th>PGT M</th>
<th>SE</th>
<th>PSS M</th>
<th>SE</th>
<th>Comparison Group M</th>
<th>SE</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mother</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sensitivity</td>
<td>3.24a</td>
<td>.29</td>
<td>3.02a</td>
<td>.35</td>
<td>4.56b</td>
<td>.22</td>
<td>7.28***</td>
</tr>
<tr>
<td>Structuring</td>
<td>3.70a</td>
<td>.26</td>
<td>3.47a</td>
<td>.32</td>
<td>4.70b</td>
<td>.20</td>
<td>4.76**</td>
</tr>
<tr>
<td>Nonintrusiveness</td>
<td>3.10a</td>
<td>.32</td>
<td>3.16a</td>
<td>.40</td>
<td>4.74b</td>
<td>.25</td>
<td>6.93**</td>
</tr>
<tr>
<td>Nonhostility</td>
<td>4.52a</td>
<td>.31</td>
<td>5.06a</td>
<td>.37</td>
<td>5.98b</td>
<td>.23</td>
<td>3.67*</td>
</tr>
<tr>
<td><strong>Child</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Responsiveness</td>
<td>3.17a</td>
<td>.30</td>
<td>3.01a</td>
<td>.37</td>
<td>4.51b</td>
<td>.23</td>
<td>6.90**</td>
</tr>
<tr>
<td>Involvement</td>
<td>3.24a</td>
<td>.30</td>
<td>2.67a</td>
<td>.37</td>
<td>4.06b</td>
<td>.23</td>
<td>4.53**</td>
</tr>
<tr>
<td><strong>12-Month Follow-Up (T3)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sensitivity</td>
<td>4.04a</td>
<td>.23</td>
<td>3.94a</td>
<td>.28</td>
<td>4.99b</td>
<td>.17</td>
<td>8.54***</td>
</tr>
<tr>
<td>Structuring</td>
<td>4.16a</td>
<td>.23</td>
<td>4.10a</td>
<td>.28</td>
<td>4.91b</td>
<td>.18</td>
<td>5.67**</td>
</tr>
<tr>
<td>Nonintrusiveness</td>
<td>4.33</td>
<td>.30</td>
<td>3.61</td>
<td>.37</td>
<td>4.73</td>
<td>.24</td>
<td>2.64</td>
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<tr>
<td>Nonhostility</td>
<td>5.43</td>
<td>.29</td>
<td>5.05</td>
<td>.35</td>
<td>5.42</td>
<td>.21</td>
<td>0.53</td>
</tr>
<tr>
<td><strong>Child</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Responsiveness</td>
<td>3.99a</td>
<td>.23</td>
<td>4.00a</td>
<td>.29</td>
<td>4.97b</td>
<td>.18</td>
<td>8.21***</td>
</tr>
<tr>
<td>Involvement</td>
<td>3.91a</td>
<td>.25</td>
<td>3.92ab</td>
<td>.31</td>
<td>4.71b</td>
<td>.19</td>
<td>5.49**</td>
</tr>
</tbody>
</table>

*Note. PGT = Psychodynamic group psychotherapy; PSS = Psychosocial support. The means are based on repeated measures MANCOVAs Wilks’s $\Lambda$ across T2 and T3, with marital status, education, and economic status as covariates. The means with different subscripts significantly differ from each other (Tukey’s b post hoc tests; $p < .05$). F values are based on one-way univariate ANCOVAs on covaried EA scores at T2 and T3 with the same covariants as in the repeated measures. MANCOVA F values are reported in the text.*
Figure 3. Changes in (a) maternal nonhostility and (b) maternal nonintrusiveness EA scales from 4 months’ postpartum (T2) to the 12-month follow-up (T3) in the PGT and the PSS intervention and comparison groups.

Substance-abusing mothers’ specific needs and wishes contribute to treatment completion (Pajulo et al., 2012; Suchman et al., 2011), and the use of parenting interventions and emphasis on the therapeutic alliance (Suchman et al., 2010; Suchman et al., 2011). We propose that a precondition for success might be that the mothers could make a choice between two different kinds of treatment alternatives, and they could evolve a secure-based relationship with the familiar clinicians in both of these interventions. Note that these mothers did not get any reimbursement for study participation or transportation to the treatment. Further, pregnant women and mothers of small children may be better motivated to participate in treatment programs while sharing with other substance-abusing women (Grella, Joshi, & Hser, 2000; Haller, Knisely, Elswick, Dawaon, & Schnoll, 1997). The completion rate of 80% in our study is encouraging when considering less optimistic findings that have shown that at most only half of pregnant or drug-taking mothers of small children are able to commit to treatments (Grella et al., 2000; Strantz & Welch, 1995; Volpicelli, Markman, Monterosso, Filing, & Brien, 2000).

Mothers in both intervention groups (PGT and PSS) reported having stopped or markedly decreased their drug abuse before the intervention, and most of them reported remaining abstinent during the intervention through follow-up. PSS participants reported less occasional drug use, although they were more often on opioid-substitution medication than were the PGT mothers. The difference may be explained partly by the self-selection of the groups. The mothers in the PGT group were more willing to explore their drug-abuse history and probably were more negative toward medication. In Finland, buprenorphine is commonly used as a replacement medicine for opioid abusers, but also has become the most commonly abused opioid drug (see Salo et al., 2009). The findings are in accordance with some
earlier studies that have shown that perinatal substance-abusing women may report high levels of abstinence from illegal drugs after outpatient treatment (82%; Field et al., 1998) or residential treatment (68%; Namyniuk, Brems, & Clarson, 1997); however, a number of reports also have shown higher ongoing drug abuse at follow-up of perinatal outpatient interventions (57%; Black et al., 1994) and residential treatment (51%; Conners et al., 2006).

Pregnancy confirmation before the intervention was the most effective motivation to stop taking substances (with 46.2% in the PGT group and 44.0% in the PSS group reported having stopped), and the result is consistent with previous studies (e.g., Tough, Tofflemire, Clarke, & Newburn-Cook, 2006). We assume that the high abstinence during pregnancy may be explained partly by the effective system in regional social and health care which was able to identify these mothers early enough and to refer them to treatment. In addition, maintaining the high level of abstinence may be due to the voluntary participation and the strong commitment to the interventions.

The results of the present study concur with earlier findings of substance-abusing mothers’ exacerbated depressive symptoms in the prenatal period (Fraser et al., 2010; Howell et al., 1999; Pajulo, Savonlalti, Sourander, Helenius, & Piha, 2001) and postpartum (Field et al., 1998; Fraser et al., 2010; Oei et al., 2009) compared to those of non-abusing mothers. As also reported by Field et al. (1998), maternal depressive symptoms decreased in both drug-abusing groups. The general reduction of depressive symptoms may at least partly reflect a normative tendency, as a less marked, but parallel, tendency for symptom reduction also was present in the non-drug-using comparison group.

The PGT mothers had significantly more severe depressive symptoms at baseline than did mothers in the PSS intervention, and the difference persisted through all assessment points, which was contrary to our hypothesis. The explanation for the more severe pre-intervention symptoms of PGT mothers may be the goals of the psychotherapeutic intervention; it may be that mothers who were more needy and aware of their mental problems opted for the PGT alternative. On the other hand, a mother who is emotionally in touch with her painful experiences may be more protective of her infant than is a mother who denies her emotions (Hughes, Turton, McGauley, & Fonagy, 2006). Although depressive symptoms decreased both in PGT (the more therapeutic approach) and in PSS (the supportive approach) mothers, the underlying mechanism may differ. It is possible that mothers in the PSS group actually denied their emotional pain and gave less reflective self-reports. The speculation is supported by a finding based on the same data (Flykt et al., 2012) which showed that the PSS mothers were more idealizing than were the PGT mothers. Other researchers have documented timing differences in symptom reduction according to the degree of therapeutic and supportive elements in the interventions. Suchman et al. (2010) found that depressive symptoms decreased immediately in the mother–infant/toddler group whereas in the long run, the study by Field et al. (1998) showed that in the more supportive parenting training group, the difference in depressive symptoms between the drug intervention and drug control groups diminished at 12 months’ follow-up.

**Mother–Infant Interaction**

In the present study, consistent with the earlier literature (e.g., Fraser et al., 2010; Salo et al., 2010), substance-abusing mothers and their infants reflected poorer interactional quality on overall EA dimension than did those in the non-drug-abusing comparison group when assessed at 4 months’ postpartum. However, the difference between the high-risk substance-dependent and comparison mothers diminished from 4 months’ to 12 months’ postpartum, and both interventions (PGT and PSS) showed a significant general improvement in the quality of mother–infant interaction (maternal sensitivity and structuring as well as child responsiveness and involvement). The results concur with a few earlier studies that have reported a general improvement in mother–infant interaction due to postnatal intervention, the results of which persisted through the 12-month follow-up (Field et al., 1998; Smith et al., 2010). Moreover, a recent randomized study by Suchman and colleagues (2010; Suchman et al., 2011) demonstrated more improvement in maternal caregiving behavior among substance-abusing mothers in a mentalization-based intervention than among those receiving a traditional parenting training intervention. The group difference was sustained at 6-weeks’ follow-up (Suchman et al., 2011).

The most compelling finding in the present study was the partial confirmation of our hypothesis that the PGT intervention could be more successful in improving the dyadic interaction pattern concerning maternal hostility and intrusiveness. It therefore is noteworthy that the hostility of the PGT mothers attenuated to the normative level of nonabusing comparison mothers. The intrusiveness decreased in both intervention groups, but especially in PGT. The findings are encouraging because these parental negative behaviors are especially characteristic of drug-abusing mothers and are detrimental to child development (Fraser et al., 2010; Johnson et al., 2002; Salo et al., 2009; Salo et al., 2010; Swanson et al., 2000). For example, Fraser et al. (2010) demonstrated that almost two thirds of substance-abusing mothers behaved intrusively, and many also showed covertly/overtly hostile behavior (43%) toward their infants. Parental hostile and intrusive behaviors may be frightening for the infant and directly disturb the child’s crucial developmental task to explore the environment. These parental behaviors may be detrimental to the child’s coping capacity and forming secure attachment (Bakermans-Kranenburg, van IJzendoorn, & Juffer, 2005; Swanson et al., 2000) and predispose the child to externalizing symptoms (Mäntymaa, Puura, Luoma, Salmelin, & Juffer, 2004). Moreover, drug exposure may increase an infant’s vulnerability when facing these risky maternal behaviors (Swanson et al., 2000).

Mothers in PGT were encouraged to explore their painful experiences in a therapeutic and soothing group context, which may have alleviated them to recognize and regulate their negative, uncontrollable emotions and to subsequently direct their attention to their infants’ reactions and needs. Similarly, Suchman et al.
(2010) suggested that supporting mothers to tolerate their own strong emotions and observing the impact on the child may help the interaction with the child to become more contingently sensitive, responsive, and growth-promoting.

In the same way as the normative comparison infants, the infants in both our intervention groups became more responsive to and involved with their mothers from 4 months through the follow-up at 12 months. Nevertheless, the infants of substance abusers showed less optimal responsiveness and involvement than did the infants of non-drug-abusing mothers throughout the study. The finding concurs with other studies that have shown low levels of responsiveness among substance-dependent mothers’ infants (Fraser et al., 2010; Salo et al., 2010) and toddlers (Molitor & Mayes, 2010). As Salo et al. (2010) noted among opioid-dependent mother–infant dyads, the low level of infant involvement and responsiveness may indicate early regulatory difficulties and general infant passivity, which in turn reflects a child’s decreased responses toward mother’s insensitive behavior. In addition, infants’ low level of involvement and responsiveness may reflect exposure to drugs. According to mothers’ reports in the present study, over 80% of the infants were exposed to substances at least until the mother realized she was pregnant.

In the present study, the findings of infants’ increased responsiveness and involvement concur with those of Huebner’s (2002), who in a mother–infant intervention found that the infants of drug-abusing mothers became more responsive and expressive toward their mothers. However, our hypothesis that the infants in the PGT intervention could become more responsive and involving than could the infants in the PSS intervention was defeated. Note that at 4 months the PGT infants were more involving, but the PSS infants caught up with the PGT infants at 12 months. This could be explained by the duration of the PGT intervention. The infants of the PGT mothers were only 4 to 7 months of age when the group therapy ended, and the follow-up appointments were not as intensive as was the therapy. The mother–infant pairs in the PSS group could continue as long as they needed the tailored support. Actually, mothers in the PGT group expressed a desire for sustained therapy (Belt & Punamäki, 2007). Our experiences support Luthar et al.’s (2007) perceptions that short-term group psychotherapy for substance-abusing mothers may lose its positive effect if discontinued too abruptly. Furthermore, continuing the mother–infant intervention into the second half-year of the infant’s life may essentially help the formation of dyadic attachment relationship (Bakermans-Kranenburg et al., 2005) as well as prevent maternal identity reverting into addict identity (Brudenell, 1997).

**Limitations**

Several limitations must be taken into account when interpreting the findings of this study. Concerning the recruitment of substance-abusing mothers for the study, a randomized setting would be ideal for clear interpretation of the results. However, our intervention study was conducted in clinical practice, and mothers had to choose between different kinds of treatment alternatives. Another limitation was that mothers volunteered to participate in the interventions and the study and were therefore not entirely representative of all substance-abusing women. Further, the sample sizes were small and prevent the drawing of firm conclusions about treatment effectiveness. The research setting should be replicated in larger series. Self-reports have limitations because drug-dependent mothers may underestimate their drug abuse and give excessively positive responses (Suchman et al., 2005). Urine screens of drug use would have been more precise, but their results are valid only for a short period of time and cannot describe the actual pattern of use.

A further limitation concerns the range in the children’s ages (from 28 pregnancy weeks to 1 month after birth) at T1. Seven women already had given birth when starting the intervention. Their data on depressive symptoms and prenatal substance abuse is retrospective, which is problematic. Finally, the time period of dyadic mother–child observation was shorter than that recommended in EA (Biringen et al., 2005). Nevertheless, EA was similarly repeated at follow-up and also checked in the comparison group.

**Clinical Implications**

There is still sparse information on successful treatment approaches for perinatal substance-dependent mothers. To the best of our knowledge, there has been no prior evidence of a mother–infant intervention that resulted in a reduction in intrusiveness and hostility among substance-abusing mothers. Nevertheless, these negative parental behavioral characteristics play a key role in the dyadic interaction in substance-abusing families. The PGT as an intensive psychotherapeutic method seems to especially help high-risk mothers who are motivated to explore the causes for their drug dependence. One might speculate that PGT helped mothers to better regulate their negative emotions and to inhibit their hostile and intrusive behavior toward their infants. The results add to the findings based on the same data (Flykt et al., 2012) that PGT mothers could sustain the positive representation of their infant and become more realistic in their maternity as compared to PSS mothers.

The PGT intervention method can be applied to other high-risk groups with cumulative problems such as mother’s early traumatic experiences (Belt et al., 2012) and psychiatric disorders as well as in the context of child protection. The background thinking of the method already has been in use among the personnel in the outpatient treatment units which participated in the interventions. However, the use of the full method can be extended by training and gradually increasing human resources.

Generally, our findings concerning both interventions (PGT and PSS) concur with those of other studies (Luthar et al., 2007; Suchman et al., 2010) that substance-dependent mothers need programs that offer them safe environments where they can build a confidential relationship and continuity with a few clinicians. The findings yield new developmental aspects of methods for preventing transgenerational dysfunctional models from being transferred to the offspring. Our findings may contribute to the research in this challenging area and help to develop accurately focused peer...
and individual intervention alternatives as an adjunct to standard outpatient treatments for perinatal substance-abusing mothers.

REFERENCES


Luther, S., Suchman, N., & Altomare, M. (2007). Relational psychotherapy mothers’ group: A randomized clinical trial for substance...


Intercepting the intergenerational cycle of maternal trauma and loss through mother-infant psychotherapy: A case study using attachment-derived methods

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Abstract

Some mothers who have recently lost a significant attachment figure may become mentally incoherent and sporadically even enter a trancelike, dissociative state. Such states of mind have been shown to predict infant attachment disorganization (van IJzendoorn et al., 1999). Infants born close to the time of a parental loss are at a greater risk for intergenerational trauma. A background of maternal substance abuse is also known to increase such risk (Swanson, Beckwith, & Howard, 2000). We illustrate by way of a case study how a mother-infant group psychotherapy program, aimed at substance abusing mothers, may help to prevent the transmission of mother’s unresolved trauma to the infant. Another goal was to discuss how attachment-derived methods (namely, Adult Attachment Interview, Strange Situation Procedure and the Emotional Availability Scales) may aid in understanding the effects of the intervention.

Keywords

attachment; intergenerational transmission; mother-infant psychotherapy; traumatic loss
Introduction

Pregnancy is a highly sensitive period in a woman’s life involving a comprehensive re-organization of personal identity, in both the social and psychological realms. Preparation for motherhood demands mental energy and dedication, and the mother-to-be needs a great deal of support. Maternal traumatic loss of a loved one during pregnancy is, therefore, an especially devastating experience. The loss can be even more confusing and complex when it activates unresolved painful memories of earlier relational trauma and loss. In this case study, we describe a grief and resolution process of a substance abusing mother who was experiencing an accumulation of past and present traumatic stress, most recently a traumatic death of the spouse during pregnancy. We analyze the changes in the mother’s attachment-related states of mind and the development of mother-infant relationship quality during the first 15 months of the child’s life in the context of mother-infant group therapy for substance-abusing women.

Substance-abusing women have often been victims of trauma, i.e., emotional, physical and/or sexual abuse during their childhoods (Conners et al., 2004; Freeman, Collier, & Parillo, 2002; Grella, Stein, & Greenwell, 2005; Medrano, Hatch, Zule, & Desmond, 2002). Post traumatic stress disorder (PTSD) (Lara et al., 2009) and depressive disorder (Fraser, Harris-Britt, Thakkallapalli, Kurtz-Costes, & Martin, 2010; Oie, et al., 2009) are common. Moreover, the lifestyle of illegal drug abusers is particularly dangerous and violent, and these women are often victims of relational violence and face untimely deaths (Kahila, Gissler, Sarkola, Autti-Rämö, & Halmesmäki, 2010; Nair, Schuler, Black, Kettinger, & Harrington, 2003).
Our case-mother lost the father of her child by suicide immediately after finding out she was pregnant. She decided to keep the child and become sober, although she had earlier used the substances as self-medication to cope with traumatic experiences. Pregnancy without substances breaks down the woman’s familiar defenses and coerces her to face the past disguised memories and present problems (Medrano et al., 2002). This case study specifically describes how the loss of the unborn child’s father appeared to re-evoke previous unresolved loss of the paternal figure in mother’s childhood, in the context of severe emotional abuse subsequent to the loss.

Grief reactions

The normal duration and course of the grief process are highly individual and can depend on a variety of issues, including the nature and timing of the loss as well as the relation to the deceased. Parental death through suicide is especially deleterious to developing children and young adults. Brent, Melheim, Donohoe, & Walker (2009) investigated children, adolescents and young adults (N=176, 7-25 years) about two years after they had lost a parent by suicide, accident, or sudden natural death. They found that, compared to other reasons of death, parental suicide increased the offspring’s vulnerability to depression and substance abuse. Further, the offspring may suffer from severe psychiatric disorders and be preoccupied with the death for a longer time than is the case for parental death for other reasons. Generally, in complicated grief, the reactions last for more than one year and the persistent experiences include intense intrusive thoughts, pangs of severe emotions, distressing yearnings for the deceased, and feelings of emptiness and loneliness. The individual may also be excessively avoidant of any mention of the deceased, may suffer from unusual sleep
disturbances, and lose interest in previously pleasurable activities (Horowitz et al., 1997).

When it comes to loss in early motherhood, the complicated grieving process inhibits the mother from attending and responding to her infant’s needs and communications (Kaiz, Levy, Ebstein, Faraone, & Mankuta, 2009). The re-evoked unresolved relational trauma experiences from the past complicate the situation. Thus, in order to protect the child, interventions are needed to help the mother to resolve her trauma and loss (Scheeringa & Zeanah, 2001). An infant born close to a mother’s bereavement is exposed to maternal grief, but also paradoxically, may be able to help the mother remain connected to the present and thus to remain mentally organized.

Parental unresolved experiences in early interaction

One perspective to grief and psychic pain is found in attachment theory (see e.g. Cassidy & Shaver, 2008). In this theoretical perspective, losses and other traumas, such as abuse are not considered to directly influence the parent-infant interaction or the parent-infant attachment. Moreover, the type of the trauma (loss or abuse) is not considered to have a different influence on the parent-infant relationship. The central issue is whether the trauma has been resolved or remains unresolved, thus creating disorganization in both the behavioral and mental levels (Main, Goldwyn, & Hesse, 2002).

Main and her colleagues (2002) developed a scoring and classification system for the Adult Attachment Interview (AAI; George, Kaplan, & Main, 1985), which in addition to three organized attachment classifications also includes an unresolved classification with respect to loss and traumatic experiences. A speaker is judged as unresolved with respect to loss or abuse experiences when, during discussion of these
experiences: (1) their speech loses its coherence and they speak in unusual and/or disoriented way, (2) they lose the sense of temporal sequences as they mix past and present and (3) they describe their excessively disturbed behavior as responses to the loss (Hesse, 2008; Main et al., 2002).

The intimate bodily dialogue between the mother and infant provokes unconscious maternal sensations and is thought to be one mediator through which maternal past and present unresolved and un-integrated experiences of loss or trauma are transferred to the next generation. Fraiberg et al. (1987) called these past painful experiences ‘ghosts’, and noted that unresolved conflicts and traumatic experiences in the mother’s early childhood could often explain the occurrence of the infant’s symptoms. The integral part of the significance of parental unresolved experiences in early parent-infant interaction is on the one hand, how much the parent’s mind is preoccupied with disorganized emotions and on the other hand, how capable he/she is for primary preoccupation with the infant (Baradon, 2010). The impact of unresolved trauma on the dyadic parent-infant experiences has been investigated from two perspectives: First, observing the dyadic behaviors whether they include secure or/and traumatogenic elements. The second perspective is to examine the individuals’ internal working models or mental representations (Sleed & Fonagy, 2010). Maternal sensitivity is known to promote secure attachment, whereas breakdowns, like unresolved traumatic experiences in the dyadic interaction are known to be a risk for developing infant disorganized attachment (Lyons-Ruth & Jacobvitz, 2008; Main, Kaplan, & Cassidy, 1985; van IJzendoorn, 1995).

*Parental anomalous behavior and infant’s attachment disorganization / disorganized responses*
Maternal unresolved trauma or experiences of violence and neglect are often unconsciously embedded in a mother’s intrusive memories and uncontrollable behavior (Hesse & Main, 2000; Scheeringa & Zeanah, 2001). Especially, a mother’s dissociated or threatened behavior presents a serious developmental risk for the infant (Abrams, Rifkin, & Hesse, 2006; see also Schore, 2004, for a neuropsychological perspective). In such a situation, uncontrollable trauma fragmentations may intrude in her mind and she may re-experience flashbacks, which are involuntary ‘raw’ comebacks of the sensory perception of past traumatic events that unconsciously occupy her mind (Carland, 2003). Main and Hesse (1990; Hesse & Main, 2000) hypothesized that the parental unresolved past trauma or loss may appear in the behaviors so that the normal consciousness alters and the parent enters an altered dissociative or quasi-dissociative states of mind and either frighten the child or indicate that the parent is frightened (termed FR behaviors). The more comprehensive term, ‘parental anomalous behaviors’ has been subsequently used. These behaviors indicate that the mother may be withdrawn and frightened, or she may be intrusive and frightening toward the infant (Abrams et al., 2006; Jacobvitz, Leon, & Kazan, 2006; Schuengel, Bakermans-Kranenburg, & van IJzendoorn, 1999). Traumatization in mother’s own early attachment relationships may also lead to inadequate capacity to mentalize about one’s own child, i.e. to understand and treat her as a separate person who has own feelings and desires (Fonagy et al. 2002).

Substance-abuse in itself may be the source of maternal altered states of consciousness. Such woman (in interaction with her child) often shows hostile-intrusive over-stimulating (Swanson, Beckwith, & Howard, 2000) or passive/withdrawal under-stimulating interaction patterns (Burns, Chetnik, Burns, & Clark, 1991).
The infants may be afraid of the mother who unpredictably and incongruently available. A traumatized mother can be at times distracted or scared and may respond to this fear with odd movements or facial and vocal expressions; she may ‘freeze’ with eyes unmoving, speak in an unusual and frightened or ‘haunted’ voice and withdraw from the infant. However, the parent is not necessarily maltreating or frightening the child (Hesse & Main, 2000). Unconsciously, the parent may even experience the infant as alarming or dangerous and her behavior can be described as frightened (Main, Hesse, & Kaplan, 2005; see Schuengel et al., 1999).

Various parental anomalous behaviors during interaction with the infant are thought to partly explain the intergenerational transmission of trauma and disorganized attachment. Scheeringa and Zeanah (2001) reviewed 17 studies focusing on the mediating factors between traumatic experiences (e.g. domestic violence, war, and fire) and parent-child relationship in early childhood. They noticed that although infants were not directly traumatized by an event, parents’ posttraumatic distress could lead infants to withdrawal or to respond in a strange way towards their parents. In another review and meta-analysis of 12 studies, Madigan et al. (2006) found that disrupted parental affective communication, such as negative-intrusive behavior, role confusion, withdrawal, affective communication errors and disorientation were related to disorganized attachment in infants. In the study by Schuengel et al. (1999) those unresolved mothers who were insecure, behaved in the most frightening way towards the child, and frightening maternal behavior predicted disorganized infant attachment. In all, parents’ anomalous behavior may increase the risk of infant’s disorganized attachment pattern to as high as four-fold (Madigan et al., 2006).
From the point of view of the child, parental anomalous behaviors are especially burdening and pose a threat to the security of the infant because the attachment figure is ‘at once the source of and the solution to its alarm’ (Main & Hesse, 1990, p. 163). As a result, the child placed in an unsettled and confused state of ‘fright without solution’ may behave in contradictory, disordered, misdirected, fearful, or disoriented manner and fail to develop an ‘organized’ behavioral strategy in relating to the parent (Abrams et al. 2006; Hesse & Main, 2006; Main & Solomon, 1990). For example, upon reunion with the parent the infant may approach the mother as if to greet her, then freeze and fall into a huddled or prone posture on the floor. Such behavior suggests that the child, at least temporarily, is not able to use the parent as a secure base and haven of safety, which is consistent with disorganization of attachment (Ainsworth, Blehar, Waters, & Wall, 1978; Main & Solomon, 1986, 1990). These behaviors can be observed within the Strange Situation Procedure (SSP), a standardized 20 minute laboratory observation measuring infant attachment including two brief separations and reunions with the parent. Behaviors are judged disorganized (D) if the infant displays odd or maladaptive behaviors that include also trance-like states and dissociated actions when the infant’s stress level is increasing. However, the presence of the parent does not soothe him or her, but rather disorganizes the infant’s behaviors (Hesse & Main, 2000; Main & Solomon, 1990). In the same way that the disoriented parent shows disorientation during discussion about past unresolved traumas, the infant classified as disorganized exhibits odd, unpredictable, and inexplicable behaviors. Such an infant lacks a clear and coherent strategy for using the caregiver for comfort when distressed (Main & Solomon, 1990).
The prevalence of disorganized children is very high in risk families; close to 80% of maltreated infants were classified disorganized (Hesse & Main, 2000; Lyons-Ruth & Spielman, 2004), while such is the case for 15-33% in low risk-samples (van IJzendoorn et al., 1999). Maternal mental health problems such as severe and chronic depression (Martins & Gaffan, 2000; van Ijzendoorn, 1995) and maternal alcohol (O’Connor, Sigman, & Brill (1987) or drug-abuse (Melnick, Finger, Hans, Patrick & Lyons-Ruth, 2008; Swanson, Beckwith, & Howard, 2000) increase the risk for infant disorganized attachment pattern. Infant disorganized attachment is a serious risk factor for later child and adolescent psychopathology and stress regulation (Bakerman-Kranenburg, van IJzendoorn & Juffer, 2005; Main et al., 2005; Lyons-Ruth & Jacobvitz, 2008).

*Therapeutic aims after traumatic loss*

The impact of father loss during pregnancy on the mother-infant relationship is immense, and widowed mothers and their children would need all support and care in the face of such trauma. Thus far, one recent therapeutic intervention project was launched to help families who suffered a loss of husbands and fathers in the 9/11 terrorist attack. It provided psychoanalytical and attachment-focused therapy and support to women who were pregnant or had an infant at the time of their loss. The aim was to facilitate maternal grieving and simultaneously to support a new baby (Beebe, 2011). Our case study contributed to the research of traumatic father loss in pregnancy by discussing a single case therapy process after the trauma and by highlighting the value of using well-validated attachment-relevant instruments to objectively document progress.
The aim of mother-infant psychotherapy after trauma is to create a safe environment from which the mother can explore her new motherhood as well as the past and present trauma and loss experiences in order to prevent intergenerational transmission and infant disorganized attachment. Substance-abusing mothers are shown to be receptive during this limited ‘time of soul-searching’ to face their unmet attachment needs and often complex trauma (Belt et al., under review; Suchman et al., 2010). In light of previous studies (c.f., Bakermans-Kranenburg et al., 2005; Steele & Steele, 2008), mother-infant psychotherapy should: (1) enhance the coherence of mother’s state of mind, (2) prevent the mother’s anomalous behavior (i.e., dissociation, intrusive, frightening and frightened behavior), and (3) strengthen the mother’s emotional availability for the infant.

In this case study we integrate the therapy material and the attachment-oriented assessment methods to describe the grief process of current traumatic loss during pregnancy that triggered previous unresolved loss of the father in mother’s childhood, in the context of severe emotional abuse subsequent to the loss. This case is a part of a larger study concerning the outcome of mother-infant group psychotherapy among substance abusing mothers (Belt et al., under review). Here, we first analyzed the maternal AAIs and the changes before and after the therapy 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. Second, we analyzed the changes in the dyadic mother-child interaction and whether the therapy succeeded to decrease the mother’s anomalous states of mind (i.e. dissociation and frightening/frightened thoughts) from intruding into mother-infant interaction during the therapy. Such information was collected from dyadic Emotional Availability (EA, Biringen, 2008, 4th Edition) behavior as well as
documentations at the beginning and after the therapy. Third, our aim was to elucidate maternal adult attachment and mother-infant emotional availability processes potentially preventing the intergenerational cycle of trauma and loss. For that purpose, the Strange Situation Procedure (SSP) was used to evaluate the infant’s attachment security and organization in relation to the mother. These attachment-derived methods were used to both understand the therapy process and the factors contributing to the breaking of the insecure intergenerational cycle.

**Measures and Study Design**

The AAI, SSP and EAS were used as assessments before, during and at the end of the therapy, and evaluated by independent researchers (AK, ZB, MF, JDH). These assessors did not have any information about the mother, child, the content of the intervention, or any aspects of maternal history or the phase of therapy when the measures were conducted. Moreover, coders of the AAI and EA were also blind to the order of the two recordings.

**Adult Attachment Interview**

Attachment representations of the mother were assessed using the AAI (George et al., 1985), which was translated and adapted into the Finnish language and culture, with documented distributions of attachment representations for Finnish mothers and fathers (see Kouvo & Silvén, 2010). The AAI is an hour-long, semi-structured interview about adults’ relationships with childhood attachment figures and the evaluations of these attachment-related experiences (for a more detailed description, see Hesse, 2008). Scoring and classification of the AAIs were completed by the second author (AK) trained by Anders Broberg and Tord Ivarsson in the University of Gothenburg in 2004. Narratives of the interviewees are classified into one of three best-fitting organized
attachment categories: autonomous (F) valuing of attachment relationships, dismissing (Ds) of attachment relationships, and preoccupied (E) with attachment relationships (F-Ds-E, respectively). If lapses in reasoning or failures to maintain the collaborative discourse occur when discussing loss or abuse experiences unresolved (U) category is assigned as the primary classification. In this case, the interview is also classified into one of the best-fitting organized categories as a secondary classification (Main et al., 2002; Hesse, 2008).

Strange Situation Procedure

Security of attachment was assessed using the traditional SSP scoring and classification guidelines (Ainsworth et al., 1978) as well as Main and Solomon’s (1986, 1990) scoring system for attachment disorganization. Scoring and classification of the child were completed by the fifth author (JDH) who was trained by Alain Sroufe and Elizabeth Carlson at the Institute of Child Development, University of Minnesota (USA), in 2004. Infants are classified to one of the three organized infant attachment categories. Secure (B) infants readily greet and seek contact with the caregiver upon reunion, openly display emotional communication, and demonstrate engaged exploration and play in the presence of the caregiver. Resistant (C) infants are characterized by displays of ambivalence with the caregiver, often seeking contact and comfort from the caregiver while also demonstrating signs of resistance (e.g., crying, squirming to get down when held, and general petulance). Avoidant (A) infants are characterized by conspicuous avoidance of proximity to or interaction with the caregiver upon reunion and show little or no distress during the caregiver’s absence. In addition to these organized categories, attachment might be classified as disorganized (D) if the behavior of the infant is characterized by the lack of an organized behavioral
strategy with the caregiver. The infant may, for example, display direct apprehension of the parent, simultaneous contradictory attachment behaviors and stereotypical behaviors.

*Mother-infant interaction: Emotional Availability (EA) Scales*

Mother’s emotional availability toward the infant was assessed using the Emotional Availability (EA) Scales (Biringen, 2008, 4th Edition). EA was coded from videotaped mother–child free play interaction sessions, lasting 7 to 10 minutes. The third author (MF), who was trained by Zeynep Biringen in Helsinki workshop 2008, coded the tapes both at 4 and 12 months, and the 4 months scores were also conferenced with Z. Biringen. The EA is a measure of dyadic interaction, theoretically based on the integration of attachment (Ainsworth et al., 1978; for review of attachment theory and research, see Cassidy & Shaver, 2008) and emotional perspectives (Emde, 1980; Mahler, Pine, & Bergman, 1975). It consists of four dimensions of adult’s emotional availability toward the child, one relating to maternal sensitivity and three others to the control-related aspects of the interaction: structuring, nonintrusiveness and nonhostility. Two dimensions consist of the child’s emotional availability toward the adult: Child responsiveness refers to child’s responses to mother’s initiations and child’s emotional presence in the interaction. Child involvement refers to child’s initiative towards the mother. The measure is dyadic in nature, and each partner’s reactions are taken into account in assessing the other partner’s emotional availability. The observation of mutual emotional cues and signals between parent and child is the key factor in scoring; thus, context-appropriate behavioral responses without perceived emotional presence is not considered sensitive. The scores for each scale range from 1 to 7, with scores below 5 representing a need for intervention.
Context and procedures of psychotherapeutic work

During the last 10 years psychoanalytic-attachment based mother-infant therapy groups for substance-abusing mothers have taken place at two outpatient treatment units in Finland. The aims of the therapy are: (1) to promote the welfare of the mother-infant relationship, (2) to keep mother free of substances and from projecting their traumatic past experiences onto the infant, and (3) to prevent attachment disorders in the child. The main healing elements consist of comprehensive experiences of security and appreciation. The mothers are helped first to become in touch with their own physical and psychical needs and expectations for soothing and care which then makes it possible for them to better understand their infant’s needs and regulate their mental states. The mothers are supported to find pleasure and enjoy both normal everyday things and motherhood. The group gives opportunity to feel togetherness, practice new modes of interaction, and share life histories and feelings, which are considered essential in launching a renewed attachment process (Harwood, 2006).

In the mother-infant therapy described in the present study, a group therapy process begins during late pregnancy or immediately after delivery and continues for 20-24 weekly sessions; each session lasts for three hours, and is comprised of three to four mother-infant dyads. A precise individual plan is made collaboratively with the mother and her immediate social network. In most cases, one of the two therapists continues treating the mother-infant dyad for three to six months after the group, until their life situation is more balanced. The follow-up treatment might continue beyond this point, if deemed necessary (for more details, see Belt & Punamäki, 2007; Punamäki & Belt, in press).
The objective of this case presentation is to illustrate a mother-infant dyad’s treatment and response concerning mother’s traumatic loss, and the triggered past traumas and losses, which likely were all connected with her substance abuse. This case showed the following risk factors: 1) an accumulation of maternal traumatic experiences and losses, 2) single motherhood, with no social support from relatives; and 3) traumatic loss and substance use occurring during pregnancy. The description is based on the therapist’s (first author) notes. Owing to confidential reasons we have changed the names and do not describe details from the group therapy beyond the present case.

*Case description before the therapy*

Linda was a 27-year-old woman, who was 4 years of age when her father died by suicide. Her mother remarried a man, who was described by Linda as a tyrant. She was scared of his aggressive attacks and unstable behavior. As a child, Linda was not given any opportunity to grieve, or talk about her dead father. During her adolescence, she felt very lonely and even made one serious suicide attempt, with no ensuing intervention. She left home at the age of 18 and her parents shut off all contacts with her. Linda succeeded in her studies and was employed. She used substances (alcohol and cannabis), most heavily during the highly depressive periods in her early adulthood. She became pregnant with Olivia in a tumultuous relationship. Olivia’s father abused drugs and was very unpredictable and also violent towards Linda. He committed suicide the same day, as Linda noticed that she was pregnant, but she could not tell him in time. Linda was totally alone and extremely confused in regards to her pregnancy, and considered suicide as a possible alternative. However, she decided to keep the baby and stop the substance abuse. When she became sober, she also became terribly scared of the damages she could have caused the baby due the substance abuse before knowing
about her pregnancy. This fear haunted her during the entire pregnancy and she was reluctant to form an emotional attachment to the fetus given her fear of losing it. She had no social support throughout her pregnancy, and could not share her feelings. The only support she received for depression was the visits to a psychiatric clinic every three weeks. Linda described afterward this time as follows: ‘I was totally disappointed with people and I thought I do not need anyone to disappoint me. And I forced myself to be totally abstinent from substances after learning of the pregnancy.’

Mother's first AAI before the therapy when the child was 1 month of age

The AAI was conducted by a therapist (RB) at the second appointment when Olivia was one month old. The therapy group started 6 weeks later. Linda described herself as being relieved to get in the mother-infant dyadic treatment and to get to know other mothers, as well.

Linda began the interview openly and it seemed that it was easy for her to tell about her childhood, even though it was clear from the transcript that it had been very difficult. Both the mother and stepfather were rated as extremely unloving. They were rejecting her need for closeness and care as well as pressuring her to achieve adult responsibilities. The experiences with the stepfather were also classified as physical abuse. Despite this harsh background, as gleaned from the interview, her discourse was clear and in order, she was succinct but complete and her story was relevant and perspicacious. In other words, the coherence of the transcript was rather high. However, when discussing the traumatic abuse experience with the stepfather and the loss of the father of her child, Olivia, the maintenance of discourse collapsed. In brief, Linda was discussing the abuse placing in childhood in present tense and reported extreme responses at the time of bereavement of the loss of her child’s father, e.g. suicidal
thoughts. According to the criteria of Main and her colleagues (2002) the coherence of the mind was scored low and the scores for unresolved trauma were high enough to lead for an unresolved classification.

The best fitting organized classification for Linda’s AAI was autonomous. The most central characteristic of the discourse was her valuing of attachment, while apparently objective with respect to difficult experiences She disclosed many times during the interview her implicit wishes that her harsh childhood experiences had been otherwise. It seemed that valuing of attachment to the yet unborn child prevented her suicide and provided a chance for a life for her baby. Linda’s interview had also many other characteristics typical for autonomous classification, for example being open about imperfections in self. Due to the lack of idealization and anger and extreme ease and thoughtfulness, the best fitting sub-category for the best fitting organized classification was F3, prototypically autonomous categorization.

*The first sessions of therapy (1 – 7): Back to life*

The first two group sessions were tinged with grief. We listened to lullabies, which raised the theme of death in Linda’s mind. She was scared of losing Olivia via crib death. Linda told about her nightmare: ‘Olivia was in my lap and I had a really odd feeling. I looked at her and I realized that her face was bluish. I put my hand in front of her mouth and I noticed she had no breathing at all. I had huge fear of losing her, and maybe some instinct forced me to rush up and run to the sauna with the lifeless baby. My only idea was that I have to get her back to life. I sat in the sauna and patted her all over and resuscitated her. I remember especially clearly that at this stage of the dream the panic disappeared and I knew I wasn’t going to give up this child. In the dream the baby really revived and the feeling of relief was indescribable’. In the therapy session
baby-Olivia, in herself, was awake almost during the entire session (3 hours) and vigilant to take part in the group and she accurately followed the expressions of group members’ faces. We discussed in the group mothers’ struggle for their infants versus their troubles and substance dependence. The therapist verbalized: ‘Linda’s dream greatly describes your mothers’ life-and-death struggle and how you want to put the child before everything. On the other hand, now that the therapy group has started you may feel safe from all evil and can defend your children, too.’

During the sessions 3-5 the mother-infant dyad seemed withdrawn from one another: Linda was often absorbed in her thoughts and Olivia (3-4 months) was avoidant with respect to eye contact with the mother. Linda assessed herself as being more tired than depressed owing to the fact that Olivia had kept her awake in the night. Both of them appeared lonely and melancholic. Linda explained that at home Olivia made no eye contact when she (the mother) was tired. The therapist turned to Linda’s AAI narrative in order to understand her disappearance into deep thoughts. She told of having felt very contradictory thoughts when meditating on Olivia’s father and how her life could be if he lived: She remarked: ‘Obviously much more complicated than now, if he continued using drugs’. Simultaneously the co-therapist wrapped a blanket around Linda and gently stroked her hair. Then the therapist took Olivia in her arms and brought her in front of her mother’s face and explained to both of them how important it is that the mother can share her psychic pain and grief with the group, and through that decrease the negative burden that was being reflected to Olivia. We thought in the group about the wisdom of the children: when they realize that their mothers are tired or sad, they spare their mothers and keep to themselves. Linda agreed with this suggestion and continued to speak about her other traumatic loss which had risen into her mind: her
own father’s death when she was a little girl and her heavy concern about Olivia: ‘How can I cope with such a complicated question and clear up the problems with Olivia without any model. I am not able to explain to her the death of her father because I was left totally alone with my feelings and questions after my father’s death as a little girl.’ The therapist held on keeping the baby in front of her mother and spoke peacefully about Olivia’s father and their mutual sorrow of having lost their fathers early in childhood. Olivia firmly looked at the therapist’s eyes as if she had understood every word, when the therapist described how intensively her mother tried to protect and help Olivia, struggling to make her a better childhood than mother herself had had. We then discussed and appreciated the deep understanding Linda had regarding her daughter’s feelings. In the next session baby Olivia was dressed in a tiger dress and Linda remembered and missed the stuffed tiger she received from her father when she was one year of age. It was the only object that she remembered receiving from her father, and there was no way to have it back.

*The middle sessions of therapy (8 – 13): Fatherlessness*

During the middle sessions, Linda often appeared sad as she pondered Olivia’s fatherlessness, whereas Olivia (4–5 months) herself was an active group member, lighting up when seeing others. She was awake during the entire therapy, with consistent eye contact and engagement in group activities, including the cheerful play songs. Linda expressed her affection to the group, and was especially grateful that she could share her thoughts and be consoled. She was not able to play or sing with Olivia during the therapy and preferred that the therapists hold the baby. Once Linda blurted out: ‘I have been a boring company to Olivia and it has been too much for me to play or sing with her. I have no strength sometimes to visit anywhere else but the group
meetings, even if Olivia would enjoy company.’ Linda repeated several times that she needed much longer time in therapy. The therapists as well as the other mothers consoled her; she was assured that every mother-infant pair would have a tailored follow-up with one of the therapists.

*The last sessions of therapy (14 – 20): Separation and loss*

During the final sessions of therapy, we pondered about termination of therapy and the analogy to Olivia’s (6-7 months) weaning from the breast. The therapist explained how important it was that every group member would feel that they are safe and that their needs are considered when planning an individually tailored and secure follow-up with the familiar therapist once when the group therapy ends. Linda was relived and reflected on how her father all of a sudden disappeared when she was a little girl and also how she left her home as a young girl and never saw her mother again. Nobody had either prepared her in advance nor had she had an opportunity to be heard and seen by her closest family members. Both therapists and the group assured Linda that her inner needs are heard. The therapist demonstrated the analogy between the end of the group process and Olivia’s gradual, rather than abrupt, experience of weaning and separation. Gradually Linda was more contingently available for Olivia and was filled with joy when interacting with the baby. The increase of their mutual pleasure and the mothers’ appropriate reading and hearing of the infant in their interaction were visible.

The theme of the last group therapy session was death and the dangers of the world of substances. The mothers estimated that many of their friends had died or were injured in accidents and over-doses. In many cases, the children had been taken into foster care. Linda reflected on this situation as following: ‘Now I feel having transferred from death to life. Olivia is the purpose of my life and had kept me alive. Besides, the
therapy group has been important and often the only contact for me during the whole week.’

*Follow-up appointments: Integration to normal life*

Linda had been abstinent from substances also after completion of the therapy. She and Olivia had 16 follow-up sessions over a period of 8 months with the therapist (RB). We concentrated on their integration to everyday life and a social network and on Linda’s grieving process. Linda told of having become closer to her church as well as to her faith in God. Her consciousness of what had happened gradually increased and she could better integrate her experiences and thoughts. For instance, she understood that she was not guilty of the suicide of Olivia’s father. Linda underlined the importance of the same therapist continuing long enough throughout the process in order to have time to handle the most vulnerable questions. Afterwards and with the help of videotapes taken of several group sessions, Linda realized that she had been depressed and withdrawn during the therapy. In her opinion, she could not have admitted that earlier, because she had felt vulnerable and a bad mother. She described her joy and peace as she received the gentle counseling. Deep in her mind, Linda had been scared that her head could burst. Linda described that as follows: ‘The untreated traumas were like an attack on me, because the heavy experiences at the beginning of the pregnancy also revived the past monsters after Olivia’s birth. Sometimes most of my energy was spent thinking about these issues and I couldn’t concentrate on the baby.’

*Observations and findings during and after therapy*

*Emotional Availability Scales at 4 months of age*
Linda’s affect was bizarre, although not hostile or frightening, and she seemed not aware of even Olivia’s most blatant stress reactions. Linda often showed intrusive behavior towards her daughter, e.g. by rapidly changing toys and bringing them too close to Olivia’s face, which Olivia faced with constant unresponsiveness. Olivia was not clearly able to derive much comfort, security, or enjoyment from the interaction. Instead, the mother and the baby were like two ships in the night or there was like a glass wall between them. Olivia showed an asthma-like stress reaction, breathing very heavily and avoiding her mother very actively, indicating fear. Due to Olivia’s avoidance, there was no eye contact between the mother and daughter, despite optimal positioning. When Linda lifted her daughter up, Olivia’s body was tense and rigid. Olivia did not respond to the mother or involve her. She did not show any interest in her mother, and only very fleeting and occasional interest in toys. At four months, all the dimensions of maternal and child emotional availability were thus highly problematic, except for maternal nonhostility, which was within the normal range.

*Emotional Availability Scales at 12 months of age*

The interaction was task-oriented and Linda had somewhat flat affect, but there were also several moments of reciprocal joy and joint affect. It was clear that Linda was enjoying her child, admiring e.g. Olivia’s new ability to stand. Problems of maternal intrusiveness had almost disappeared: Linda sometimes changed toys too quickly or missed Olivia’s cue, but was able to self-correct and later accommodate her behavior according to Olivia’s signals. Olivia mostly responded to her mother’s initiations, but sometimes she resisted and wanted to go her own way, which Linda allowed. Olivia also involved her mother in play, using verbal, physical and visual means. Olivia insisted on playing with a ball with her mother most of the time, so the content of the
play was not very varied or elaborated, and other kinds of exploration behavior was less evident. When Olivia fell and hurt herself, she let her mother comfort her. Linda was sometimes still a bit off in timing, for example she offered a toy too quickly before Olivia had calmed down after falling, and Olivia showed this to her by pushing it away. Linda was, at that point, able to take her daughter’s cue, put the toy away and continued comforting Olivia long enough for her to calm down properly and go back to play. At 12 months, all the dimensions of maternal and child emotional availability were within the normal range.

Mother’s second AAI when the child was 15 months of age

Linda portrayed her attachment figures and childhood experiences very similarly in the AAIs conducted before and after the group therapy. However, significant differences occurred in coherence of discourse related to trauma, in understanding of causal links between early experiences and her own current functioning and in understanding the reasons and background of her own parents’ cruel behavior towards her during childhood. In the second interview Linda’s discourse of loss and trauma experiences did not break down and her communication was very collaborative, reflective and coherent. In other words, the main difference between the two interviews was that the first one was classified as unresolved, and the second best-fitting classification was autonomous, and the second interview was classified only as autonomous. The subgroup of the autonomous classification was the same in both transcripts. There was a change in Linda’s description of her reflection about the effects of her experiences upon herself. Compassion and deep understanding about why her parents behaved as they did in her childhood was also strongly present in Linda’s
narrative. She ended the interview with a touching paragraph loaded with both valuing of attachment and sorrow for past unfavorable and still broken relationships.

Strange Situation Procedure when the child was 15 months of age

Olivia quickly began playing with the set of attractive toys while her mother was on the floor with her. When the stranger entered the room, Olivia briefly looked at her. A short time later, Olivia got up and clambered into her mother’s legs where she was seated. Mother was receptive to this bid for contact and, after a brief moment of contact, gently redirected Olivia back to the toys which Olivia then re-engaged once again. During the first separation, Olivia continued to play with the toys while interacting briefly with the stranger. Upon mother’s return, Olivia greeted her brightly with a smile and a vocalization. She then walked briskly towards her. Mother was then able to re-engage Olivia in contented play with the toys, with occasional glances and vocalizations towards her mother. During the second separation Olivia displayed some search behavior for her mother while alone (along with some odd postural movements such as lying prone on the floor). Upon second reunion, Olivia immediately sought proximity to her mother, clutching at her mother’s legs as she entered the door. Mother then picked her up in a gentle manner and Olivia seemed to easily adjust and mold to her mother’s arms. When Olivia’s mother put her down on the floor with the toys, Olivia released easily and seemed content with the brief physical contact.

In summary, Olivia’s pattern of behavior in the SSP was best characterized by the B2 classification, a secure attachment classification in which the infant may show a lesser need for physical contact maintenance than other securely classified infants. What is important is that Olivia initiated strong proximity-seeking with her mother
during both reunions. Moreover, Olivia also did not show any signs of attachment disorganization in the presence of her mother.

**Discussion and reflections on the therapy**

The aim of the present case study was to examine the development of the early mother-infant relationship in the context of complex traumas and difficult life circumstances. However, instead of the intergenerational cycle of substance abuse, trauma and loss, Linda chose a new life with the help of the therapy. Before the therapy her grief process was complicated by past traumatic experiences and losses, typical for substance dependent women. This process was characterized, in part, through her unresolved state of mind in the AAI prior to the intervention. The present case-study demonstrated that the attachment theory approach was fruitful in addressing the multiple, comprehensive and complex changes in maternal state of mind as well as in dyadic interactions in association with the therapy. The methods verified that the coherence of Linda’s state of mind increased, her anomalous behavior decreased and emotional availability with the infant improved. These changes detected by the attachment measures were also reflected clearly in the therapy sessions. For example, increased coherency was characterized by Linda’s more open and rueful discussions of her own imperfections (middle sessions) and her awareness of how the unfavorable experiences have influenced in her personality and her attachment to the group (last sessions). Besides, the decrease of anomalous behaviors in the mother-infant dyadic interaction was evident: during the last sessions the mother was more contingently available for the baby and there was a reciprocal joy.

When Linda’s daughter Olivia was 4 months of age, the dyadic mother-infant interaction, as assessed by the EA Scales, proved to be poor and the dyad was in a high
risk zone, thus needing therapeutic intervention. Olivia’s responsiveness and emotional involvement with her mother were exceptionally deficient, showing atypical affect and interactional characteristics indicative of early frightened behavior and disorganization. Her mother’s suggestions appeared not to be processed by Olivia and the baby’s behaviors seemed bizarre. It is known that 4-months old infants display interaction patterns that may be predictive of later attachment relationship (Kogan & Carter, 1996). In addition, the infant’s very low responsiveness may refer to problems of affect, including looking confused and angry (Biringen, 2008).

Characteristic to Linda’s behaviour at 4 months were both withdrawal and sudden intrusive initiatives in the interaction, which confused and frightened Olivia. Our case observations are consistent with Jacobvitz, Leon, & Kazan’s (2006) discoveries that an otherwise an autonomous mothers with an unresolved state of mind with respect to loss or abuse may behave in a frightening and/or frightened way towards her infant. The researchers emphasize that the mother’s ability to be emotionally in touch with the trauma or loss and simultaneously available to her infant, may protect both the mother from dissociative behavior and the child from developing disorganized attachment pattern (Hughes, Turton, McGauley, & Fonagy, 2006; Kainz et al., 2009). When the mother can experience the therapy as secure base where she can process and recover from traumas and losses, she is gradually capable to transfer her mental focus from traumatic past–related dissociations into present tasks of mothering (Bakermans-Kranenburg et al., 2005). Similarly, Linda was able to more safely engage in self-exploration and was relieved from an entangled situation toward a more flexible thinking and symbolization. Such changes, in turn gave room for more emotionally comprehensive communication with Olivia.
The aim of trauma psychotherapy (Carland, 2003) is to prevent the trauma to be locked in the mind. Instead, the patient needs to experience a myriad of emotions, which are reactivated needing to be connected and integrated with present experiences. When it comes to early motherhood, a traumatized mother needs time to work peacefully through painful experiences, but simultaneously her infant has to be supported (Newman & Stevenson, 2008). Fraiberg et al. (1987) also illustrated in their famous article ‘Ghosts in the nursery’ a mother-infant therapy when the mother had experienced losses and traumas of her close relatives during childhood and before her child’s birth. The therapy enabled freedom of movement between the baby’s needs and the mother’s past trauma and loss experiences and offered the mother a strong support helping her to encounter and resolve the psychic pain that in turn enables the mother to protect the infant.

In the case of Linda, the death of her parent surfaced in her mind during the therapy, and she had to integrate it with the recent death of her daughter’s father. Studies suggest that the death of one’s own parent may be a strong risk factor for maternal anomalous behavior and may occur independent of mother’s unresolved status on the basis of AAI (Jacobvitz et al., 2006). Especially insecure care-giving circumstances after the loss of one’s parent in childhood may produce persistent anxiety and fear, which could later in life be expressed as frightening behavior. In our case, Linda described insecure and frightening circumstances after the loss of her father when she was four. In the pre-intervention AAI, her state of mind was classified as unresolved with respect to abuse. Two characteristics may portray Linda’s behavior after her traumatic childhood loss: she had developed the ability to think and mentalize (Fonagy, 2001), and had been able to use transitional objects (Winnicott, 1953), as in the example
of the stuffed tiger. One of her coping strategies as a little child was the reverie alone in the forest when the home situation was frightening and dangerous. We may speculate that Linda had to have some innate protective factors as a child and as an adolescent (e.g. temperamental characteristics, intelligence or genetic resilience), which helped her to cope with parental negative behavior and integrate both positive and negative experiences.

We consider whether her experience of finding Christianity and the relationship with God could have acted as a protective factor in her early motherhood. Recent literature on attachment and religion suggests that perceived relationship with God can be described as an attachment relationship which, in turn, might influence the psychological well-being as other attachment relationships do (Granqvist & Kirkpatrick, 2008). These authors suggest that God may act as a new attachment relationship that an individual never had experienced with one’s own parents, compensating for earlier insecure relationships. Further, they also hypothesize that regulation of distress is central in using God as a surrogate attachment figure. Linda has also started to regularly participate in the church activities, also as a volunteer. This, parallel with the mother-infant therapy, might have increased her well-being. She described feeling safe and approved as a mother in a cozy, little church with other ex-abuser parents of small children. Interestingly, there is also empirical evidence that participation in the voluntary activities like church events is related to increased subjective well-being (Pessi, 2011).

It was of utmost importance that Linda was able to find herself as a survivor at the end of the follow-up appointments, which positively influenced her behavior and her reflective abilities about Olivia. Linda’s emotional availability to Olivia enabled the
infant to create a secure base from which she could freely explore and spontaneously express reactions (Fonagy, 2001). We consider that the dyad ‘found themselves in the other’ (Fonagy et al., 2002), they found reciprocal joy, and the integration of positive maternal representations prevented dyadic psychopathology. Olivia’s few odd bodily movements when she was under acute stress and completely alone during the SSP may resemble disorganized residue left from earlier points in the attachment relationship with her mother. This is analogous with Fraiberg et al.’s (1987) discovery that shyness or inhibition of play might be displayed as residues of early months’ problems in dyadic interaction. This was possibly also visible in a lack of more diverse/variable forms of play in the 12 months EA.

Although Linda’s state of mind with respect to attachment was classified as unresolved before the intervention, the best-fitting organized classification was autonomous. It might be that her capacities for collaboration, open discussion, and a strong valuing of close relationships helped her to quickly build a collaborative therapeutic alliance. She expressed affection and gratitude for emotional sharing and feelings of secure belonging both with the therapist and the group. The post-interventional AAI, EA and SSP demonstrated consistency with each other and with the clinical observations that the mother-infant group therapy and its follow-up could prevent both maternal and infant’s psychopathology and normalize the mother-infant relationship. This case also illustrates that individual risk factors beyond the mother’s substance abuse are crucial and need to be treated in a tailored manner and that the follow-up is long enough, even though the mother had stopped her substance abuse (Luthar, Suchman, & Altomare, 2007). The latest news concerning Linda and Olivia
(four years) are that Linda is continuing her studies and Olivia is a social and energetic little girl and they are in touch with Linda’s mother and stepfather.

*AAI, EA and SSP and on psychotherapeutic work*

Currently, an increasing number of parent-infant intervention research using attachment-based assessment methods has been reported (e.g. Bakermans-Kranenburg et al., 2005; Fraser et al., 2010; Baradon & Steele, 2008). For example, tools for assessing parental anomalous behavior can be used in measuring intervention effectiveness (Benoit, Madigan, Lecce, Shea, & Goldberg, 2001). However, detailed case studies focusing on the process and outcomes of therapy are missing. There is no information on the effectiveness of combining traditional psychotherapy and standardized assessment methods of attachment and early interaction.

First, the AAI has been an important tool for understanding Linda’s childhood experiences and identifying her unresolved losses. That is in accordance with Steele and Baradon’s (2004; Baradon & Steele, 2008) opinion, that the AAI used in parent-infant psychotherapy is especially sensitive to pick up parents mental functioning in relation to unresolved attachment themes. It helps the therapist to recognize those themes later in the therapy process when observing the mother is unconsciously transferring her relational traumas onto the infant. The therapist’s understanding of the attachment-related working models of the mother’s own attachment relations could essentially be strengthened and he/she is more able to keep simultaneously the ‘hurt baby within the mother, and the real baby in her mind (Belt & Punamäki, 2007; Smith, Coming, & Xeros-Constantinides, 2010). ‘In this way, the AAI can provide an important holding framework in which revisiting the past and present ‘ghosts’ can begin’ (Baradon & Steele, 2008: p. 210). As usual, also Linda experienced the application of the AAI as a
thought-provoking way to become understood and introduced. According to Linda’s point of view it was particularly important that also the second AAI was conducted by the familiar therapist. Linda experienced the AAI as a clarifying tool, which helped her better to integrate her thoughts.

Second, the EA can be valuable in the intervention process. A trained therapist can observe the mother-infant interaction during the session - and with the help of a videotape, in a more detailed way also after the session. Videotape-based work can also be used with the mother to increase her insight of her own and her child’s behavioral cues and needs. Observing the specific dimensions of EA may significantly help the therapist to recognize parental hostile and intrusive behavior towards the child, which are known to be central to target among substance-abusing parents (Fraser et al., 2010, Swanson et al., 2000), as they are especially predictive of child maltreatment. Additionally, videotaped observations provide a means for the therapist to also follow the effectiveness of the therapy session-by-session from the dyadic viewpoint.

Third, the SSP offers a valuable tool by which to assess infant behavior vis a vis the mother, both before and after therapeutic interventions. In this described case study, the SSP was used as a criterion for determining therapeutic efficacy. By providing a standardized assessment of the infant’s attachment security in relation to the mother, it is possible to evaluate whether disturbances may still exist with respect to dyadic interaction between the mother and the infant. In view of the relation between unresolved status on the AAI and anomalous forms of parental interaction with their infant which may negatively impact the attachment security of the infant, the use of the SSP along with the other measures detailed in this case-report offers a method of
determining whether therapeutic progress with the mother is reflected in the infant’s relationship with her.

Summary

The case of Linda and Olivia illustrates how maternal traumatic loss near the child birth and its adverse consequences affected maternal perception and created anomalous behavior towards the infant. Our findings are in line with earlier studies demonstrating that also autonomous (based on AAI) mothers may develop anomalous behavior, particularly, if they are unresolved regarding the loss or abuse (Jacobvitz et al., 2006). The case also shows that parent’s dissociative / trancelike and intrusive behaviors are associated with the origin of infant’s disorganized development. However, a well-timed therapeutic intervention was helpful to stabilize and normalize the mother-infant interaction. Alternative and additional explanations for the positive results may include the mother’s increased religiosity, expanded social circles through the therapy group and church, personal growth through the experience of motherhood, and the passage of time for grief processing and maturation of both the mother and the child. The generalizability of the results is limited by this particular mother-infant pair, because it is not necessarily indicative of the target substance abusing population overall.

The connection between the traumatic loss and mother’s anomalous behavior is not yet enough understood. As current infant mental health research seeks new intervention models for caregivers with unresolved mourning and trauma, especially during pregnancy and 6 months after child’s birth in order to prevent infant disorganized attachment (Crawford & Benoit, 2009). We chose this case mother as an example of a non-heavy substance-abusing mother to demonstrate one aspect of her
negative burden waiting solutions during the crucial transitional time to parenthood. We hope this case-study encourages researchers to conduct more empirical quantitative studies with larger samples and to explore how and in which order to treat substance abusing mothers’ relational traumatic experiences during the period of rapid infant development. The results of the larger ($N=107$) controlled study (Belt et al., under review) suggest that the psychodynamic attachment oriented group intervention, which took into consideration both the mother’s trauma perspective and the infant’s holding perspective, decreased maternal hostility and intrusiveness. We hypothesize that this intervention helped the mothers simultaneously to recognize and regulate their negative emotions and also to direct their attention to the infants’ reactions and needs. Similarly another, controlled and randomized trial by Suchman, et al. (2010) showed that supporting mothers to tolerate their own strong emotions, may help the interaction with the child to become more contingently sensitive, responsive and growth-promoting. In the present case-study, sensitive early intervention, which took into consideration both the mother’s trauma perspective and the infant’s holding perspective, provides one clinical template from which other clinicians and researchers might use in the development of their intervention programs. In the words of our case-mother: ‘I feel having transferred from death to life. Olivia is the purpose of my life and had kept me alive’.

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References


Freeman, R. C., Collier, K., & Parillo, K. M. (2002). Early life sexual abuse as a risk factor for crack cocaine use in a sample of community-recruited women at high


