

---

# A RANDOMIZED CONTROLLED TRIAL OF MOTHER–INFANT PSYCHOANALYTIC TREATMENT: I. OUTCOMES ON SELF-REPORT QUESTIONNAIRES AND EXTERNAL RATINGS

---

**BJÖRN SALOMONSSON**

*Karolinska Institutet*

**ROLF SANDELL**

*Linköping University*

**ABSTRACT:** Mother–infant relationship disturbances occur in three domains: maternal distress, infant functional problems, and relationship difficulties. They constitute common clinical problems. In Sweden, they are usually handled by nurses as part of public Child Health Centre care. Severe cases are referred to child psychiatry services. This randomized controlled trial compared two groups of mother–infant dyads in a Stockholm sample. One received only Child Health Centre care (the “CHCC” group) while the other received mother–infant psychoanalytic treatment plus CHCC (the “MIP” group). Eighty dyads of mothers and infants under 1½ years of age where the mothers had serious concerns about themselves in their role as mothers, their infants’ well-being, or the mother–baby relationship were randomly selected for either the MIP or the CHCC group. The primary outcomes were mother-reported depression, mother-reported infant functional problems, and interviewer-based relationship assessments, all at 6 months after joining the project. Secondary outcomes were mother-reported stress and general psychic distress, externally rated video-recorded interactions, and the consumption of healthcare at the CHC, again all after 6 months. Intent-to-treat analyses of Treatment × Time effects significantly favored MIP treatment for maternal depression, mother–infant relationships, and maternal sensitivity. Effects were nearly significant on maternal stress, but

---

We thank the mothers and infants who participated in the study as well as Professor Peter Fonagy for his penetrating review of the analysis and the manuscript, and Professor Per-Anders Rydelius and Associate Professor Andrzej Werbart for their valuable suggestions. We also thank the raters, psychologists Iraj Danai and Anna Skagerberg and Dr. Malin Kan, and psychology students Anki Berglund and David Staffan, who scored CHC records, as well as Jeremy Vooght, University College London, and Connie Wall, Stockholm, for their editorial assistance. The article was supported by the Ahrén, Ax:son Johnson, Engkvist, Golden Wedding Memorial of Oscar II and Queen Sophia, Groschinsky, Jerring, Kempe-Carlgrén, Mayflower Charity, Solstickan and Wennborg Foundations, and the Research Advisory Board of the International Psychoanalytical Association.

This project is registered at Clinicaltrials.gov, MIPPS-01. Statement on informed consent can be found in the Method section.

Direct correspondence to: Björn Salomonsson, Child and Adolescent Psychiatric Unit, Department of Women’s and Children’s Health, Karolinska Institutet, Astrid Lindgren Children’s Hospital, SE-171 76 Stockholm, Sweden; e-mail: bjorn.salomonsson@ki.se.

---

**INFANT MENTAL HEALTH JOURNAL**, Vol. 32(2), 207–231 (2011)

© 2011 Michigan Association for Infant Mental Health

View this article online at [wileyonlinelibrary.com](http://wileyonlinelibrary.com).

DOI: 10.1002/imhj.20291

nonsignificant on mother-reported infant functional problems, general psychic distress, maternal interactive structuring and nonintrusiveness, infant responsiveness and involvement, and healthcare consumption. MIP treatment improved mother–infant relationships and maternal sensitivity and depression, all of which are known to influence child development. If effects persist and are reproduced, MIP treatment holds promise for more widespread use.

Abstracts translated in Spanish, French, German, and Japanese can be found on the abstract page of each article on Wiley Online Library at <http://wileyonlinelibrary.com/journal/imhj>.

\* \* \*

Over the decade 2000 to 2009, there was mounting evidence of the efficacy of psychodynamic psychotherapies (Leichsenring, 2005; Leichsenring & Leibing, 2007; Leichsenring & Rabung, 2008). Most studies have focused on adult samples, but some also on children (for a review, see Fonagy, Target, Cottrell, Phillips, & Kurtz, 2002). As we have come to understand more about how maternal postnatal depression is associated with compromised infant development (Field, 2002; Murray & Cooper, 1997), the subgroup of infants and parents has attracted research interest.

Studies have shown that up to 15% of all mothers are afflicted by postnatal depression (O’Hara & Swain, 1996; Wickberg & Hwang, 1997), but the prevalence of psychopathological symptoms in infants is harder to establish. Studies of children older than 2 years of age have suggested that infant mental health problems are nearly as prevalent as maternal postnatal depressions, and are estimated at 5 to 18% (Egger & Angold, 2006; Lavigne et al., 1996; Skovgaard et al., 2007). In contrast, “epidemiological studies of children 0 to 3 years of age are remarkably few and the frequency and course of general psychopathology in this age is unknown” (Skovgaard et al., 2005, p. 197). This paucity is a result of nosological problems: Infants’ rapid development makes it difficult to distinguish physical from psychic factors, and it is difficult to disentangle infants’ symptoms from their mothers’ problems (Keren, Feldman, & Tyano, 2001). Thus, clinical reality seems to support the subsuming of disturbances in mothers and/or infants as well as their problematic dyadic interactions, under the rubric “mother–infant relationship disturbances” (Zeanah, 2000).

### MOTHER–INFANT PSYCHOTHERAPY METHODS

Psychotherapy techniques for infants and parents were developed in the second half of the 20th century. Selma Fraiberg’s Infant–Parent Psychotherapy focused on how the mother’s relationship with her baby was influenced by her “ghosts in the nursery” (Fraiberg, Adelson, & Shapiro, 1975); that is, unresolved conflicts with important figures in her own past. A similar technique was developed by the “Geneva School” (Cramer, 1998; Cramer & Palacio Espasa, 1993), which addresses unconscious parental conflicts with the baby. Other techniques, such as Interaction Guidance (McDonough, 1995), Watch, Wait and Wonder (Cohen et al., 1999) and Marte Meo (Hedenbro, 1997), focus on dyadic interactions. Sometimes, interactions are video-recorded and discussed with the mother (Beebe, 2003). Other clinicians focus on “the infant as a subject” (Salo, 2007); this approach entails using the baby’s capacity to understand aspects of the therapist’s communication (Anzieu-Premmereur & Pollak-Cornillot, 2003; Lebovici & Stoléru, 1983).

MIP treatment is a recent addition to the psychoanalytically oriented techniques (Norman, 2001, 2004). In MIP treatment, the analyst's containment (Bion, 1962) of the infant's distress is believed to bring about change. The analyst receives and emotionally processes within him-/herself the infant's distress and communicates it back to the infant in a form that the infant can assimilate. Thus, the containment process takes place predominantly in the infant–analyst dialogue, based on the belief that the distressed infant seeks containment from the analyst. The aim is to liberate the infant's affects that are assumed to be expressed in his or her symptoms such as whining, fussiness, sleeping and feeding problems, mood disturbances, and attachment problems. In the MIP method, the mother is always present and is often affected by the infant–analyst interchange. As she witnesses their interaction, she will understand more about the links between her baby's affects and symptoms, which enables her to resume maternal care. For this to occur, the analyst needs to pay close attention to her self-esteem, which often vacillates.

In 2001, Norman initiated a project and trained analysts in the Mother–Infant Psychoanalysis Project of Stockholm (MIPPS). After his death in 2005, these analysts continued to hold weekly supervision seminars. The Appendix shows that they had substantial clinical experience with adults and children, but less experience with infants. The accumulated clinical evidence shows that they had positive results, and the present study was set up to systematically evaluate the MIP technique.

## RESEARCH ISSUES

Several studies have been carried out on mother–infant therapies (see Dennis, 2004; Singleton, 2005), but some of them lack a sound scientific design. Singleton (2005) meta-analyzed 25 studies of parent–infant therapies with children 0 to 36 months of age. She found that 40% of the studies were of low quality. The corresponding figure for studies of psychological treatments for postnatal depression was 61% (Dennis, 2004). These authors suggested that future studies should be based on larger groups and randomized controlled trials. There also is a need to study the long-term effects of treatments and create a battery of outcome measures with questionnaires, external ratings, and interviews with mothers and children.

We focus on four representative studies of psychodynamic mother–infant treatments that are often referred to in the research literature. One study (Lieberman, Weston, & Pawl, 1991) investigated Infant–Parent Psychotherapy (Fraiberg, 1989) for 12-month-old anxiously attached children. It was designed with two control groups receiving no specific treatment: one with securely attached children and one with anxiously attached children. Outcome evaluations took place after the conclusion of the treatments lasting 1 year. The comparison between the therapy group and the anxious control group showed significant effects favoring the therapy group on most measures of maternal and infant behavior and interaction, but not on mothers' child-rearing attitudes. No intent-to-treat analysis was made, but rather an analysis using 82% of the participants who remained at follow-up assessments.

Infant–Parent Psychotherapy also was compared (Robert-Tissot et al., 1996) with Interaction Guidance (McDonough, 1995) on a sample of 75 dyads. Follow-ups immediately after treatment and six months later evaluated mother-reported baby symptoms, interviewer-rated maternal representations, and independently rated video interactions with ratings of infant affect. The study found significant effects independent of treatment modality at six-month follow-up on maternal sensitivity and on infant behavior and symptoms. The absence of a no-treatment control group, however, makes it difficult to determine the relevance of the magnitude of improvements.

Furthermore, the therapies were brief—on average six sessions. This puts into question the differential effects that were found between interaction guidance and infant–parent therapy. The results were “consistent with expectations often expressed in psychotherapy outcome research: the effects common to both treatments are greater than their specific effects” (Robert-Tissot et al., 1996, p. 111). The study’s outcome analysis showed that 15% of the applicants for the project was excluded during interviews, and at 6-month follow-ups, the scores of only the 73% who appeared at the initial interviews were analyzed.

One study (Cohen et al., 1999) compared Infant–Parent Psychotherapy with the “Watch, Wait and Wonder” (WWW) technique on a sample of 67 mothers (of 73 interviewed initially) and children with a mean age of 20 months. On average, treatments consisted of 14 sessions. Immediately after treatment, WWW was significantly more efficacious in improving attachments, Bayley mental scores, and parental satisfaction. The Infant–Parent Psychotherapy and WWW therapy reduced mother-reported problems and stress and improved mother–child relationships to the same extent. Follow-ups were made 6 months after terminations (Cohen, Lojkasek, Muir, Muir, & Parker, 2002). In the Infant–Parent Psychotherapy group, some of the improvements did not show up until this stage. The authors suggested that they appeared earlier in WWW because the infant directly worked through his “developmental and relational struggles in the presence of his mother” (p. 377) and because the mother worked through her anxieties with the infant. Intent-to-treat analyses were not performed, so 21% of the initial sample was not analyzed at the 6-month follow-up.

Another study compared four treatments of postnatally depressed mothers and their babies (Murray, Cooper, Wilson, & Romaniuk, 2003): routine primary care, cognitive behavioral therapy, psychodynamic mother–infant therapy, and nondirective counseling (Holden, Sagovsky, & Cox, 1989). The three active-treatment groups received 10 once-weekly sessions at home when the baby was 8 to 18 weeks, with 83% completing therapies. “Indications of a positive benefit were limited” (p. 420), including an absence of effects on dyadic interaction measures. At the 4.5-month follow-up, intent-to-treat analyses showed that the scores for self-reported maternal depression had improved significantly in all the therapy groups compared with those of the routine primary care group. This result was no longer evident at the 9-, 18-, and 60-month follow-ups.

In sum, most studies showed some significant effects on self-report questionnaires and interaction ratings, but the findings were inconsistent, the effects did not always seem to last, and the results were not always obtained on the basis of modern intent-to-treat analyses.

## AIMS AND HYPOTHESES

The aim of the present study was, within the framework of a randomized controlled trial, to compare the efficacy of MIP treatment with the usual form of CHCC. Since all Swedish mothers receive this care, MIP treatment assignment also included CHCC. However, for the sake of brevity, this group will be called *MIP*. The statistical design included an intent-to-treat analysis. Since disturbances may be caused by factors associated with the mother, her baby, or their interaction, the therapies address all three domains. The hypothesis was that MIP would yield greater differences in pre- and posttreatment for all three domains. For the maternal domain, depression was chosen as the primary outcome since its relationship with infant disturbance is well documented. For the infant domain, the primary outcome was mother-reported infant social and emotional functioning. For the relational domain, an interviewer-based assessment was made. Secondary outcomes for the maternal domain were mother-reported stress and general

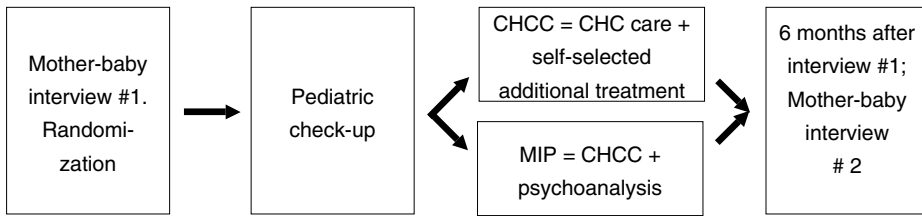


FIGURE 1. The study design. MIP = Mother–Infant Psychoanalytic treatment. CHCC = Child Health Centre Care. CHC = Child Health Centre.

psychic distress. Two additional secondary outcomes evaluated video-recorded mother–infant interactions and the level of healthcare consumption at the CHC.

## METHOD

### Design

Figure 1 demonstrates that this was a “constructive treatment strategy” design (Kazdin, 1998, p. 143) since both the MIP and CHCC groups continued their usual visits to the CHC, but one of them received mother–infant psychoanalytic treatment as well.

### Treatments

*MIP.* Analysts were assigned cases according to availability. They could not select cases and were not informed of the content of the interviews. Sessions lasted 50 min. Treatment duration, frequency, and content were left to the participants’ discretion (discussed later). The treatments took place at the analysts’ private receptions and were entirely funded. Each analyst treated 1 to 10 cases (*Mdn* = 4). Data on the individual analysts are provided in the Appendix.

*Treatment integrity of MIP.* Analysts met on a weekly basis for supervision and to maintain treatment adherence. Adherence was checked after the end of treatment when the first author interviewed the analyst and the mother (with the infant present) on separate occasions. A nine-item list of salient features covered the analyst’s contact with the mother and child and the interventions he or she used. As seen in the Appendix, each item was rated on a scale of 1 to 4 (*optimal adherence*). The continuous scale had a maximum score of 36. Internal consistency (Cronbach’s  $\alpha$ ) was .78. Total scores ranged from 20 to 36 ( $M = 28.7$ ,  $SD = 4.0$ ). The most common reason for lower scores was an insufficient working alliance between the mother and the analyst, or the analyst’s failure to perceive mothers’ covert negative attitudes toward him or her.

*CHCC.* The local CHC is responsible for checkups from birth to 6 years of age. Nurse calls follow a regular schedule; weekly during the first month, monthly up to 4 months, and every second month during the rest of the first year, followed by checkups at 1½, 3, 4, and 5 years. CHCC aims at assisting parents concerning their children’s physical, psychical, and social development (Mittag, 2009). This may concern nursing, food, sleep, and other concerns about the child’s health. Checkups consist of weighing and measuring the baby, providing inoculations, nutritional advice, scheduled pediatric checkups, and so on.

Contemporary CHCC also pays attention to psychological issues of parenthood and offers parental groups, infant massage, or International Child Development Programmes (Hundeide, 2007). The nurse seeks to promote a secure attachment and to detect depression through the Edinburgh Postnatal Depression Scale (EPDS; Cox, Holden, & Sagovsky, 1987). If she feels problems need further attention, she may increase the frequency of calls or offer an appointment to a pediatrician or a psychologist from the child psychiatric team. In this study, each mother reported on the content of CHCC at Interview 2.

*Power calculations.* These calculations were made on the basis of effect sizes in studies using the EPDS (Cox et al., 1987; Cooper, Murray, Wilson, & Romaniuk, 2003) and the Swedish Parental Stress Questionnaire (SPSQ; Östberg, 1998), two instruments used as outcome measures in the present study. In the study by Cooper et al. (2003), Cohen’s *d* was 0.53 for the subsample receiving psychodynamic mother–infant treatment as compared with the control group. We expected that MIP would reach a similar effect size. For an estimated power of .80 and a two-tailed significance of  $\alpha = .05$ , this would necessitate  $n = 56$ . As for the SPSQ, the calculated *d* values varied between 0.53 and 0.78 when normal and clinical samples were compared (Östberg & Hagekull, 2001). Opting for the same levels of power and  $\alpha$ , this would necessitate between 29 and 60 participants. In the end, 40 dyads per group were chosen.

*Sampling.* As shown in Figure 2, 214 dyads were recruited. Nurses at five CHCs who were collaborating with the project and had detected mother–infant disturbances informed the mothers

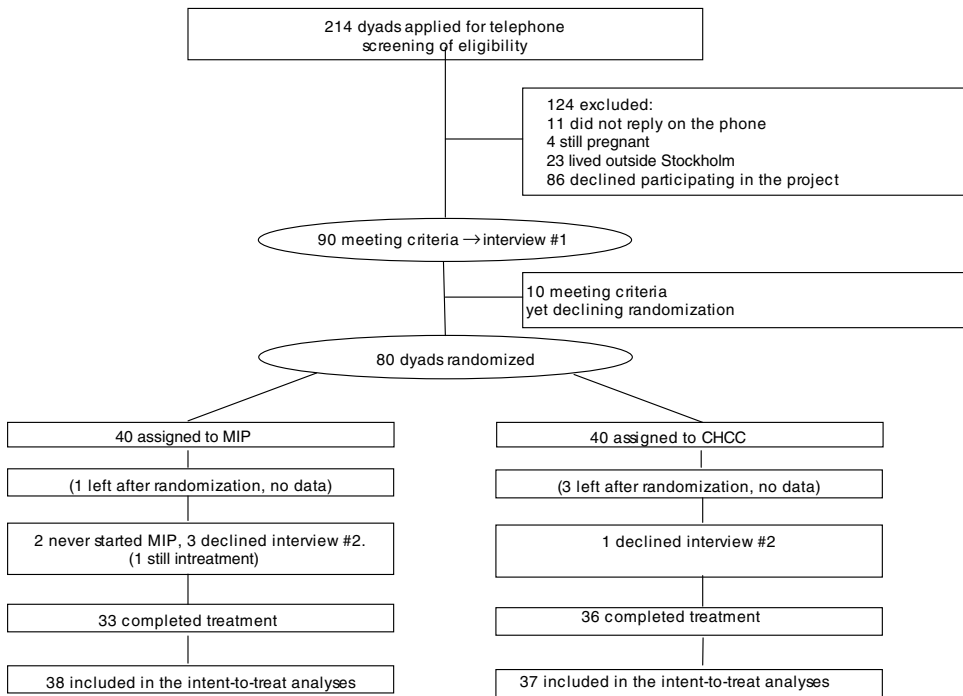


FIGURE 2. Flowchart of participants and randomization. Cases in parentheses were not included in the intent-to-treat analyses.

about the project. Mothers also were recruited through information provided at the delivery ward of the Karolinska University Hospital and at parenting Internet sites. All mothers were given a leaflet that mentioned the joys of parenthood, but also explained that babies sometimes seem to be unhappy and mothers worry. We stated our interest in interviewing mothers and babies, and informing them of treatment modalities and that if they consented, they could participate in a randomized study. A pediatric checkup was offered. Mothers contacted the project, and a 15-min telephone interview was conducted by the first author. Twenty-seven women who contacted the project were excluded because they lived outside Stockholm or were still pregnant. Eighty-six mothers decided not to participate because their concerns had abated or because they simply wanted to support such research, but had not understood that the project focused on dyadic relationship problems. Eleven mothers broke off contact before the telephone calls could be made. The remaining 90 mothers with babies were interviewed in person from October 2005 to January 2009. They were not reimbursed for their participation. The final composition of the sample is presented later.

*Inclusion criteria.* Criteria were that the mother should express significant concerns regarding one or more of the following domains: (a) herself as a mother, (b) her infant’s well-being, or (c) their relationship. This was operationalized as  $\leq 80$  (“perturbed relation”) between mother and child on the Parent–Infant Relationship Global Assessment Scale (PIR-GAS; ZERO TO THREE, 2005) or  $\geq 2.5$  on the SPSQ (Östberg, Hagekull, & Wettergren, 1997). In addition, the following criteria had to be met: (d) The age of the infant was less than 18 months, (e) the duration of the mother’s concerns was longer than 2 weeks, (f) their domicile was in Stockholm, and (g) the mother had a reasonable mastery of the Swedish language.

*Exclusion criteria.* Exclusion criteria were kept to a minimum: (a) maternal psychosis or (b) substance dependence according to the *Diagnostic and Statistical Manual of Mental Disorders, fourth edition, text revision (DSM-IV-TR, 2000)*, to an extent that would preclude collaboration. No mother met these criteria.

*Randomization.* At the end of the first interview, each mother was informed of the treatment alternatives. If she consented to randomization, she picked a sealed envelope from a bag containing 40 tickets for each treatment type (MIP or CHCC). To conceal treatment allocation, an official outside the project placed the tickets in identical envelopes before the project even started. We randomized during the interviews to deal with maternal reactions to the assignment. This was ethically preferable and conducive to reducing dropout and refuser rates. Figure 2 presents a flowchart of recruitment and assignment to MIP and CHCC treatment groups.

### **Participants**

In the interviews, 10 mothers declined to be randomized. They explained that they would find it hard to accept being assigned to MIP treatment since they thought their problems were not “big enough” to warrant such treatment. Compared with the mothers consenting to randomization, their scores were significantly,  $t = 11.18-28.65$ ,  $p = .002-.013$ , more beneficial on the SPSQ (on average, 2.30 for the nonrandomized vs. 2.85 for the randomized), the General Severity Index (GSI) of the Symptom Check List-90 (SCL-90; Derogatis, 1994) (0.45 vs. 0.97), and the

PIR-GAS (78.9 vs. 68.5), and the length of pregnancy sick leave (0.6 vs. 2.2 months). These 10 mother–infant dyads were omitted from the outcome analyses.

Of the 80 randomized dyads, three CHCC cases and one MIP case explicitly declared after the interviews that they no longer wished to participate in the study. They never returned any questionnaires. For ethical reasons, all their interview recordings were deleted, and their data were not used. One MIP case was still in treatment at project termination and was therefore excluded from the analyses. Two MIP cases never started treatment but their data were nevertheless included in the intent-to-treat analyses. This also was the case with 1 CHCC mother and 3 MIP mothers who decided not to come to the second interview. As seen in Figure 2, 38 MIP cases and 37 CHCC cases were included in the intent-to-treat outcome analyses. They are summarized in Table 1, which shows the prevalence of Cesarean deliveries and delivery complications, maternal illnesses (epilepsy, thyrotoxicosis, diabetes, ulcerative colitis, multiple sclerosis), and prior psychiatric disorders (depression, anxiety, burnout conditions, eating disorders, childhood and adolescence psychiatric disorders). The educational level was slightly higher than for women of a similar age in Stockholm.

### *Assessments*

Pretreatment data were collected from interviews, interaction ratings by external observers, and self-report questionnaires. The order of the data collection was as follows. First, semistructured interviews with the mother, with the child present, assessed the mother's psychological state up to and during pregnancy, delivery, and the postnatal period as well as her family relations, contact with the baby, and his or her functioning. The baby's state and interaction with the mother also was followed closely during the interview. These impressions formed the basis for the interviewer's assessment of the quality of the mother–infant relationship. In addition, a 10-min video recording was made during the interviews with the mother and child alone in the room. It was used for specific interaction ratings made by external, uninformed, trained observers. Toward the end of the interview, randomization was performed, and the mother's reactions were explored. She received questionnaires to be completed at home and returned via postal mail. Corresponding outcome data were collected through renewed interviews 6 months after the first interview. At this time, separate interviews with the analyst also were carried out as part of the assessment of treatment integrity.

### *Primary Outcome Instruments*

*Maternal postnatal depression.* The EPDS (Cox et al., 1987), which has a Swedish translation (Lundh & Gylland, 1990), is a self-report questionnaire containing 10 items with 3-point scales. It is widely used at Swedish CHCs and has been validated on samples in Sweden (Wickberg & Hwang, 1997). Cox et al. (1987) and Murray and Carothers (1990) found adequate sensitivity (.86 and .96) and specificity (.78 and .81) for major depression compared with a standardized interview. Internal consistency (Cronbach's  $\alpha$ ) was .87. Our  $\alpha$  for pretreatment scores was .82.

*Infant social and emotional functioning.* In the Ages and Stages Questionnaire: Social-Emotional (ASQ:SE; Squires, Bricker, Heo, & Twombly, 2002), items are rated on a four-step scale, with the exception of four items rated on a two-step scale. Test-retest reliability is reported at .94, and Cronbach's  $\alpha$  for internal consistency for babies of 3 to 14 months at .69 and .67 (Squires,



**TABLE 1.** *Sample Characteristics (N = 75). Sources: Interview 1 and Pediatric Records*

	% or <i>M</i> MIP	(SD) CHCC
Recruited from		
CHC, %	32	27
Internet ads, %	57	62
Karolinska Hospital, %	11	11
Infants		
Infant age (months)	4.4 (2.4)	5.9 (3.8)*
Girls, %	60	57
Delivery, pregnancy week	39.9 (1.3)	39.7 (2.2)
Delivery, complicated	38%	35%
Birth weight, gr	3540 (560)	3370 (600)
<i>M</i> Apgar Score 1	8.9 (0.9)	9.0 (0.7)
<i>M</i> Apgar Score 2	9.9 (0.6)	9.8 (0.5)
<i>M</i> Apgar Score 3	9.9 (0.2)	10.0 (0.2)
Breastfeeding at 6 months, completely or partly	62%	68%
Mothers		
Primiparae	81%	78%
<i>M</i> age (years) at birth of child	34.0 (3.5)	32.3 (4.6)
Immigrant	11%	22%
Single	5%	8%
Educational level		
Post A-level	68%	62%
A-level	27%	24%
Below A-level	5%	14%
Somatic chronic disease	14%	11%
Psychiatric disorder in adulthood	51%	60%
Psychiatric disorder in childhood/adolescence	11%	24%
Previous bulimia or anorexia	19%	14%
Pregnancy sick leave, completely or partly (months)	1.8 (2.2)	2.4 (3.2)
Fathers		
Father's first child	62%	65%
<i>M</i> age (years) at birth of child	35.1 (5.2)	34.0 (5.2)
Educational level		
Post A-level	76%	57%
A-level	13%	29%
Below A-level	11%	14%

MIP = Mother–Infant Psychoanalytic treatment; CHCC = Child Health Centre care; CHC = Child Health Centre.

\**p* < .05 (between-groups).

Bricker, Heo, & Twombly, 2001). There are three versions for the age ranges of this study: 3 to 8, 9 to 14, and 15 to 20 months, each with a different number of questions. To enable comparison across age groups, we report mean scores across all items. Each version was independently translated into Swedish, retranslated, and approved by the constructor. Our  $\alpha$  for pretreatment scores was .79 and .66 for age intervals 3 to 14 months.

*Mother–baby relationship.* The PIR-GAS (ZERO TO THREE, 2005) is an observer-rated scale ranging from 1–10 (*documented maltreatment*) to 91–100 (*well-adapted*). It has shown significant correlations with DC 0–3 diagnoses and with Child Behavior Checklist ratings (Thomas & Guskin, 2001) as well as with predictions of mother–infant interaction and child internalizing symptomatology (Aoki, Zeanah, Heller, & Bakshi, 2002).

All interviews were made by the first author, an experienced child and infant psychoanalyst and psychiatrist, who also made the PIR-GAS ratings. For interrater-reliability assessments, we chose an independent rater from the Stockholm Child Psychiatry Organization to counterbalance any possible bias in favor of MIP treatment. She is a psychologist with extensive experience in work with infants, PIR-GAS ratings, and training programs. Regular seminars kept rating quality at a high level and minimized rater drift. She rated video-recorded interviews, of which 20 were made before treatment and 20 after treatment. The respective intraclass correlation coefficients (ICCs) were .90, and .86. To further investigate any possible rater allegiance, we tested Rater  $\times$  Time  $\times$  Treatment interactions in a univariate analyses of variance (ANOVA),  $F(1, 60) = 0.408$ ,  $p = .525$ . Thus, allegiance was assumed not to have influenced ratings in any direction. The outcome analyses used rater means.

### **Secondary Outcome Instruments**

*Maternal stress.* The SPSQ (Östberg et al., 1997) is a Swedish-language version of the Parenting Stress Index (Abidin, 1990) with 35 items. The  $\alpha$  for internal consistency of total mean scores ranged from .87 to .90 (Östberg et al., 1997). Our  $\alpha$  for pretreatment scores was .88.

*Maternal general psychological distress.* The SCL-90 (Derogatis, 1994), with a Swedish-language version (Fridell, Cesarec, Johansson, & Malling Thorsen, 2002), is a self-report questionnaire containing 90 items rated from 0 to 4. The GSI (i.e.,  $M$  across all items) was used. Our  $\alpha$  for pretreatment scores was .96.

*Parent–infant interaction.* The Emotional Availability Scales (EAS; Biringen, Robinson, & Emde, 1998) assessed videotaped mother–baby interactions of 10 min' duration. Using the standard instruction, the interviewer told the mother to interact with her child as she would ordinarily do at home. Then he left the room, and the recording started.

The EAS has four maternal dimensions, each reflecting one aspect of interactive behavior—Sensitivity, Structuring, Nonintrusiveness, and Nonhostility—and two infant dimensions—Responsiveness and Involvement. ICCs of the various scales have been reported at  $\sim .80$  (Biringen, 2000). Two raters with substantial clinical infant experience, both blind to case history, interview content, and assignments, were trained by the first author and certified by the EAS constructor. Regular seminars kept rating quality at a high level and minimized rater drift.

ICCs were calculated for 49 dyads. For maternal Sensitivity, Structuring, and Nonintrusiveness, they were .72, .68, and .84, respectively, and for infant Responsiveness and Involvement, they were .72 and .76, respectively. Maternal Nonhostility was excluded due to unsatisfactory ICCs. Since the ranges of the original dimensions varied between 1 and 5, 1 and 7, and 1 and 9, respectively, we divided each score by its range and calculated the means. Thus, each dimension ranged between 0 and 1 (*optimal interactive contributions*). These calculations were intended to facilitate comparisons between the dimensions, thus following principles adopted in the fourth edition of the EAS (Biringen, 2008). The outcome analyses were made on the basis of rater mean scores.

*CHC records.* To assess healthcare utilization, records were requested. Every notation regarding somatic or psychological concerns, or visits other than routine calls, received 1 point. The points were subsumed under four subscales: infant somatic concerns, infant psychological concerns, maternal somatic or psychological concerns, and calls beyond routine. To measure treatment effects, monthly points were calculated for the period before and after the first interview.

### **Statistics**

SPSS Version 15.0 was used for *t* tests, bivariate and partial correlations, principal components analyses, linear mixed-effects modeling, and Kruskal–Wallis nonparametric tests. Scores were considered outliers if *z*-transformed scores exceeded 3.29 ( $p < .001$ , two-tailed test). They were replaced by raw scores corresponding to  $z = 3.29$  (Tabachnik & Fidell, 2007). This procedure was applied to 0.3% of the scores. Multivariate outliers were identified by calculating Mahalanobi's distance through a multiple regression analysis. An estimate was used of  $p < .001$ , corresponding to  $\chi^2 > 31.264$  for  $df = 11$ , where *df* is the number of variables. One outlier was found in the CHC statistics. It was very rare to find missing data; when discovered, they were missing at random, and no scores were imputed. To investigate possible redundancies among outcome measures, we also performed a principal components analysis of pretreatment scores.

To measure outcomes, an intent-to-treat analysis was carried out. All cases providing data were used in the analyses: the four cases declining Interview 2; the two cases remaining in the study, but who never started the MIP treatment that they had been assigned to; and the cases with data from Interviews 1 and 2. In contrast, 1 mother still in treatment as well as 4 mothers who did not submit any questionnaire data and declined to participate in the study immediately after Interview 1 were excluded from the intent-to-treat analyses. The final analysis comprised 75 cases, with 38 cases in the MIP group and 37 in the CHCC group.

Pre- and posttreatment scores for each normally distributed variable were entered in a linear mixed-effects modeling procedure. Two covariance types were tested: diagonal and unstructured correlations, with six and seven parameters, respectively. For every analysis, the covariance type with the best fit was chosen.

Cohen's effect size *d* used pooled *SDs* of the posttest scores. Becker's  $\delta$  (Becker, 1988), a standardized mean-change score accounting for pretreatment differences between groups, also was calculated by subtracting one within-group effect size from the other. The formula is presented in the Appendix.

*Ethical approval.* The project was approved by the Swedish Central Ethical Review Board, Dnr Ö 16–2005. Mothers were told that they could at any time leave the research project and that this would not affect their decision to remain in treatment if they wished to do so. They formally consented to participate by signing a document. Interview video recordings were made only with their consent. The interviewer guaranteed his ethical responsibilities in a document that he signed and gave to the mother. The Appendix contains the documents.

## **RESULTS**

### ***Pretreatment Data***

All questionnaire scores and ratings of interactions and relationships had a normal distribution. CHC indices were distributed nonnormally and skewed positively. As Table 2 shows, the mean

**TABLE 2.** Pretreatment Data. Prevalence (%) or Mean Scores (SD)

Measure	MIP	CHCC	Reference Data
EPDS	12.24 (4.64)	11.51 (4.80)	5.65, <sup>a</sup> 6.92 <sup>b</sup>
ASQ:SE	2.03 (1.15)	1.90 (1.17)	0.87 <sup>c</sup>
PIR-GAS	68.0 (11.4)	69.6 (12.9)	
SPSQ	3.01 (0.49)	2.92 (0.60)	2.5 <sup>d</sup>
GSI	0.99 (0.61)	0.96 (0.50)	0.45, <sup>e</sup> 0.34 <sup>f</sup>
EAS Maternal sensitivity	.56 (.14)	.60 (.14)	
EAS Maternal structuring	.67 (.15)	.71 (.14)	
EAS Maternal non-intrusiveness	.82 (.16)	.78 (.20)	
EAS Infant responsiveness	.60 (.18)	.67 (.19)	
EAS Infant involvement	.59 (.20)	.64 (.22)	
DC 0–3:R, Axis I diagnosis	19%	8%	18 g
DC 0–3:R, Axis II RPCL notation	81%	86%	8.5 g
DC 0–3:R, Axis III diagnosis	16%	3%*	
DC 0–3:R, Axis IV stressors	62%	87%*	
Monthly CHC notes of concern, infant psychological	0.46 (0.56)	0.61 (0.93)	
Monthly CHC notes of concern, infant somatic	0.87 (0.78)	0.93 (0.94)	
Monthly CHC notes of concern, mother psychological and somatic	0.50 (1.12)	0.61 (0.86)	
Monthly extra visits to CHC	0.33 (0.43)	0.31 (0.41)	

MIP = Mother–Infant Psychoanalytic treatment; CHCC = Child Health Centre care; EPDS = Edinburgh Postnatal Depression Scale; ASQ:SE = Ages and Stages Questionnaire: Social-Emotional; PIR-GAS = Parent–Infant Relationship Global Assessment Scale; SPSQ = Swedish Parental Stress Questionnaire; GSI = General Severity Index of the Symptom Check List-90; EAS = Emotional Availability Scales; DC 0–3:R = Diagnostic Classification, ZERO TO THREE (Rev. ed.); RPCL = Relationship Problems Checklist; CHC notes = notations in records from the Child Health Centre.  $n = 38$  for MIP and 37 for CHCC, except for the EAS ( $n = 33$  and 30) and the CHC statistics ( $n = 30$  and 32).

<sup>a</sup>Seimyr, Edhborg, Lundh, & Sjögren, 2004. <sup>b</sup>Wickberg & Hwang, 1997. <sup>c</sup>Squires, Bricker, & Twombly, 2004 (mean scores/item of “no-risk” infants <1 year). <sup>d</sup>Östberg et al., 1997. <sup>e</sup>Fridell et al., 2002. <sup>f</sup>Börjesson, Ruppert, & Bågedahl-Strindlund, 2005. <sup>g</sup>Skovgaard et al., 2008.

\* $p < .05$  (between-groups).

scores and ratings were at clinical levels comparable with similarly aged norm samples and cutoff scores. The EAS dimensions showing the most compromised scores were Maternal Sensitivity (.58), Child Involvement (.62), and Responsiveness (.63). In contrast, ratings of maternal nonintrusiveness and structuring were more favorable: .81 and .69, respectively. Each number refers to a percentage of an ideal interactive contribution from mother or child. The EAS statistics were based on 63 cases; 7 infants aged 0.5 to 3 months were asleep, 3 mothers did not allow video recordings, and two recordings failed technically.

A principal components analysis of pretreatment scores on the questionnaires, the EAS ratings, and the interviewer-based PIR-GAS ratings yielded three factors with eigenvalues > 1. The solution explained 74% of the variance. The first varimax-rotated component subsumed the EAS dimensions, with the exception of Nonintrusiveness, with loadings of  $\geq .8$ . The second component subsumed the questionnaires with loadings of  $\geq .7$ . The third component subsumed the PIR-GAS ratings and the Nonintrusiveness dimension, with loadings of .6 and .7, respectively. This analysis is presented in Table 3.

**TABLE 3.** Factor Loadings  $>.40$ , Following Principal Components Analysis With Varimax Rotation, of Pretreatment External Ratings of Interactions, Questionnaire Scores, and Interviewer-Rated Dyadic Relationships

	Component		
	1	2	3
EAS Infant Responsiveness	.932		
EAS Infant Involvement	.921		
EAS Maternal Sensitivity	.888		
EAS Maternal Structuring	.771		
EAS Maternal Nonintrusiveness			.731
PIR-GAS			.636
GSI		.839	
SPSQ		.838	
EPDS		.823	
ASQ:SE		.673	

EAS = Emotional Availability Scales; PIR-GAS = Parent–Infant Relationship Global Assessment Scale; GSI = General Severity Index of the Symptom Check List-90; SPSQ = Swedish Parental Stress Questionnaire; EPDS = Edinburgh Postnatal Depression Scale; ASQ:SE = Ages and Stages Questionnaire: Social-Emotional.

The interviewer assessed the prevalence of DC 0–3:R Axis I regulatory and feeding disorders as 13%. The Axis II Relationship Problems Checklist included primarily the anxious/tense type, with a prevalence of 84%. The mean PIR-GAS scores implied a “significantly perturbed” relation. Sixteen percent received a somatic Axis III diagnosis, which showed only minor problems with the exception of 1 baby with a congenital metabolic disease. Three babies were born in Weeks 33 to 34 of the pregnancy, with no major medical sequelae and incubator periods of 1, 2, and 10 days, respectively. Axis IV stressors included relationship difficulties, unemployment, absent father, and maternal psychic and somatic problems. Pediatric records showed no undisclosed serious medical concerns.

*T* tests indicated that the MIP children were 1.5 months younger,  $t = 2.22, p = .030$ , and had more somatic Axis III child conditions,  $t = 2.15, p = .035$ , than did the CHCC children. The CHCC mothers demonstrated more Axis IV stressors,  $t = 2.46, p = .016$ .

**Treatment Data**

MIP dyads had a mean duration of 29 ( $SD = 24.5$ ) treatment sessions ( $Mdn = 23$ , range = 0–101; the 25th, 50th, and 75th percentiles were at 12, 23, and 35). For the two cases with 0-values, mothers changed their minds and never started MIP. Nevertheless, they were included in the intent-to-treat analyses. The mean session frequency was 2.5 ( $SD = 1.0$ ) weekly sessions ( $Mdn = 3$ , range = 1–4). Two MIP mothers consulted once with a psychologist within the framework of CHC care, and 2 continued with antidepressants. Their outcome data were included in the outcome analyses as MIP cases without any corrections.

For the CHCC dyads, the staff initiated brief psychotherapies in four cases. Furthermore, 4 mothers sought individual or marital psychotherapy, and 4 continued to take antidepressants. On

**TABLE 4.** Modeled Pre- and Posttreatment Scores (SD) by Treatment Assignment

Outcomes	MIP pre	MIP post	CHCC pre	CHCC post	F	df	p	Cohen's Becker's		
								d	Δ	RC M C
Primary										
EPDS	12.29 (4.64)	6.28 (4.11)	11.44 (4.77)	7.99 (4.55)	5.894	69.3 <sup>a</sup>	.018	0.39	0.57	17 11
ASQ:SE	2.04 (1.15)	1.00 (.72)	1.90 (1.17)	1.14 (.70)	1.255	73.4 <sup>a</sup>	.266	0.20	0.25	9 7
PIR-GAS	67.76 (11.4)	83.53 (9.9)	69.60 (12.9)	76.67 (13.2)	8.210	68.3 <sup>a</sup>	.006	0.58	0.84	22 10
Secondary										
SPSQ	3.01 (0.49)	2.67 (0.48)	2.92 (0.60)	2.74 (0.54)	3.901	67.9 <sup>a</sup>	.052	0.14	0.37	13 7
GSI	0.98 (0.61)	0.57 (0.45)	0.96 (0.50)	0.68 (0.44)	2.038	71.2 <sup>a</sup>	.158	0.25	0.11	17 20
Sensitivity	.56 (.14)	.64 (.12)	.59 (.14)	.57 (.17)	4.872	61.8 <sup>a</sup>	.031	0.42	0.67	5 3
Structuring	.67 (.15)	.71 (.12)	.70 (.14)	.69 (.16)	1.718	59.9 <sup>a</sup>	.195	0.15	0.36	6 4
Nonintrusive	.82 (.15)	.78 (.16)	.78 (.20)	.73 (.23)	0.039	121.7 <sup>b</sup>	.844	0.27	0.02	6 7
Responsiveness	.60 (.18)	.69 (.13)	.66 (.19)	.67 (.20)	2.701	63.0 <sup>a</sup>	.105	0.17	0.47	3 4
Involvement	.60 (.19)	.68 (.14)	.62 (.22)	.66 (.19)	0.444	60.8 <sup>a</sup>	.508	0.10	0.22	7 7

*Note.* EAS = Emotional Availability Scales; PIR-GAS = Parent-Infant Relationship Global Assessment Scale; GSI = General Severity Index of the Symptom Check List-90; SPSQ = Swedish Parental Stress Questionnaire; EPDS = Edinburgh Postnatal Depression Scale; ASQ:SE = Ages and Stages Questionnaire: Social-Emotional Repeated covariance type: a/unstructured correlations; b/diagonal. MIP pre = mean MIP pretreatment scores, etc. RC M|C = no. of cases improved above Reliability Change Index in MIP|CHCC groups. Sensitivity, Structuring, and Nonintrusiveness refer to the maternal dimensions of the EAS (Emotional Availability Scales). Responsiveness and Involvement refer to the infant dimensions.

average, the psychotherapies comprised four ( $\pm 2$ ) sessions. Some were cognitive behavioral, others were psychodynamic. Twelve mothers elected to take part in any of these treatments, which were considered part of the usual care at CHCs. Their outcome data were included in the outcome analyses as CHCC cases without any corrections.

### **Pre- and Posttreatment Differences Between MIP and CHCC Groups**

The intent-to-treat outcome analyses comprised 38 MIP cases and 37 CHCC cases. The primary and secondary outcome variables were distributed normally with the exception of the data culled from the CHC records, which were skewed positively. The comparison of pre- and posttreatment mean scores showed that all questionnaire and interaction measures had improved. Improvements were greater in the MIP group than they were in the CHCC group. Table 4 presents the results of the mixed-effects analyses. For the primary outcomes, the positive effects of MIP were significant on the EPDS and the PIR-GAS, but nonsignificant on the ASQ:SE. Secondary outcome effects were significant on the EAS Maternal Sensitivity dimension, but nonsignificant on the remaining EAS dimensions. Effects were nearly significant on the SPSQ, but nonsignificant on the GSI. CHC record data were analyzed nonparametrically. Kruskal-Wallis tests yielded nonsignificant group differences,  $\chi^2 = 0.002-0.532$ ,  $p = .466-.964$ .

Cohen's  $d$  values were small to moderate whereas Becker's  $\delta$  values were generally higher. Concerning the number of cases with gains exceeding the Reliable Change Index; Jacobson & Truax, 1991), MIP was superior to CHCC in six outcomes, equal in one outcome, and inferior in three outcomes.

Two thirds of the CHCC group did not receive any additional psychological help. A renewed linear mixed-effects analysis compared these 25 dyads with the MIP group. Treatment  $\times$  Time effects then also reached significant levels for the SPSQ,  $p = .035$ , and improved for the GSI on  $p = .086$ . For the remaining outcomes, results were essentially unchanged compared with the analyses of all cases in the MIP and CHCC groups.

Since MIP duration and frequency varied, a separate analysis of the MIP cases investigated the influence of these parameters on outcomes. Linear mixed-effects analyses were performed on each outcome variable, with time as the independent variable and MIP duration and frequency, respectively, as covariates. There were no significant Duration  $\times$  Time effects,  $0.300 \geq F \geq 0.000$ ;  $.586 \leq p \leq .992$ , or Frequency  $\times$  Time effects,  $1.165 \geq F \geq 0.010$ ;  $.285 \leq p \leq .922$ .

## DISCUSSION

Our hypothesis was that all outcomes would be superior in the MIP group. Among the primary outcomes, effects were significant for maternal depression (EPDS) and dyadic relationship qualities (PIR-GAS), but not for mother-reported infant functioning (ASQ:SE). Secondary outcomes were significant for Maternal Sensitivity (EAS), nearly significant for maternal stress (SPSQ), and nonsignificant for the remaining EAS dimensions, maternal general psychic distress (GSI), and the consumption of healthcare at the CHC. Neither MIP duration nor MIP frequency significantly affected outcomes.

The EPDS effects are important since postnatal depression is known to be linked with mother–infant relational disturbances. Relationship disturbances are common in clinical samples (Skovgaard et al., 2008) and may impact negatively on child development. Therefore, the PIR-GAS effects were clinically important, but it also is important to scrutinize the validity of our ratings. During interviews, mothers ventilated their experiences, including what they felt about their assigned treatments. This made it impossible to make interview ratings that were blind to the assignments. To counter this threat to objectivity, we performed interrater reliability assessments with a judge whose allegiance, if any, would be to CHCC. As the ANOVA indicated, allegiance did not seem to affect ratings.

The PIR-GAS outcomes and effect sizes were larger than those of the other instruments. Plausibly, the 90-min interviews provided a broader basis for assessments than did the 10-min EAS videos, thus capturing a broader spectrum of therapeutic changes. Regarding the questionnaires, their fixed items may be less sensitive to psychotherapy effects than may a semistructured interview.

The nonsignificant ASQ:SE effects probably confirmed a true null hypothesis, especially since the pretreatment scores were closely related to those of the other questionnaires that had significant treatment effects. Further research is needed to learn whether any subgroups responded differentially on the ASQ:SE.

Concerning secondary outcomes, the effects on maternal stress were clinically important since stress negatively influences child development (Essex et al., 2006) and maternal perceptions of child temperament (Mäntymaa, Puura, Luoma, Salmelin, & Tamminen, 2006). One could have expected MIP treatments to be as efficacious on the SPSQ as on the EPDS. The interviews with the analysts and the mothers confirmed that MIP treatments focused on the mothers' guilt feelings and self-esteem, areas that are captured by the EPDS. On the other hand, the SPSQ collects information on issues of marital relations, social isolation, and psychosomatic symptoms, and

these seemed not to be addressed to the same extent in the MIP treatments. The absence of effects on the GSI indicates that MIP treatment was not efficacious in improving self-reported general psychic distress and psychiatric symptoms. This finding was not surprising since MIP treatment focused on the woman's role as a mother, not as someone afflicted by psychotic symptoms, obsessional thoughts, general anxiety, interpersonal sensitivity, and so on.

One EAS dimension, Maternal Sensitivity, showed significant effects. Sensitivity "emphasizes . . . clarity of perception and prompt responsiveness vis-à-vis the child's signals and communications . . . it also emphasizes affective interactions and negotiation" (Biringen, 2000, p. 105). Of the several EAS dimensions, Sensitivity seems to be particularly closely linked to measures of infant mental health. Ziv, Aviezer, Gini, Sagi, and Koren-Karie (2000) found that infant attachment classifications were significantly associated only with Sensitivity, not with the other EAS dimensions. Mothers of secure infants had higher Sensitivity scores than did mothers of insecure-ambivalent infants (Ziv et al., 2000). Aviezer, Sagi, Joels, and Ziv (1999) showed that infants' attachment security was more closely associated with maternal sensitivity than with maternal structuring/intrusiveness. The link between sensitivity and attachment security is probably related to the fact that "sensitive mothers are thought to provide the infant with experiences that instill a sense of trust in the relationship" (Biringen et al., 2005, p. 298).

Our posttreatment interviews pointed to two major reasons for the effects of MIP treatment on maternal sensitivity. Many mothers confirmed that the analyst's "dialogue" with the baby, although it initially seemed odd, opened them up to the baby's individuality and the range of his or her suffering. This made them more sensitive to the baby's signals. On the other hand, this revelation taxed their self-esteem and evoked guilt feelings, so it was important for the analysts to help them in these areas.

Why MIP treatment yielded effects on Maternal Sensitivity, but not on the other dimensions, is a relevant question. Possibly, a mother needs to relate to an older child than those in our sample to demonstrate her full capacity for structuring. As for Maternal Nonintrusiveness, the absence of differential outcomes may have been due to a ceiling effect. Concerning the two child dimensions, one would have expected an infant-oriented method such as MIP to yield greater effects. The infants' mean age at Interviews 1 and 2–5 and 11 months, respectively—may have compromised the validity of the assessments. The lack of effects also might confirm a true null hypothesis.

In contrast to our original hypothesis, the consumption of CHCC did not decrease significantly for dyads in MIP treatment. The improvements indicated by the Treatment  $\times$  Time effects did not affect healthcare consumption. Any possible effects might be attenuated by the fact that the CHC records included data that had been collected when the dyads were still in treatment as well as posttreatment data.

In comparing the results of the present study with others, we focus on the articles by Lieberman et al. (1991) and Murray et al. (2003), although they are different in two important respects. They were designed with a no-treatment control group, and only the second study applied an intent-to-treat statistical analysis. Concerning the absence of effects on mother-reported infant behavioral problems, our results were similar to those of Murray et al. In contrast to our study, however, their observer-rated interactions yielded weak effects on maternal sensitivity. Lieberman et al. reported beneficial effects on several interaction measures, as opposed to our study's finding of such effects on only one significant measure. On the other hand, we want to urge caution in any interpretations of these differences. In their study, the therapies lasted for 1 year while in the study by Murray et al. and our study, they lasted for only 10 weeks on average.



Finally, our speculations about why MIP treatment was generally superior to CHCC led to the following conclusions: Outcome interviews with the mothers indicated that the MIP mothers appreciated the analyst's personal commitment to the baby, feeling that he or she worked hard to connect with the baby. "In the end I discovered that my baby is a person," a mother said. Similar comments were rare among the CHCC mothers. It is possible that the MIP focus on the relationships between analyst and baby, and to some extent also between analyst and mother, accounted for the obvious effects on the PIR-GAS and on EAS Maternal Sensitivity.

### *Methodological Considerations*

The treatment contrasts were probably mitigated by other factors attenuating differential effects. First, the MIP group also paid regular visits to the CHC. Second, many mothers in the CHCC group received additional psychological support. This option was ethically motivated and allowed us to compare "everyday treatments" with MIP treatment; however, this implied a "compensatory equalization of treatments" (Cook & Campbell, 1979, p. 54). We therefore compared MIP cases with the 25 CHCC cases that did not receive any additional psychological treatment. The effects then became significant also for the SPSQ and nearly significant for the GSI. A third attenuating factor was that the initial interviews most probably constituted a therapeutic element for mothers in both groups.

Concerning effect sizes, the present study provides an interesting argument for using not only Cohen's  $d$  but also a measure, Becker's  $\delta$ , that takes into account pretreatment differences between the groups. Despite randomization, scores in our sample were not equally distributed but were less optimal in the MIP group. Consequently, the value of Becker's  $\Delta$  was higher than that of Cohen's  $d$ . Previous studies of mother–infant therapies seldom reported effect sizes of any kind. Nevertheless, it was possible to calculate Cohen's  $d$  from data on the EPDS in some studies (Armstrong, Fraser, Dadds, & Morris, 1999; Cooper et al., 2003; Holden et al., 1989). This yielded values of 0.4 to 0.6. When comparing this result with our  $d$  of 0.39, one must take into account the aforementioned mitigating factors and the different nature of control groups in the other studies. For example, Cooper et al. (2003) used a waiting-list control. In contrast, we used an active, albeit low-dose, form of care at the CHC that was common to both groups.

### *External Validity*

Caution must be exercised in any attempt to generalize the findings of this study. Of the 214 mothers who contacted the project and were interviewed on the telephone, only 90 chose to be interviewed face to face; of these, only 80 agreed to be randomized. During the telephone interviews, two main motives emerged among the mothers who chose not to be interviewed in person. One group motivated their decision by claiming that they and/or their babies already felt much better. A second group had failed to observe the information presented in the recruitment folder that this was a treatment study; they only wanted to support this kind of research and declared that they had never experienced severe problems with their babies. This could be interpreted in two ways: Either neither group satisfied the inclusion criteria and thus did not belong to the study population or their explanations reflected their fluctuating or ambivalent treatment motivations. If the latter interpretation is correct, we do not know whether MIP treatment could help such mothers and babies.

In some respects, such as the share of mothers who were breastfeeding their children at 6 months of age and mothers' age at childbirth, these mothers were similar to the Stockholm average, but there also were differences. According to comparative statistics ([www.uskab.se](http://www.uskab.se)), there were fewer single mothers (7 vs. 12% for 1-year-olds, although the comparison figure is based on more liberal criteria). Mothers' educational level was slightly higher (66 vs. 51% post-A-level), and there were slightly fewer immigrants (16 vs. 21%). This probably reflected the recruitment procedure that targeted Swedish-speaking mothers who were interested in mother–infant relations. Thus, we do not know to what extent MIP treatment might help samples with other educational, social, and marital characteristics.

### LIMITATIONS

The initial external ratings were performed on material that was collected before randomization, but questionnaires were filled in afterwards, which might have affected the responses. Our rationale for using this procedure was that during the initial telephone contacts, many mothers seemed to be wary of opening up to an unknown person. The suggestion that questionnaires would be mailed to them before the face-to-face interview might have compromised their participation. This risked skewing the sample in favor of mothers with more stable personalities and greater treatment motivation. The assumption that CHCC assignment would generate disappointment among the mothers was contradicted by the fact that pretreatment data were generally more optimal in this group. Another indication that CHCC mothers were not generally more disappointed than were the MIP mothers with their assignment was that the final number of noncompleters over the entire time span of the study was roughly equal in the two treatment groups.

The problem of the objectivity of PIR-GAS was addressed in the general discussion. This issue highlights the difficulty of assessing clinical and psychodynamic patterns while also enabling objective and blind ratings. We were interested in gaining a psychodynamic understanding of how the mother–child relationship problems had started and how they developed between the two interviews. The mothers were encouraged to talk about how they experienced themselves, their children, their partners, their lives in general, and so on. During the follow-up interviews, they often linked these issues to their treatment experiences. Thus, the interview format did not allow the assignment to be concealed. Our approach was to choose a second rater who had no allegiance to MIP treatment and, in addition, to investigate interrater reliability and allegiance bias. As seen from these calculations, it is highly improbable that ratings were biased in any direction.

Concerning the ratings of treatment integrity, two options were considered. One was to have two independent ratings of each analyst interview. The other was to combine a rating of an analyst interview with a rating of a mother interview, both made by the same rater. The first method prioritizes considerations of reliability, and the second method those of validity. We discovered at an early stage that some of the accounts of mothers and their analysts diverged, for example, regarding the analyst's awareness of any negative feelings toward him or her on the part of the mother. We therefore chose the second method, prioritizing validity, although it may entail a single-rater bias. When the interviews with the mother and the analyst provided divergent information on an item on the integrity scale, the mean value was used.

Finally, conclusions about the efficacy of MIP treatment cannot automatically be extended to samples with other social and ethnic characteristics nor do we know how these outcomes will

bear out in the future. A follow-up study when the children have reached 4.5 years of age is under way.

### *Clinical Implications*

A common response to mothers with concerns about their babies is “Don’t worry, this will pass.” The mothers in this study were obviously not satisfied with this attitude. Indeed, as the interviews and initial scores and ratings indicated, they had good reasons to worry. However, the problem with assessing mothers’ concerns is that clinical impressions, questionnaire scores, the mothers’ handwritten comments on the questionnaires, and externally rated video interactions often do not agree. For example, some of our mothers with optimal EPDS mean scores were at nonoptimal levels on the PIR-GAS, the EAS, and the ASQ:SE. Similarly, therapist and interviewer impressions sometimes did not agree with questionnaire scores. A mother might indicate optimal ASQ:SE scores while her therapist worried about the child’s state. This corresponded with a report by Tronick and Weinberg (2007). They observed mothers with clinically assessed psychiatric illnesses and interaction difficulties with their babies who nevertheless tended to score normally on questionnaires for assessing depressive and other psychiatric symptomatology.

Our clinical conclusion is that a single criterion rarely distinguishes dyads who need psychological help from those with sufficient resources to change developments in a positive direction. Many CHCs use the EPDS cutoff score as a criterion for instituting psychological help. If we had applied this criterion to this sample, we would have missed some dyads who functioned nonoptimally according to other measures.

In sum, “baby worries”—mothers’ concerns about their infants’ well-being as well as their own psychic stability and their relationships with their babies—are quite prevalent. Unless these problems are dealt with successfully, they may affect the child’s later development. We compared CHCC, that is, the usual form of care at CHCs, with MIP treatments that included CHCC as well. MIP treatment generally consisted of therapy sessions two or three times a week for a few months whereas CHCC consisted of scheduled nurse and pediatrician calls, sometimes with the possibility of a brief contact with a psychologist. MIP significantly improved mother-reported depression, interviewer-rated mother–child relationships, and externally rated maternal sensitivity and improved mother-reported stress to a nearly significant extent. In view of the fact that these variables reflected three independent factors, according to our principal components analysis, it is unlikely that the multiple significant outcomes were merely the result of strong intercorrelations.

## APPENDIX

### *The Psychoanalysts*

Seven of the psychoanalysts were female, and one was male, all members of the Swedish Psychoanalytic Society, a branch of the International Psychoanalytical Association. Three were MDs, and five have a Master’s of Science in psychology. Their mean professional experience as analysts was 19 years ( $SD = 7.4$ ), with 12 of those years (5.6) treating children and 3 (1.1) years treating mothers and infants.

***Integrity of Mother–Infant Psychoanalytic Treatment (MIP)***

MIP integrity was rated on a 9-item scale of 1 to 4, with a maximum score of 36. Ratings were made by interviewing the analyst and the mother separately after the termination of each treatment. The items were formulated as positive statements. The rater assessed whether he thought each statement did not fit at all (1), did not fit (2), fit rather well (3), or fit very well (4).

1. The analyst is in good contact with the baby; he/she describes the child with insight and in detail.
2. The analyst regards containment of the baby (i.e., accepting, focusing on and interpreting his painful affects) as pivotal for the therapeutic process.
3. The analyst works under the assumption that the infant will try, from time to time, to come into contact with him or her (applies to infants older than 2 months).
4. The analyst regards a high frequency of sessions as desirable since that will facilitate containment of the infant.
5. The analyst has established a working alliance with the mother; there is a feeling of comradeship, mutuality, and confidence.
6. The analyst is aware of possible negative-transference reactions on the part of the mother, such as mistrust, anger, and disappointment, and asserts their import in treatment. If they appear, he or she brings them up with the mother.
7. Encouraging, supportive, and guiding interventions with the mother are secondary elements in the therapeutic process.
8. The analyst uses a relaxed technique, and is able to adjust to the needs of the baby and mother as well as to changes in the setting, such as schedule and frequency.
9. The analyst clearly describes the therapeutic process, regarding both session events and the theoretical foundations for his or her interventions.

***Effect Size Calculations***

Becker's  $\delta$  (Becker, 1988) is a standardized mean-change score obtained by subtracting one within-group effect size from the other. The formula is:

$$\delta = \left( \frac{X_2 - X_1}{SD_{X1}} \right) - \left( \frac{Y_2 - Y_1}{SD_{Y1}} \right)$$

where  $X$  and  $Y$  are means in the two groups at Times 1 and 2, and  $SD$  is their pretest  $SD$ s.

***Mother's Form for Her Consent to Participate in the Study***

My child and I will now start treatment within the framework of the research project. I agree to participate under the following conditions:

- I am guaranteed complete anonymity in all reports of the study. The identities of myself or my child shall not be possible to reveal. With these conditions fulfilled, I agree that the researcher and his team may study video-recordings of me and my child, and the

questionnaires I have filled out, and consent to appear as an anonymous example in any articles that appear in scientific journals and in lectures.

- I am free at any time to terminate my participation in the project. This shall not affect my possibilities to continue treatment.
- The researchers shall not reveal the content of the interviews or the questionnaires to my treatment provider.
- If my treatment sessions are tape-recorded, with my consent, I allow the researchers to listen to the tapes and interview the treatment provider after my treatment is completed.
- I consent to allow the researcher to acquire my child’s records from the Child Health Centre, the pediatrician and the hospital.

I hereby consent to participate in the project.

Signed. . . . .

. . . . . (Name and address, information submitted by the mother)

. . . . . (Name and address, information submitted by the researchers)

***Researchers’ Declaration of Responsibilities Toward the Mother***

You have contacted us in this research project. I have interviewed you, and video-recorded you and your child, and you will complete our questionnaires. You have received information about Mother–Infant Psychoanalytic treatment as well as treatment possibilities at the CHCs. You have agreed to take part in a random assignment to Mother–Infant Psychoanalytic treatment or to continued treatment at the CHC you previously attended.

- We would like to follow up your child’s development. If you start treatment, we might want to interview the treatment provider and have access to the recordings. Some years later, we would like to follow up your child’s development.
- Your participation in the project is completely voluntary. My research team and I guarantee you complete anonymity in all our reports. I also guarantee that you may terminate your participation in the research at any time, and that such a decision will not affect your right to continue your treatment.
- I hereby commit myself to fulfilling these conditions of the research project.

Signed. . . . .

(Name and address of the researcher)

**REFERENCES**

Abidin, R.R. (1990). *Parenting Stress Index (PSI)—Manual*. Odessa, FL: Psychological Assessment Resources.

American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders (4th ed., Text rev.)*. Washington, DC: Author.

Anzieu-Premmereur, C., & Pollak-Cornillot, M. (2003). *Les pratiques psychanalytiques auprès des bébés [Psychoanalytic practices with babies]*. Paris: Dunod.

- Aoki, Y., Zeanah, C.H., Heller, S.S., & Bakshi, S. (2002). Parent–infant relationship global assessment scale: A study of its predictive validity. *Psychiatry & Clinical Neurosciences*, 56(5), 493–497.
- Armstrong, K.L., Fraser, J.A., Dadds, M.R., & Morris, J. (1999). A randomized, controlled trial of nurse home visiting to vulnerable families with newborns. *Journal of Paediatrics & Child Health*, 35(3), 237–244.
- Aviezer, O., Sagi, A., Joels, T., & Ziv, Y. (1999). Emotional availability and attachment representations in kibbutz infants and their mothers. *Developmental Psychology*, 35(3), 811–821.
- Becker, B.J. (1988). Synthesizing standardized mean-change measures. *British Journal of Mathematical and Statistical Psychology*, 41, 257–278.
- Beebe, B. (2003). Brief mother–infant treatment: Psychoanalytically informed video feedback. *Infant Mental Health Journal*, 24(1), 24–52.
- Bion, W.R. (1962). *Learning from experience*. London: Karnac Books.
- Biringen, Z. (2000). Emotional availability: Conceptualization and research findings. *American Journal of Orthopsychiatry*, 70(1), 104–114.
- Biringen, Z. (2008). *The Emotional Availability (EA) Scales Manual: Infancy/Early Childhood Version* (4th ed.). Boulder, CO. Available at: [www.emotionalavailability.com](http://www.emotionalavailability.com)
- Biringen, Z., Damon, J., Grigg, W., Mone, J., Pipp-Siegel, S., Skillern, S., et al. (2005). Emotional availability: Differential predictions to infant attachment and kindergarten adjustment based on observation time and context. *Infant Mental Health Journal*, 26(4), 295–308.
- Biringen, Z., Robinson, J., & Emde, R.N. (1998). *Emotional Availability Scales* (3rd ed.). Unpublished manual, Colorado State University, Fort Collins.
- Börjesson, K., Ruppert, S., & Bågedahl-Strindlund, M. (2005). A longitudinal study of psychiatric symptoms in primiparous women: Relation to personality disorders and sociodemographic factors. *Archives of Women's Mental Health*, 8(4), 232–242.
- Cohen, N.J., Lojkasek, M., Muir, E., Muir, R., & Parker, C.J. (2002). Six-month follow-up of two mother–infant psychotherapies: Convergence of therapeutic outcomes. *Infant Mental Health Journal*, 23(4), 361–380.
- Cohen, N.J., Muir, E., Parker, C.J., Brown, M., Lojkasek, M., Muir, R., et al. (1999). Watch, wait and wonder: Testing the effectiveness of a new approach to mother–infant psychotherapy. *Infant Mental Health Journal*, 20(4), 429–451.
- Cook, T.D., & Campbell, D.T. (1979). *Quasi-experimentation. Design & analysis issues for field settings*. Boston: Houghton Mifflin.
- Cooper, P.J., Murray, L., Wilson, A., & Romaniuk, H. (2003). Controlled trial of the short- and long-term effect of psychological treatment of post-partum depression: I. Impact on maternal mood. *British Journal of Psychiatry*, 182(5), 412–419.
- Cox, J., Holden, J., & Sagovsky, R. (1987). Detection of postnatal depression: Development of the 10-item Edinburgh Postnatal Depression Scale. *British Journal of Psychiatry*, 150, 782–786.
- Cramer, B. (1998). Mother–infant psychotherapies: A widening scope in technique. *Infant Mental Health Journal*, 19(2), 151–167.
- Cramer, B., & Palacio Espasa, F. (1993). *La pratique des psychothérapies mères-bébés. Études cliniques et techniques* [The practice of mother–infant psychotherapies. Clinical and technical studies]. Paris: Presses Universitaires de France.
- Dennis, C.-L.E. (2004). Treatment of postpartum depression, Part 2: A critical review of nonbiological interventions. *Journal of Clinical Psychiatry*, 65(9), 1252–1265.

- Derogatis, L.R. (1994). *Symptom Checklist-90-R: Administration, scoring and procedures manual* (3rd ed.). Minneapolis, MN: National Computer Systems.
- Egger, H.L., & Angold, A. (2006). Common emotional and behavioral disorders in preschool children: Presentation, nosology, and epidemiology. *Journal of Child Psychology & Psychiatry & Allied Disciplines*, 47(3–4), 313–337.
- Essex, M.J., Kraemer, H.C., Armstrong, J.M., Boyce, W., Goldsmith, H., Klein, M.H., et al. (2006). Exploring risk factors for the emergence of children’s mental health problems. *Archives of General Psychiatry*, 63(11), 1246–1256.
- Field, T.M. (2002). Early interactions between infants and their postpartum depressed mothers. *Infant Behavior & Development*, 25(1), 25–29.
- Fonagy, P., Target, M., Cottrell, D., Phillips, J., & Kurtz, Z. (2002). *What works for whom?: A critical review of treatments for children and adolescents*. New York: Guilford Press.
- Fraiberg, S. (1989). *Assesment and therapy of disturbances in infancy*. Northvale, NJ: Aronson.
- Fraiberg, S., Adelson, E., & Shapiro, V. (1975). Ghosts in the nursery. A psychoanalytic approach to the problems of impaired infant–mother relationships. *Journal of the American Academy of Child Psychiatry*, 14(3), 387–421.
- Fridell, M., Cesarec, Z., Johansson, M., & Malling Thorsen, S. (2002). Svensk normering, standardisering och validering av symptomskalan SCL-90 [A Swedish standardization and validation of the SCL-90]. Stockholm: Statens Institutionsstyrelse.
- Hedenbro, M. (1997). Interaction, the key to life: Seeing possibilities of children through videopicures. *The Signal*, 5, 9–15.
- Holden, J.M., Sagovsky, R., & Cox, J.L. (1989). Counselling in a general practice setting: Controlled study of health visitor intervention in treatment of postnatal depression. *British Medical Journal*, 298(6668), 223–226.
- Hundeide, K. (2007). When empathic care is obstructed: Excluding the child from the zone of intimacy. In S. Bråten (Ed.), *On being moved: From mirror neurons to empathy* (pp. 237–256). Amsterdam: Benjamins.
- Jacobson, N.S., & Truax, P. (1991). Clinical significance: A statistical approach to defining meaningful change in psychotherapy research. *Journal of Consulting and Clinical Psychology*, 59(1), 12–19.
- Kazdin, A.E. (1998). *Research design in clinical psychology* (3rd ed.). Boston: Allyn & Bacon.
- Keren, M., Feldman, R., & Tyano, S. (2001). Diagnoses and interactive patterns of infants referred to a community-based infant mental health clinic. *Journal of the American Academy of Child & Adolescent Psychiatry*, 40(1), 27–35.
- Lavigne, J.V., Gibbons, R.D., Christoffel, K.K., Arend, R., Rosenbaum, D., Binns, H.J., et al. (1996). Prevalence rates and correlates of psychiatric disorders among preschool children. *Journal of the American Academy of Child & Adolescent Psychiatry*, 35(2), 204–214.
- Lebovici, S., & Stoléru, S. (1983). *Le nourisson, sa mère et le psychanalyste. Les interactions précoces* [The baby, his mother and the psychoanalyst. Early interactions] (2003 ed.). Paris: Bayard.
- Leichsenring, F. (2005). Are psychodynamic and psychoanalytic therapies effective? A review of empirical data. *International Journal of Psychoanalysis*, 86(3), 841–868.
- Leichsenring, F., & Leibing, E. (2007). Psychodynamic psychotherapy: A systematic review of techniques, indications and empirical evidence. *Psychology and Psychotherapy: Theory, Research and Practice*, 80(2), 217–228.

- Leichsenring, F., & Rabung, S. (2008). Effectiveness of long-term psychodynamic psychotherapy—A meta-analysis. *Journal of the American Medical Association*, 300(13), 1551–1565.
- Lieberman, A.F., Weston, D.R., & Pawl, J.H. (1991). Preventive intervention and outcome with anxiously attached dyads. *Child Development*, 62(1), 199–209.
- Lundh, W., & Gylland, C. (1990). Att upptäcka “mamma-depressioner.” Utprövning av ett skattningsformulär för nyblivna mödrar [Detecting “mother-depressions.” Testing a questionnaire for new mothers]. Stockholm: Omsorgsnämnden.
- Mäntymaa, M., Puura, K., Luoma, I., Salmelin, R.K., & Tamminen, T. (2006). Mother’s early perception of her infant’s difficult temperament, parenting stress and early mother–infant interaction. *Nordic Journal of Psychiatry*, 60(5), 379–386.
- McDonough, S.C. (1995). Promoting positive early parent–infant relationships through interaction guidance. *Child and Adolescent Psychiatric Clinics of North America*, 4(3), 661–672.
- Mittag, A.-M. (2009). The child health care of Stockholm City Council. Stockholm: Vårdguiden. Available at: <http://www.varldguiden.se/Sa-funkar-det/Halso-och-sjukvard/Narsjukvard/Barnhalsovard/>
- Murray, L., & Carothers, A.D. (1990). The validation of the Edinburgh Post-natal Depression Scale on a community sample. *British Journal of Psychiatry*, 157, 288–290.
- Murray, L., & Cooper, P.J. (1997). *Postpartum depression and child development*. New York: Guilford Press.
- Murray, L., Cooper, P.J., Wilson, A., & Romaniuk, H. (2003). Controlled trial of the short- and long-term effect of psychological treatment of post-partum depression: II. Impact on the mother–child relationship and child outcome. *British Journal of Psychiatry*, 182(5), 420–427.
- Norman, J. (2001). The psychoanalyst and the baby: A new look at work with infants. *International Journal of Psychoanalysis*, 82(1), 83–100.
- Norman, J. (2004). Transformations of early infantile experiences: A 6-month-old in psychoanalysis. *International Journal of Psychoanalysis*, 85(5), 1103–1122.
- O’Hara, M.W., & Swain, A.M. (1996). Rates and risk of postpartum depression—A meta-analysis. *International Review of Psychiatry*, 8(1), 37–54.
- Östberg, M. (1998). Parental stress, psychosocial problems and responsiveness in help-seeking parents with small (2–45 months old) children. *Acta Paediatrica*, 87(1), 69–76.
- Östberg, M., & Hagekull, B. (2001). Föräldrapåfrestning [The Swedish Parenthood Stress Questionnaire—SPSQ]. Beskrivning av instrumentets konstruktion, normdata, reliabilitet och validitet [Parental stress. The SPSQ, description of its construction, norm data, reliability and validity]. Uppsala University, Sweden.
- Östberg, M., Hagekull, B., & Wettergren, S. (1997). A measure of parental stress in mothers with small children: Dimensionality, stability and validity. *Scandinavian Journal of Psychology*, 38(3), 199–208.
- Robert-Tissot, C., Cramer, B., Stern, D.N., Serpa, S.R., Bachmann, J.P., Palacio-Espasa, F., et al. (1996). Outcome evaluation in brief mother–infant psychotherapies: Report on 75 cases. *Infant Mental Health Journal*, 17(2), 97–114.
- Salo, F.T. (2007). Recognizing the infant as subject in infant–parent psychotherapy. *International Journal of Psychoanalysis*, 88(Pt. 4), 961–979.
- Seimyr, L., Edhborg, M., Lundh, W., & Sjögren, B. (2004). In the shadow of maternal depressed mood: Experiences of parenthood during the first year after childbirth. *Journal of Psychosomatic Obstetrics & Gynecology*, 25(1), 23–34.



- Singleton, J.L. (2005). Parent–infant interaction interventions: A meta-analysis. *Dissertation Abstracts International: B. The Sciences and Engineering*, 65(7-B), p. 3725. University of Northern Colorado.
- Skovgaard, A.M., Houmann, T., Christiansen, E., Landorph, S., Jorgensen, T., Team, C.C.C.S., et al. (2007). The prevalence of mental health problems in children 1½ years of age—The Copenhagen Child Cohort 2000. *Journal of Child Psychology and Psychiatry and Allied Disciplines*, 48(1), 62–70.
- Skovgaard, A.M., Olsen, E., Christiansen, E., Houmann, T., Landorph, S., & Jorgensen, T. (2008). Predictors (0–10 months) of psychopathology at age 1½ years—A general population study in the Copenhagen Child Cohort CCC 2000. *Journal of Child Psychology and Psychiatry*, 49(5), 553–562.
- Skovgaard, A.M., Olsen, E.M., Houmann, T., Christiansen, E., Samberg, V., Lichtenberg, A., et al. (2005). The Copenhagen County child cohort: Design of a longitudinal study of child mental health. *Scandinavian Journal of Public Health*, 33(3), 197–202.
- Squires, J., Bricker, D., Heo, K., & Twombly, E. (2001). Identification of social-emotional problems in young children using a parent-completed screening measure. *Early Childhood Research Quarterly*, 16(4), 405–419.
- Squires, J., Bricker, D., Heo, K., & Twombly, E. (2002). *Ages & Stages Questionnaires: Social-Emotional. A parent-completed, child-monitoring system for social-emotional behaviors*. Baltimore: Brookes.
- Squires, J., Bricker, D., & Twombly, E. (2004). Parent-completed screening for social emotional problems in young children: The effects of risk/disability status and gender on performance. *Infant Mental Health Journal*, 25(1), 62–73.
- Tabachnik, B.G., & Fidell, L.S. (2007). *Using multivariate statistics* (5th ed.). Boston: Allyn & Bacon.
- Thomas, J.M., & Guskin, K.A. (2001). Disruptive behavior in young children: What does it mean? *Journal of the American Academy of Child & Adolescent Psychiatry*, 40(1), 44–51.
- Tronick, E., & Weinberg, M.K. (2007). The impact of psychiatric maternal illness on infant development. In E. Tronick (Ed.), *The neurobehavioral and social-emotional development of infants and children* (pp. 305–318). New York: Norton.
- Wickberg, B., & Hwang, C.P. (1997). Screening for postnatal depression in a population-based Swedish sample. *Acta Psychiatrica Scandinavica*, 95(1), 62–66.
- Zeanah, C.H.J. (2000). *Handbook of infant mental health* (2nd ed.). New York: Guilford Press.
- ZERO TO THREE. (2005). *Diagnostic classification of mental health and developmental disorders of infancy and early childhood (DC 0–3:R)*. Washington, DC: ZERO TO THREE Press.
- Ziv, Y., Aviezer, O., Gini, M., Sagi, A., & Koren-Karie, N. (2000). Emotional availability in the mother–infant dyad as related to the quality of infant–mother attachment relationship. *Attachment & Human Development*, 2(2), 149–169.