Family Functioning and Interactive Patterns in the Context of Infant Psychopathology

Miri Keren
Geha Mental Health Center and Tel Aviv University

Daphna Dollberg
Academic College of Tel Aviv–Yaffo

Talia Koster
Shalvata Mental Health Center and Tel Aviv University

Keren Danino and Ruth Feldman
Bar Ilan University

Family functioning and mother–infant relational patterns were examined in 38 clinic-referred infants and 34 matched non-referred infants. Referred infants were diagnosed with the Diagnostic Classification for Zero to Three. On the family level, referred families showed significantly lower family functioning in all domains of emotional and instrumental communication, regardless of the specific infant's diagnoses. On the dyadic level, referred mothers were more intrusive and their infants were more withdrawn during dyadic interactions. Clinic-referred mothers reported higher levels of phobia and depression. Global family functioning was predicted by the infant's clinical status, maternal intrusiveness, and maternal psychopathology. Infant mental health clinicians need to address both family level and dyadic level of functioning, regardless of the reason for the infant's referral.

Keywords: infant psychopathology, family functioning, maternal mental status, mother–infant interaction

The family context provides an important setting for the infant's social–emotional growth and well-being (Cowan & Cowan, 2002; Minuchin, 1985; Parke & Tinsley, 1987). Interactions in well-functioning families have been characterized by lower rigidity and intrusiveness, higher coordination between family members, more emotional support, and higher autonomy (Favez, Frascarolo, Keren, & Fivaz-Depeursinge, 2009; Feldman, 2007; Fivaz-Depeursinge & Corboz-Warnery, 1999). Among families at high risk—whether risk stems from parental conditions, child biological risk, or contextual difficulties—family functioning has been described as less involved, distant, and less efficacious (Feldman, 2007). Despite extensive research pointing to the infant's capacity to detect family relationships (Fivaz-Depeursinge, Corboz-Warnery, & Keren, 2004; Fivaz-Depeursinge, Favez, Lavanchy, de Noni, & Frascarolo, 2005; Gordon & Feldman, 2008; McHale, Fivaz-Depeursinge, Dickstein, Robertson, & Daley, 2008) and to the importance of the family-level process for child's self-regulation and peer relationships (Feldman & Masalha, 2010; McHale, Kuersten, & Lauretti, 1996), family-level assessments have typically not been included in general clinical practice nor have they informed policies of infant care (McHale, 2007). This lack may be partly explained by the heavy leaning of psychoanalytic and attachment theories on the mother–infant relationship as the foundation of infants' biological, cognitive, and emotional development (McHale, 2007). The scarcity of research on family functioning among symptomatic infants stands in contrast with routine clinical practice, where clinicians meet multirisk families that exhibit intense conflict, aggressive behavior, and neglectful interpersonal relationships. This also stands in contrast with the reported finding (Repetti, Taylor, & Seeman, 2002) that adverse family atmosphere disrupts the development of infant emotional expression and decreases the child's social competence, leading to long-term difficulties in physiologic and neuroendocrine regulation. From the other end, family functioning may buffer the negative impact of parental psychopathology on the infant's outcome: Family functioning was shown to mediate the relationships between maternal depression and the infant's social–emotional symptoms (Dickstein et al., 1998).

The need to develop a family-oriented approach to the understanding, evaluation, and treatment of infant psychopathology has been increasingly acknowledged in the last years (Favez et al., 2009). Still, to our knowledge, no research has conducted an in-depth assessment of family functioning among infants referred to an infant mental health clinic and diagnosed with the Diagnostic Classification for Zero to Three (DC:0–3). The DC:0–3 classification

Miri Keren, Infant Mental Health Unit, Geha Mental Health Center and Sackler School of Medicine, Tel Aviv University; Daphna Dollberg, School of Behavioral Sciences, Academic College of Tel Aviv–Yaffo; Talia Koster, Shalvata Mental Health Center and Sackler School of Medicine, Tel Aviv University; Keren Danino, Department of Psychology, Bar Ilan University; and Ruth Feldman, Department of Psychology and the Gonda Brain Sciences Center, Bar Ilan University.

Correspondence concerning this article should be addressed to Miri Keren, Infant Mental Health Unit, Geha Mental Health Center, P.O. Box 102, Petah Tiqva 49100, Israel. E-mail: ofkeren@zahav.net.il

system for the assessment of infants' emotional and developmental disorder has not included a family-level axis, and this issue is the focus of current debate (Egger & Angold, 2009). The fact that the DC:0–3 classification system includes an axis for assessing the child's primary disorder and a second axis for the evaluation of the parent–infant relationship highlights the importance of the independent contribution of the individual and dyadic dimensions to infant psychopathology. The lack of a family axis within the classification system indicates that family-level assessments have not been theoretically or practically incorporated into daily clinical practice.

Assessment of family functioning reflects the way it is conceptualized. We chose the McMaster model of family functioning (Epstein, Bishop, & Levine, 1978) because it is a clinically oriented, systemic conceptual model of family functioning. The model has demonstrated utility in various clinical settings (Miller et al., 1994) and sensitivity in the identification of clinical families (Fristad, 1989; Stevenson-Hinde & Akister, 1995). Six dimensions relevant to clinicians have been operationally defined: problem solving, communication, role distribution, affective responsiveness, emotional involvement, behavior control, and limit setting are the main levels of family functioning. The interview rating of family functioning has two advantages: The trained clinician reports interactional data and nonverbal cues, in addition to the family members' answers, and may have a different perspective than the family members regarding family functioning. These two advantages are very relevant to our clinical population of parents and infants, for whom nonverbal communication is a significant component of the emotional interpersonal communication. The McMaster interview was originally developed for families with an adult with a psychiatric illness and families with an adult or child with a physical illness, and has been used in several studies that focused specifically on the link between children psychopathology and family functioning (Cunningham, Benness, & Siegel, 1988). More specifically, the items of *behavior control* and *communication* were significant in predicting school-age children's psychopathology (Maziade, Caperaa, & Laplante, 1985). Lam, Hiscock, and Wake (2003) used the McSIFF in their outcome study of sleep behaviors in infancy, and so did Dickstein et al. (1998) in their longitudinal study of parental psychopathology and infants' outcomes.

In light of the above, the present study had two primary goals. First, we examined family functioning among referred infants to a community-based infant mental health clinic in comparison to nonreferred infants and parents. We expected to show that infant psychopathology (as reflected in DC0–3 diagnoses) reflects maladaptive functioning at the family level, as well as at the dyadic level. We had no previous study to rely on regarding whether we could expect specificity of the link between DC diagnoses and levels of family functioning. The second goal was to assess the interrelationship between the individual, dyadic, and family levels of functioning. It was hypothesized that the individual level (maternal psychopathology, infant symptoms, and referred status), the dyadic level (mother–child relational pattern), and the family level (family functioning) would be interrelated and that both the individual and the dyadic levels would make an independent contribution to the prediction of the family functioning.

Method

Participants

Seventy-two intact families with young children (age range 6–42 months, $M = 21.53$, $SD = 8.94$) participated in the study. The sample included 32 girls and 39 boys (for 2 children, data on gender were missing), residing in central Israel. Forty-five families from the list of infant mental health clinic consecutive referrals were approached; 38 agreed to participate (refusal rate of 15.6%), andthese comprised the Referred group. Examination of the demographic characteristics of the refusing versus the participating families showed no significant differences on family composition child gender and age. The Nonreferred comparison group ($n = 34$) was recruited from the general population within the same catchment area and was matched to the referred group on child age (Referred group: $M = 22.10$ months, $SD = 9.04$ months; Nonreferred: $M = 21.14$ months, $SD = 8.94$, *ns*), gender (22 boys and 15 girls in the Referred group and 16 boys and 17 girls in the Nonreferred group, *ns*), maternal age (Referred group: $M = 31.51$ years, $SD = 5.55$ years; Nonreferred group: $M = 30.54$, $SD = 4.54$, *ns*), and maternal education (Referred group: 6 high school graduates, 5 post high school diploma, 12 Bachelor's degree and above; Nonreferred group: 7 high school dropouts, 7 high school graduates, 3 post high school diploma, 14 Bachelor's degree and above, *ns*). A comparison of the two groups in terms of number of children at home (Referred group: $M = 1.79$, $SD = .81$; Nonreferred group: $M = 1.79$, $SD = .54$, *ns*) revealed no significant differences between them. Participation in the study was voluntary and treatment was not conditioned upon it. Participating children received a small gift at the end of the visit.

Procedures

After an initial intake appointment at our clinic, in which parents were interviewed and observed with their infant, and the need for treatment was determined, qualified families were approached and asked to join the research project. Treatment was not conditioned upon participating in the research. Families who agreed to participate signed an informed consent. DC0–3 diagnostic formulation was reached by the clinical team, after training with the head of the unit (Miri Keren), following completion of the standardized evaluation chart—including a clinical interview with the parents about their infant's prenatal and postnatal history and their own antecedents, observation of parent–infant play interaction, clinical assessment of the infant's emotional and developmental status with the Bayley developmental test (Bayley, 1993), and infant behavior questionnaire (the Brief Infant Toddler Socio-Emotional Assessment questionnaire (BITSEA; Briggs-Gowan & Carter, 2006). The nonreferred group consisted of volunteers recruited in the community through Well Baby Care clinics and the

"snowball" method. Comparison families went through a phone interview with screening questions based on the BITSEA questionnaire to rule out infant symptomatology and to make sure the family was not in therapy of any kind. Two visits were conducted for each participant family: one for conducting the McMaster Structured Interview for Families (McSIFF), and one for the videotaped dyadic mother–infant free play. The two procedures were counterbalanced for order. A child psychiatrist resident (Talia Koster) and a graduate psychology student (Keren Danino) were trained by Miri Keren in administering the McSIFF, and were unaware of the family status (control or study group). Reliability was established on 20 videotaped family interviews and averaged 90% (range 85%–95%). Kappa averaged .81 (range .73–.87).

For both groups the McSIFF was conducted at home with both parents and children. During the mother–child free-play interaction, mother and child were invited to play for 10 min with a box of toys provided by the interviewer, either at the clinic (for the clinic-referred group), or at a university laboratory (for the nonreferred group). The toys were selected on the basis of previous research in this age group (Feldman, 2007; Keren, Feldman, Namdari-Weinbaum, Spitzer, & Tyano, 2005) and were aimed at eliciting free play. Questionnaires were also completed by mothers in both groups (demographics and maternal psychopathology).

Measures

Demographic information. Mothers in the two groups provided relevant background data, including the child's age, health and developmental status, family composition, parents' ages, marital and health status, education, and profession.

The Diagnostic Classification of Mental Health Disorders of Infancy and Early Childhood (DC:0–3; Zero to Three, 1994) is the most commonly used classification system for mental health and developmental disorders of infancy and early childhood. The classification system is aimed at children ages 0 to 3 years old and categorizes emotional and behavioral patters that represent significant deviations from normative development in the early years. The DC:0–3 and its revised edition, DC:0–3R (Zero to Three, 2005) have been used in numerous studies and have demonstrated adequate psychometric properties (Dollberg, Feldman, Keren, & Guedeney, 2006; Dollberg, Keren, & Feldman, 2010; Emde & Wise, 2003; Feldman, Keren, Gross-Rozval, & Tyano, 2004; Keren, Feldman, & Tyano, 2003). At the time of the study, the revised version (DC:0–3R) was not published yet; therefore we used the DC:0–3 version.

The McMaster Structured Interview of Family Functioning (McSIFF) (Epstein et al., 1978) was used to assess family functioning. The interview is administered in the presence of both parents and children. Six domains of family functioning are covered by the interview, and in each of them, two subdomains of *instrumental* and *emotional* functioning are represented: *Problem solving, Communication, Role distribution, Affective responsiveness, Emotional involvement,* and *Behavior control and limit setting.* Each of the six domains is scored on a 7-point scale. Scoring is based on both parents' and children's answers as well as on the rater's observations of the family verbal and nonverbal communication throughout the interview. Once the interview is completed, the rater assigns a score for each dimension as well as an overall score representing the family functioning level. As was suggested by the McSIFF authors, a cutoff score of 4 and below was used to define clinical cases (Miller et al., 1994). Intercorrelations among the different domains and the overall score averaged .79 (range .58–.88).

The Symptom Checklist—90—Revised (SCL–90–R) questionnaire (Derogatis, 1983) was used to assess maternal psychopathology. The SCL–90–R is a widely used self-reported questionnaire designed to reflect psychological symptom status in a broad spectrum of individuals in both clinical and nonclinical settings. The scale yields nine symptom dimensions (somatization, obsessive–compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism). Scores on each dimension range from 0 to 1.00, with higher scores reflecting higher symptomatology. A total score can also be obtained (Global Severity Index; GSI) on the basis of the frequency and level of symptoms reported.

Mother–child free-play interaction. The Coding of Interactive Behavior manual (CIB; Feldman, 1998) was used to assess the quality of the mother–child interaction during free play. The CIB is a 45-item global coding scale, yielding scores for mother, child, and dyad. The scale yields eight theoretically derived composites that touch on diverse aspects of the mother–child relationships and has shown high test–retest reliability and construct and predictive validity (Feldman et al., 2004; Feldman & Masalha, 2007). The CIB has been used with a variety of populations and was found to be sensitive to differences in child age, parent sex, cultural differences, interactive partner, and biological and social–emotional risk conditions. Composites were based on previous research and included Maternal Sensitivity (.89), Maternal Intrusiveness (.66), Maternal Limit Setting (.68), Child Involvement (.81), and Child Withdrawal (.74). Coding was conducted by two trained blind research assistants to infant diagnostic status. Reliability was established on 20 mother–infant interactions and averaged 90% (range 85%–95%). Kappa averaged .81 (range .73–.87).

Results

Results are presented in three sections. In the first, the diagnostic composition of the referred group is presented. In the second, group differences between the referred and the nonreferred groups on family functioning, maternal symptomatology, and observed dyadic mother–child interactions are presented. In the third section, associations between family functioning, interactive behavior, and maternal psychopathology are described, and a regression model predicting family functioning is presented.

Diagnostic Composition of the Referred Group ($N = 38$)

The referred group was assessed by the clinic mental health staff with either the Diagnostic Classification of Mental Health and Developmental Disorders of Infancy and Early Childhood (DC: 0–3; Zero to Three, 1994, 2005) or the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., text rev.; *DSM–IV–TR*; American Psychiatric Association), where applicable. Twenty-two of the referred children (57.9%) met criteria for Axis I diagnosis, including Feeding Behavior Disorder ($n = 7$, 18.4%), Sleeping Behavior Disorder ($n = 4$, 10.5%), Regulatory Disorder ($n = 3$, 7.9%), Reactive Attachment Disorder ($n = 2$, 5.3%), Anxiety Disorder ($n = 1$, 2.6%), Mixed Disorder of Emotional Expressiveness ($n = 1$, 2.6%), Behavior Disorder ($n = 1$, 2.6%), Traumatic Stress Disorder ($n = 1$, 2.6%), and Multisystem Developmental Disorder ($n = 1$, 2.6%). One case had multiple diagnoses. Thirty-one of the 38 dyads (81.6%) met criteria for Axis II primary caregiver relationship diagnosis when using the Significantly Perturbed level (Parent Infant Relationship Global Assessment Scale (PIR GAS) less than 60) as a cutoff point (seven videotaped interactions were impossible to code because of poor technical quality). When using the more conservative Disturbed level as a threshold (PIR GAS 40 and below), 17 dyads (44.74%) met criteria for Axis II diagnosis. Relational Diagnoses for the primary caregiver included overinvolved ($n = 8$, 21.0%), underinvolved ($n = 7$, 18.4%), anxious–tense ($n = 6$, 18.4%), angry–hostile ($n = 1$, 5.3%), and mixed ($n = 9$, 23.7%) parent–infant interaction patterns.

Group Differences Among Clinic-Referred and Non-Clinic-Referred Families

Family functioning. A multivariate analysis of variance (MANOVA) with group (referred/nonreferred) and child gender as the between-subjects factors was used to examine differences in family functioning on the McSIFF six dimensions. Results showed a significant difference for group, Wilks' $F(6, 62) = 2.80$, $p < .05$. Univariate tests (see Table 1), showed significant differences for all the McSIFF dimensions. Referred families were rated lower on roles' distribution, behavior control and limit setting, problem solving, communication, affective responsiveness, and emotional involvement. No significant differences were found for child gender. Furthermore, the rate of families scoring within the clinical range of the McSIFF was examined in the two groups and showed that 26 of the referred families (68.4%) compared with only 11 of the nonreferred families (32.4%) scored within this clinical range ($\chi^2 = 9.345$, $p < .01$).

Maternal psychopathology. A similar MANOVA with group (referred/nonreferred) and child gender as the between-subjects factors was used to examine differences in reported maternal psychopathology between the two groups. Results showed a significant difference for group, Wilks' $F(10, 46) = 2.820$, $p < .01$. No significant difference was found for child gender. Univariate tests (see Table

Table 1

Differences in Family Functioning, Maternal Symptomatology, and Mother–Infant Interaction Among Clinic-Referred and Nonreferred Families

Variable	Referred ($n = 38$)		Nonreferred ($n = 34$)		
	M	SD	M	SD	F
Family functioning (McSIFF)					
Problem solving	4.11	1.33	5.03	1.59	6.81**
Communication	3.78	1.47	5.03	1.65	11.00**
Role distribution	4.38	1.25	5.36	1.56	8.82**
Affective responsiveness	3.81	1.29	5.12	1.61	14.18**
Emotional involvement	3.89	1.33	5.00	1.71	9.15**
Behavior control	4.43	1.01	5.15	1.50	6.34**
Maternal psychopathology (SCL-90-R)					
Somatization	.59	.64	.48	.37	.43
Obsessive–compulsive	.87	.62	.72	.47	.06
Interpersonal sensitivity	.87	.62	.63	.50	2.19
Depression	.98	.55	.66	.41	5.77**
Anxiety	.63	.48	.49	.35	1.68
Hostility	.69	.62	.46	.56	2.18
Phobic anxiety	.39	.39	.11	.15	13.03***
Paranoid ideation	.62	.53	.52	.50	.47
Psychoticism	.25	.35	.21	.24	.22
Mother–infant interaction (CIB)					
Maternal sensitivity	3.07	.81	3.39	.57	2.36
Maternal intrusiveness	1.93	1.01	1.21	.39	10.75***
Maternal limit setting	4.37	.86	4.24	.58	.44
Child involvement	3.32	.63	3.49	.51	3.68*
Child withdrawal	1.78	1.07	1.23	.48	4.69**

Note. McSIFF = McMaster Structured Interview for Families; SCL-90-R = Symptom Checklist-90-Revised; CIB = Coding of Interactive Behavior.
* $p = .06$.   ** $p \leq .05$.   *** $p < .01$.

1) showed significant differences on the Phobia and Depression dimensions. Clinic-referred mothers reported higher levels of phobia and depression-related symptoms.

Mother–infant interactions. A similar MANOVA with group (referred/nonreferred) and child gender as the between-subjects factors was used to examine differences in observed mother–infant interactions. Results showed a significant difference for group, Wilks' $F(5, 43) = 5.56$, $p < .001$. Univariate tests (see Table 1) showed significant differences among the two groups on Maternal Intrusiveness and Child Withdrawal and a marginal difference on Child Involvement. Specifically, referred mothers were more intrusive and their children showed less involvement and more withdrawal during dyadic free play with mother.

Family functioning, maternal psychopathology and dyadic patterns. Pearson's correlations were used to test the hypothesis of a negative link between family functioning and maternal psychopathology (GSI). The results support the hypothesis regarding an association between family functioning and maternal symptomatology (See Table 2). The seven domains of family functioning were all negatively associated with reported global maternal psychopathology so that higher reports of global psychopathology were associated with less favorable family functioning. Pearson's correlations were also used to test the hypothesis of a negative link between family functioning and dyadic interactive behavior (CIB). Results indicated a significant negative correlation between Maternal Intrusiveness during free play and the family Behavior Control domain and a positive correlation between Maternal Sensitivity during free play and the family Behavior Control domain. Mothers in families with better strategies for behavior control tended to be less intrusive and more sensitive while interacting freely with their children. The associations between maternal self-reported psychopathology and observed dyadic behavior with the child was also tested. Among the different maternal behavior indices, Maternal Intrusiveness was found to be correlated positively with many of the symptomatology domains—that is, Obsessive–Compulsiveness ($r = .29$, $p < .05$), Anxiety ($r = .28$, $p < .05$), Hostility ($r = .32$, $p < .05$), and Phobic Anxiety ($r = .37$, $p < .01$)—as well as with the global score (GSI, $r = .31$, $p < .05$). Finally, on the basis of the results shown above, a regression model assessing the unique and joint contributions of infant clinical status, maternal psychopathology, and dyadic interactive behavior to predicting family functioning was tested. Infant clinical status (referred vs. nonreferred), maternal symptomatology (the depression and phobia indices), maternal interactive behavior during dyadic free play (Maternal Intrusiveness and Maternal Sensitivity), and child interactive behavior (Child Involvement and Child Withdrawal) were entered into the model as predictors. The overall model was found to be significant, $F(6, 33) = 3.95$, $p < .01$, and explained 42% of the variance (see Table 3). The factors Infant Clinical Status and Maternal Depression predicted Overall Family Functioning. Specifically, having an infant who was referred to infant mental health services and having a mother who has been experiencing a high level of

Table 2
Intercorrelations Between Family Functioning, Maternal Psychopathology, and Mother and Child Interactive Behavior

Factor	1	2	3	4	5	6	7	8	9	10	11	12
1. McSIFF–Problem Solving	—	.84****	.83****	.80****	.83****	.72***	-.48***	-.01	-.03	-.14	-.05	.09
2. McSIFF–Communication		—	.79****	.79****	.84****	.61***	-.43***	-.04	.03	-.12	-.04	.06
3. McSIFF–Role distribution			—	.76**	.82**	.70**	-.43***	.04	-.09	-.07	-.12	.07
4. McSIFF–Affective responsiveness				—	.88**	.58**	-.44***	.06	-.04	-.06	-.20	.14
5. McSIFF–Emotional involvement					—	.63**	-.49***	.09	-.05	-.03	-.19	.08
6. McSIFF–Behavior control						—	-.42**	.25*	-.28*	.11	-.21	.15
7. SCL-90-R–Global Severity Index (GSI)							—	-.11	.31*	.17	.14	.02
8. CIB–Maternal Sensitivity								—	-.43***	.48****	-.26*	.68****
9. CIB–Maternal Intrusiveness									—	-.21	-.42**	-.02
10. CIB–Maternal Limit Setting										—	-.22	.36**
11. CIB–Child Withdrawal											—	-.35**
12. CIB–Child Involvement												—

Note. McSIFF = McMaster Structured Interview for Families; SCL-90-R = Symptom Checklist-90-Revised; CIB = Coding of Interactive Behavior.
* $p < .05$. ** $p < .01$. *** $p < .01$. **** $p < .001$.

Table 3
Predicting Overall Family Functioning

Predictor	Overall family functioning		
	B	β	t
Infant clinical status	-1.37	$-.42$	-2.17^{*}
Maternal depression (SCL-90-R)	-1.85	$-.55$	-3.33^{**}
Maternal phobia (SCL-90-R)	.82	.16	.85
CIB maternal intrusiveness	.46	.25	1.50
CIB child involvement	$-.24$	$-.09$	$-.53$
CIB child withdrawal	$-.41$	$-.22$	-1.32
	R^2 total $= .42$, $F(6, 33) = 3.95$, $p < .01$		

Note. SCL-90-R = Symptom Checklist-90-Revised; CIB = Coding of Interactive Behavior.
$^{*} p < .05.$ $^{**} p < .001.$

depressive symptomatology are predictive of less optimal family functioning.

Discussion

The basic hypothesis of this study was that the presence of significant symptoms in the infant reflects the existence of a problematic family context, and it was confirmed by our findings. Indeed, in all domains of family functioning measured by the McSIFF, including parenting skills, quality of communication, and emotional atmosphere, the clinic group scored within the clinical range and showed a more negative profile than did the nonreferred group. Behavior control, as is defined by the McSIFF, seems to be an important construct in itself: In our study, behavior control at the family level was positively correlated with maternal sensitivity and negatively to maternal intrusiveness at the dyadic level, and in a previous study (Maziade et al., 1985) it was significant in predicting school-age children psychopathology. It would be interesting to further study these links.

Infant symptomatology therefore, seems to reflect a problematic family context. We did not find any specificity in the link between infants' diagnoses and family functioning. One of the possible reasons is the relatively small sample. Another explanation may be linked to the very different nature of the approach that underlies categorical diagnoses (such as DC:0–3) and the family system perspective. Similarly, in another study (Keren, Feldman, & Tyano, 2001), we did not find any specific link between DC diagnoses and dyadic interactive patterns. The addition of a family axis to the DC:0–3R system, as has been suggested but not yet implemented (Egger et al., 2009), could be very instrumental in encouraging both clinicians and researchers to investigate this issue.

Although family assessment appears to be crucial in understanding infant symptomatology and tailoring intervention, the family-level diagnosis should not substitute a careful assessment of the dyadic parent–infant relationship (Axis II in the DC:0–3 system). Consistent with our previous studies of clinical and nonclinical samples (Dollberg et al., 2006, 2010; Keren et al., 2001), the clinic-referred dyads assessed in this present study showed higher maternal intrusiveness, poorer infant involvement, and higher infant withdrawal behavior. These less than optimal interactive

patterns of dyadic interactions need to be treated in order to stop the process of internalizing problematic "schemas-of-being-with Mother" (Stern, 2004), in combination with the work done at the family level.

Our findings also point to a link between infant and maternal symptomatology and family functioning, especially with regard to maternal depression and anxiety. This finding is in line with a long-term longitudinal study (Dickstein et al., 1998) that showed a strong association between maternal psychopathology and family functioning. The presence of maternal symptomatology among mothers of clinic-referred infants has already been noted in previous studies (Dollberg et al., 2010; Keren et al., 2001). Goodman and Brand (2009) have shown that maternal depression and anxiety disorders, especially, are linked with infant psychopathology; this in turn, supports our own finding that mothers of clinic-referred infants reported higher levels of phobia and depression-related symptoms than did mothers of non-clinic-referred infants.

One may argue that the infant's difficulty is the primary cause of the mother's symptoms. This line of thought has been refuted by a 9-year longitudinal study, from pregnancy to 9 years of age, of maternal depressive symptoms and child's well-being (Luoma et al., 2001), in which maternal depressive symptomatology, particularly during pregnancy, played a risk factor for the child's psychosocial and behavioral outcome at 9 years. The authors emphasized that it is the mother's symptomatology that counts more than a diagnosis per se, because women with no depression, but distressed, display negative perceptions and negative interaction with their child and their close relationship.

The interplay between maternal symptomatology, infant's symptoms, and family functioning seems to be complex and dynamic, as Dickstein et al. (1998) have found in the longitudinal Providence Family Study. For instance, nonspecific indicators of maternal illness, rather than diagnostic category, were the best predictors of family functioning and child developmental outcome. In our study, lower family functioning was predicted by the presence of infant symptomatology, together with a high level of maternal psychiatric symptoms, especially depression. This reiterates Feldman and Masalha's (2010) finding that infant negative emotionality impacts on the intrusive element of parenting

and family-level relationships. We could have expected fathers to have exerted a positive moderating effect on infants whose mothers were depressed (von Klitzing, Simoni, & Amsler, 1999). Feldman (2007) has shown that father involvement reduced maternal distress and increased triadic cohesion among high-risk families. The lack of data regarding the fathers' psychopathology does not enable us to infer further hypotheses about the father's role in the interplay between infant symptomatology, maternal psychopathology, and family functioning.

In conclusion, in light of our present findings and previous studies, infant symptomatology reflects problematic functioning at the dyadic (parent–infant) level as well as at the family level. As far as we know, this is the first controlled study that examined family functioning in the context of an Infant Mental Health Unit. Our findings rejoin McHale's (2007) call for routine assessment of family functioning, as a necessary step in understanding the context of infant symptomatology and in planning for effective interventions. On the practical level, on the basis of our experience in this project, the McSIFF interview fits the clinical context of the infant mental health unit, is easy to administer in a busy mental health clinic, and reflects the level of communication and modeling that parents convey to their infant. The presence of psychopathology among mothers of referred infants also signifies that families referred to our infant mental health unit are at a significant risk for dysfunctioning, and the infant's symptoms are the port of entry for intervention at all the levels.

Limitations of the Study

This study had three main limitations. First, the sample was relatively small. Second, no father–child interaction data were available; therefore we could not determine whether paternal psychopathology was more frequent among the referred infants, nor determine its link to maternal depression and poor family functioning. Fathers' willingness to participate was limited, and the time they gave us for the family interview was, in their eyes, the most they could do. Information on marital satisfaction could have also enriched the findings. Finally, the contemporaneous design of the study does not allow disentangling the complex bidirectional causal and temporal relations among infant, maternal, and family dysfunction and their long-term consequences.

Conclusion

Recent research, including the present study, suggests the need for routine assessment of the dyadic and family contexts in which early development and early relationship are embedded. The quality of the mother–infant relationship is extremely important for early development; however, at present, many infants grow up in multiperson contexts, and therefore the primacy once given to the relationship with the mother may be less absolute. Our study suggests that routine clinical practice in infant mental health units should include the family-level as well as the dyadic level of interactions in

the assessment and treatment planning, especially when the infant's symptomatology is accompanied by maternal psychiatric symptoms and intrusive interactive style. Such family assessment should be included as routine work and integrated into the DC:0–3R classification system in order to provide better intervention for young infants and their families. A further step would be to better conceptualize triadic psychotherapies, as in contrast with the extensive development of dyadic parent–infant psychotherapies, significantly less attention has been paid to mother–father–infant psychotherapies.

References

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

Bayley, N. (1993). *Bayley Scales of Infant Development: Administering and scoring manual.* New York, NY: Psychological Corporation.

Briggs-Gowan, M. J., & Carter, A. S. (2006). *The Brief Infant—Toddler Social and Emotional Assessment (BITSEA).* San Antonio, TX: Psychological Corporation, Harcourt Assessment.

Cowan, P. A., & Cowan, C. P. (2002). Interventions of family systems theories: Marital and family relationships in children's development and psychopathology. *Development and Psychopathology, 14,* 731–759.

Cunningham, C., Benness, B., & Siegel, L. (1988). Family functioning, time allocation, and parental depression in families of normal and ADHD children. *Journal of Clinical Child Psychology, 17,* 169–177.

Derogatis, L. R. (1983). *SCL-90-R: Administration, scoring and procedure manual: II.* Towson, MD: Clinical Psychometric Research.

Dickstein, S., Seifer, R., Hayden, L. C., Schiller, M., Keitner, G., Miller, I., . . . Dodge Magee, K. (1998). Levels of family assessment: II. Impact of maternal psychopathology family functioning. *Journal of Family Psychology, 12,* 23–40.

Dollberg, D., Feldman, R., Keren, M., & Guedeney, A. (2006). Sustained withdrawal behavior in clinic-referred and non-referred infants. *Infant Mental Health Journal, 27,* 292–309.

Dollberg, D., Keren, M., & Feldman, R. (2010). Maternal representations, infant psychiatric status, and mother–child relationship in clinic-referred and non-referred infants. *European Child & Adolescent Psychiatry, 19,* 25–36.

Egger, H. L., & Angold, A. (2009). Classification of psychopathology in early childhood. In C. H. Zeanah, Jr. (Ed.), *Handbook of infant mental health* (3rd ed., pp. 285–300). New York, NY: Guilford Press.

Emde, R. N., & Wise, B. K. (2003). The cup is half-full: Initial clinical trials of DC:0–3 and a recommendation for revision. *Infant Mental Health Journal, 24,* 437–447.

Epstein, N. B., Bishop, D. S., & Levine, S. (1978). The McMaster model of family functioning. *Journal of Marriage and Family Counseling, 4,* 19–31.

Favez, N., Frascarolo, F., Keren, M., & Fivaz-Depeursinge, E. (2009). Principles of family therapy in infancy. In C. H. Zeanah, Jr. (Ed.), *Handbook of infant mental health* (3rd ed., pp. 468–484). New York, NY: Guilford Press.

Feldman, R. (1998). *Coding interactive behavior manual.* Unpublished manuscript, Bar-Ilan University, Ramat-Gan, Israel.

Feldman, R. (2007). Maternal versus child risk and the development of parent–child and family relationships in five high risk populations. *Development and Psychopathology, 19,* 293–312.

Feldman, R., Keren, M., Gross-Rozval, O., & Tyano, S. (2004). Mother and child's touch patterns in infant feeding disorders: Relation to maternal, child, and environmental factors. *Journal of American Academy of Child and Adolescent Psychiatry, 43,* 1089–1097.

Feldman, R., & Masalha, S. (2007). The role of culture in moderating the links between early ecological risk and young children's adaptation. *Development and Psychopathology, 19,* 1–21.

Feldman, R., & Masalha, S. (2010). Parent–child and triadic antecedents of children's social competence: Cultural specificity, shared process. *Developmental Psychology, 46,* 455–467.

Fivaz-Depeursinge, E., & Corboz-Warnery, A. (Eds.). (1999). *The primary triangle. A developmental systems view of mothers, fathers and infants.* New York, NY: Basic Books.

Fivaz-Depeursinge, E., Corboz-Warnery, A., & Keren M. (2004). The primary triangle. Treating infants in their families. In A. Sameroff, S. McDonough, & K. Rosenblum (Eds.), *Treating parent–infant relationship problems: Strategies for intervention* (pp. 123–151). New York, NY: Guilford Press.

Fivaz-Depeursinge, E., Favez, N., Lavanchy, C., de Noni, S., & Frascarolo, F. (2005). Four-month-olds make triangular bids to father and mother during Trilogue Play with Still Face. *Social Development, 14,* 361–378.

Fristad, M. A. (1989). A comparison of the McMaster and Circumplex family assessment instruments. *Journal of Marital and Family Therapy, 15,* 259–269.

Goodman, S. H., & Brand, S. R. (2009). Infants of depressed mothers: Vulnerabilities, risk factors, and protective factors for the latter development of psychopathology. In C. H. Zeanah, Jr. (Ed.), *Handbook of infant mental health* (3rd ed., pp. 153–170). New York, NY: Guilford Press.

Gordon, I., & Feldman, R. (2008). Synchrony in the triad: A microlevel process model of coparenting and parent–child interactions. *Family Process, 47,* 465–479.

Keren, M., Feldman, R., & Tyano, S. (2001). Diagnoses and interactive patterns of infants referred to a community-based infant mental health clinic. *Journal of American Academy of Child and Adolescent Psychiatry, 40,* 27–35.

Keren, M., Feldman, R., & Tyano, S. (2003). A five year Israeli experience with the DC:0–3 classification system. *Infant Mental Health Journal, 24,* 337–348.

Keren, M., Feldman, R., Namdari-Weinbaum, I., Spitzer, S., & Tyano, S. (2005). Relations between parents' interactive style in dyadic and triadic play and toddlers: Symbolic capacity. *American Journal of Orthopsychiatry, 75,* 599–607.

Lam, P., Hiscock, H., & Wake, M. (2003). Outcomes of infant sleep problems: Longitudinal study of sleep, behavior, and maternal well-being. *Pediatrics, 111,* 203–207.

Luoma, I., Tamminen, T., Kaukonen, P., Laippala, P., Puura, K., Salmelin, R., & Almqvist, F. (2001). Longitudinal study of maternal depressive symptoms and child well-being. *Journal of American Academy of Child and Adolescent Psychiatry, 40,* 1367–1374.

Maziade, M., Caperaa, P., & Laplante, B. (1985). Value of difficult temperament among 7-year-olds in general population for predicting psychiatric diagnosis at age 12. *American Journal of Psychiatry, 142,* 943–946.

McHale, J. (2007). When infants grow up in multiperson relationship systems. *Infant Mental Health Journal, 28,* 370–392.

McHale, J., Fivaz-Depeursinge, E., Dicktein, S., Robertson, J., & Daley, M. (2008). New evidence for the social embeddedness of infants' early triangular capacities. *Family Process, 47,* 445–463.

McHale, J., Kuersten, R., & Lauretti, A. (1996). New directions in the study of family-level dynamics during infancy and early childhood. In J. McHale & P. Cowan (Eds.), *Understanding how family-level dynamics affect children's development: Studies of two-parent families* (pp. 5–26). San Francisco, CA: Jossey-Bass.

Miller, I. W., Kabacoff, R. I., Eptein, N. B., Bishop, D. S., Keitner, G. I., Baldwin, L. M., & van der Spuy, H. I. J. (1994). The development of a clinical rating scale of the McMaster model of family functioning. *Family Process, 33,* 53–69.

Minuchin, P. (1985). Families and individual development: Provocations from the field of family therapy. *Child Development, 56,* 289–302.

Parke, R. D., & Tinsley, B. J. (1987). Family interaction in infancy. In J. D. Osoffsky (Ed.), *Handbook of infant mental health* (2nd ed., pp. 579–641). New York, NY: Wiley.

Repetti, R. L., Taylor, S. E., & Seeman, T. E. (2002). Risky families: Family social environments and the mental and physical health of offspring. *Psychological Bulletin, 128,* 330–366.

Stern, D. (2004). The motherhood constellation: Therapeutic approaches to early relational problems. In A. Sameroff, S., McDonough, & K. Rosenblum (Eds.), *Treating parent–infant relationship problems: Strategies for intervention* (pp. 29–42). New York, NY: Guilford Press.

Stevenson-Hinde, J., & Akister, J. (1995). The McMaster Model of family functioning: Observer and parental ratings in a non clinical sample. *Family Process, 34,* 337–347.

von Klitzing, K., Simoni, H., & Amsler, F. (1999). The role of the father in early family interactions. *Infant Mental Health Journal, 20,* 222–237.

Zero to Three. (1994). *Diagnostic classification of mental health and developmental disorders of infancy and early childhood.* Washington DC: Zero to Three Press.

Zero to Three. (2005). *Diagnostic classification of mental health and developmental disorders of infancy and early childhood* (rev. ed.). Washington DC: Zero to Three Press.