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The importance of parental verbal and embodied mentalizing in shaping parental experiences of stress and coparenting

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ABSTRACT

Parental mentalizing—recognizing that children are separate psychological entities, who have their own thoughts, wishes, and intentions that motivate their behaviors—is traditionally considered a verbal, linguistic capacity. This paper aimed to examine the relation between parental verbal mentalizing (parental reflective function; PRF) and its nonverbal form—parental embodied mentalizing (PEM)—and how both constructs contribute to parents' subjective experience of parenting, namely parental stress and coparental alliance. 68 mothers and their three-months-old babies were observed to assess PEM, interviewed to code PRF, and completed self-reports of coparental alliance and parental stress. PEM was found to be positively correlated with PRF. Mediation analyses revealed that higher PEM, but not PRF, was associated with lower parental stress, mediated by positive reports of coparental alliance. The findings support adopting a multifaceted approach when studying parental mentalizing, both in terms of assessing parental mentalizing beyond its verbal expressions to include also embodied aspects, as well as investigating its impact beyond infant development to include the familial context within it operates. Conceptual, empirical and clinical implications are discussed.

"You may give them your love but not your thoughts.
For they have their own thoughts.You may house their bodies but not their souls,
For their souls dwell in the house of tomorrow,
Which you cannot visit,
not even in your dreams." Kahlil Gibran, "On Children", 1923

1. Introduction

In his poem, Gibran stresses the importance of parents recognizing that their children are separate psychological entities, who have their own thoughts, wishes, and intentions that motivate their behaviors. This parental ability is otherwise known as parental mentalizing. Although considered mostly a verbal, linguistic capacity, this mixed-method study aims to examine the relation between parental verbal mentalizing and its nonverbal form—parental embodied mentalizing—and how both forms contribute to parents' subjective experience of parenting, namely parental stress and coparental alliance.

Slade (2005) defines parental mentalizing as the parent's ability to perform a mental visualization of the child's various internal

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states (such as thoughts, feelings, and wishes), and to recognize that the child's actions are motivated by those internal states. Individuals with low parental mentalizing may be unable to recognize even the crudest of mental states, whereas individuals with higher levels of parental mentalizing are likely to understand the complex and dynamic interplays of mental states and their influence on behavior (Rutherford, Goldberg, Luyten, Bridgett, & Mayes, 2013). A high mentalizing parent is also capable of perceiving the separateness of his or her mind and the child's mind, while holding the conception that both minds influence one another reciprocally (Slade, Grienenberger, Bernbach, Levy, & Locker, 2005).

1.1. Parental reflective functioning

Perhaps the most established operationalization of parental mentalizing is 'Parental Reflective Functioning' (PRF; Slade, 2002), which refers to the linguistic capacity parents demonstrate in an interview to hold in mind that their child has feelings, thoughts, and desirers and to verbally reflect upon the connection between behavior and mind, both of the parent and the child (Slade, 2002, 2005; Ordway, Sadler, Dixon, & Slade, 2014). The predominant interview used to evaluate PRF is the 'Parent Development Interview' (PDI; Slade, Aber, Berger, Bresgi, & Kaplan, 2003), which is a 45-item semi-structured clinical interview in which parents are asked to depict parenting experiences and events in a way that triggers reflective thinking about their child, his or her internal experience, and the relationship between the child and the parent. Indeed, studies using the PDI have shown that higher PRF contributes to optimal child functioning and positive parenting behaviors (e.g., Borelli, West, Decoste, & Suchman, 2012; Grienenberger, Kelly, & Slade, 2005; Ordway et al., 2014; Slade, Grienenberger et al., 2005; Slade, Sadler et al., 2005; Slade, Sadler, Mayes, 2005; Smaling et al., 2016; Stacks et al., 2014; See Camoirano, 2017 for a review).

Rutherford et al. (2013) suggested that parental mentalizing impacts how parents respond, in real time, to their infant's signaling of their internal states during dyadic interactions. It is plausible, however, that the type of mentalizing recruited when interacting in real time with the nonverbal infant is qualitatively different than the type of mentalizing recruited when thinking and consciously reflecting on the infant's internal world (Camoirano, 2017). Specifically, since the early parent-infant reciprocal communication is limited to a nonverbal level, parents' activation of their mentalizing capacity involves them quickly interpreting the infant's internal world through observation of the child's movements and nonverbal behavior—an interpretation that may very well be outside of their awareness or control. Thus, parents' capacity to consider their child's mental states based on these nonverbal signals likely represents a qualitatively different function than the more generalized and conscious capacity that is PRF. This embodied capacity likely operates on a more reflexive, unaware level (e.g., Fonagy, Bateman, & Luyten, 2012; Shai & Belsky, 2011b), which determines, at least in part, the quality of the parent's responsive caregiving in real time (e.g., Grienenberger et al., 2005). Indeed, based on an extensive review, Camoirano (2017) proposed that it is necessary to investigate parental mentalizing beyond verbal measures and consider implicit, less controlled facets of parental mentalizing.

1.2. Parental embodied mentalizing

The recently introduced construct of Parental Embodied Mentalizing (PEM; Shai & Belsky, 2011a, 2011b, 2017; Shai & Fonagy, 2014) addresses the importance in adopting a nonverbal framework for mentalizing. PEM conceptualizes parental mentalizing as an embodied capacity in which parents recognize, appreciate, and extrapolate the infant's feelings and thoughts from his or her nonverbal behavior. This parental capacity is evident in parents' adjustments and modification of their own movement based on what the infant is signaling nonverbally.

The assessment of PEM relies solely on analyzing the whole-body movement patterns of both the infant and the parent while excluding consideration of the verbal content. This approach is based on the recognition that parents and infants share a bi-directional communicative channel of their desires, feelings, or thoughts, which is based on nonverbal, and often unconscious, body movements of the entire body. Infants are capable of conveying their mental states using their directed, whole body as a way of communication with their parents, expressing pleasure, curiosity or frustration in a subtle but rich nonverbal fashion (e.g., Beebe, 2000; Malloch, 1999; Murray & Trevarthen, 1986; Stern, 1985; Trevarthen, 1990). Respectively, parents seem to be very attentive to their infant's nonverbal communicative signals, and tend to use nonverbal messages including head movements, posture, touch, and facial expressions in order to engage with and relate to the infant (Beebe et al., 2010; Stern, 1985; Trevarthen, 2004, 2008, 2011; Tronick, 1989). Moreover, parents use similar nonverbal communication signals to indicate their emotional availability and engagement with the infant. Importantly, much of this communication—of both parents and infants—has been shown to fall outside of the realm of parents' awareness and reflection (e.g., Beebe & Lachmann, 2013; Papoušek, 2000).

In line with Stern's (1985) notion of "vitality affects" which refers to the significance of the manner or style of a behavior, rather than on its categorical content, measuring PEM involves analyzing *how* the actions of both the parent and the infant are performed rather than evaluating *what* actions unfolded in the parent-infant interaction. That is, the coding of PEM is concerned with the form in which an action is performed rather than the action itself, or its content (Shai & Belsky, 2017). Video-recorded parent-infant interactions are analyzed using six dimensions of observable movement (or kinesthetic) qualities: Directionality (movement towards or away), Tempo (slow or fast movement), Space (Close or far), Pathways (linear or rounded movement), Pacing, (gradual or abrupt movement) and Tension Flow (muscle tone involved in the movement) (Shai & Belsky, 2017). These are used to describe the unfolding interaction, and aid in determining the extent to which the parent's movement is attuned to the subtle changes in the infant's mental state as can be inferred from the infant's bodily movements. A high PEM score can reflect the parent's swift change in the movement qualities to better suit those of the infant (Shai & Fonagy, 2014). A parent would be rated low on PEM when he or she falls

short in identifying, interpreting, and responding kinesthetically to the infant's nonverbally expressed mental state, or chooses to respond to it inappropriately (Shai & Belsky, 2017).

1.3. Parental mentalizing and parental stress

Despite of the theoretical and procedural differences in the measures for parental mentalizing, both PRF and PEM capture the degree to which a parent is capable of identifying and interpreting the infant's mental states. Both assessments are considered reliable and valid measures of parental mentalizing, and both were found to predict significant aspects concerning children's development and well-being (Ensink et al., 2015; Shai & Belsky, 2017; Slade, 2005). For these reasons, Shai and Belsky (2011a) argued that verbal and embodied parental mentalizing should (a) be positively correlated, and (b) be equally important, complementary predictors of outcomes in the parent-infant domain.

In contrast to the abundant work showing how higher parental mentalizing contributes to optimal child functioning and positive parenting behaviors discussed in Section 1.1., there is little work investigating what role it plays in parents' subjective experiences and wellbeing during the early postpartum period. One of the most predominant factors involved in the parenting experience is parental stress (e.g., Hayes & Watson, 2013; Leigh & Milgrom, 2008). Parental stress refers to the experience of distress or discomfort that results from demands associated with parenting (Deater-Deckard, 1998), and includes poor parenting skills, a lack of freedom or restriction in certain aspects of the parent's life, and a lack of social support (Abidin, 1995; Deater-Deckard, Dodge, Bates, & Pettit, 1996; Margolin, Gordis, & John, 2001). Parental stress contributes to the development of dysfunctional parent–child relationships and constitutes a risk factor for both child and adult psychopathology (Abidin, 1995; Deater-Deckard, 1998).

In one of the few studies that examined the relation between parental mentalizing and parental stress, mothers who used more mental state words when describing their preschool children (reflecting higher verbal mentalizing tendencies) reported less parenting stress (McMahon & Meins, 2012). In a different study that assessed a pilot (N = 17) mentalizationbased 2-week clinical parenting intervention, treatment outcomes included improved PRF and reduced parenting stress (Suchman, Ordway, de las Heras, and McMahon, 2016). A correlation was also found between a self-report measure of PRF (PRFQ; Luyten, Mayes, Nijssens, & Fonagy, 2017) and parental reports of the parent-child relationship, with parents who had mentalizing difficulties reporting lower satisfaction in their parental role (Rostad & Whitaker, 2016). Overall, these findings suggest that a parent who struggles and eventually feels that she fails in understanding her child's mental needs is likely to experience less satisfaction with parenting. These studies, however, examined only verbal forms of mentalizing. No study to our knowledge examined how verbal and nonverbal parental mentalizing uniquely predict parental stress.

We suggest that both verbal and embodied mentalizing can serve as important factors helping parents cope more optimally with the inherent strains and challenges of early parenting. A parent with high mentalizing is more likely to keep in mind a representation of the child as an independent and separate subjective being with internal mental and physical desires and needs, that are ambiguous and hard to grasp due to the infant's limited communication abilities, yet are transient and worth curiosity and exploration. In turn, such a parent would be able to perceive the challenges parenting brings with it less as his or her own poor management and impaired ability to "control the baby" or as the baby's intentional lack of cooperation, and more as the inherent result of infancy and parenthood. This mentalizing stance, in turn, is likely to keep holding a balanced stance towards parenthood despite the challenges it inevitably brings with it. Thus, we assume that a parent that both in the moment (i.e., PEM), as well as more generally (i.e., PRF), holds a representation of the infant as someone with needs, desires and feelings, will experience less stress and difficulty coping with the challenges involved in its role as a parent.

1.4. Parental mentalizing, stress, and the coparental alliance

Parental stress is determined not only by the individual's limited resources available to cope with the stress of parenting; it is further affected by the family's ability to restore functioning following the introduction of a parenting-related stressor (Hayes & Watson, 2013). Indeed, one of the factors known to reduce stress is parental alliance and coparental support. Coparenting refers to the unique relationship between two parents sharing the goal of parenting a child, who work together, or struggle against each other in the case of conflicted coparenting, in raising the child (McHale, 2007). Coparenting varies in the degree of alliance, support, and solidarity between the coparenting partners. According to Weissman and Cohen (1985), a good coparenting alliance consists of the following components: (a) both parents' investment in the child; (b) reciprocal involvement with the child; (c) respect for each other's judgment about child rearing; and (d) desire to communicate child-related information (Delvecchio, Sciandra, Finos, Mazzeschi, & Di Riso, 2015).

Studies have showed that the coparental alliance serves important functions in supporting both child and adult adjustment (e.g., Belsky, Crnic, & Gable, 1995; Feinberg, 2003; Margolin et al., 2001; McHale & Rasmussen, 1998; Schoppe-Sullivan, Mangelsdorf, Frosch, & McHale, 2004). Specifically, a well-functioning coparental alliance is positively associated with perceptions of parental support. In contrast, a low sense of coparental alliance has negative implications for parenting practices, family system adjustment, and parental stress (Abidin & Brunner, 1995; Askari, Noah, Hassan, & Baba, 2012; Kwan, Kwok, & Ling, 2015; Morrill, Hines, Mahmood, & Cordova, 2010; Schoppe-Sullivan et al., 2004; Thullen & Bonsall, 2017). Recently, Delvecchio et al. (2015) found in a large study of 1606 parents of children ages 1–13 years that self-reported coparental alliance mediated associations between parents' trait anxiety and parental stress.

We suggest that a parent with high mentalizing, be it verbal or embodied, is able to appreciate the pivotal role the other parent plays in the infant's life, support and enjoy their separate relationship, and feel aligned with the other parent in their role of parenting

their infant—i.e., experience a higher sense of coparental alliance. We further contend that this sense of coparenting will, in turn, foster in parents a sense of support, acceptance, and companionship with their partners, which would serve as a protective factor lowering parental stress. Therefore, parents with high verbal and embodied mentalizing capacities may experience less stress because they have a better coparental alliance. In other words, parental alliance may mediate the association between verbal and nonverbal mentalizing and parental stress.

1.5. The current study

The purpose of the current study was threefold. First, we wanted to examine whether the verbal and nonverbal modalities of parental mentalizing are interrelated or orthogonal. Meaning, do verbal displays of parental mentalizing correspond with its nonverbal manifestation? Second, we wanted to examine whether verbal and embodied mentalizing are uniquely associated with parental stress so that mothers with higher parental mentalizing would report experiencing less stress in their parenting. Finally, we wanted to examine the extent to which a sense of coparental alliance mediates the association between parental mentalizing and parental stress. Because parents to infants with difficult temperament might naturally experience more parental stress, we controlled for infant temperament in our analyses.

We hypothesized that (H1) there will be a moderate positive association between PEM and PRF, reflecting the relation but also the difference between these two measures of parental mentalizing; (H2) that both PRF and PEM will be uniquely associated with parental stress; and (H3) that co-parental alliance will mediate the associations of PRF and PEM with parental stress.

2. Method

2.1. Participants

Sixty-Eight Israeli mothers (age: M = 30.59, SD = 4.22, range: 21–43 years) and their 3 months old infants participated in this mixed-method study. This sample was a subsample from a larger longitudinal study following expecting parents from pregnancy to three months postpartum and comparing parental adaptation among high risk and low risk pregnancy parents (see XXX, 2017 for details). Attrition was due to refusal to participate (estimated 20% of original sample), failure to locate families (estimated 10%), or post-partum health complications (estimated 2%). Mothers were recruited during their second or third trimester of pregnancy. Inclusion criteria included being fluent in Hebrew, living with a spouse, and carrying a single embryo pregnancy. Participation in the study was voluntary and yielded no financial benefits. As a token of gratitude for their participation in the study, families received a small toy and a DVD copy of the free-play interaction upon its completion. Preliminary analyses revealed that mothers in the high and low risk pregnancy groups did not differ in their demographic characteristics or the variables involved in the current investigation, and therefore, the two groups were combined into one sample for the purpose of the current study.

All infants were generally healthy and most of them (63.2%) first born. The sample included 33 boys (54%). All mothers were at least high school graduates with a range of 12–22 years of education (M = 15.55, SD = 2.35). The majority of the reported household income was average (42.6%) or higher than average (41.2%).

2.2. Measures

2.2.1. Maternal embodied mentalizing

We used the Parental Embodied Mentalizing (PEM; Shai, 2011; Shai & Belsky, 2017) coding scheme. The coding was conducted while the sound was turned off so that the trained observers had only visual information on which to base their measurements. Coders were trained to direct their attention to the participants' whole-body movements rather than focus on facial expressions. Coding PEM proceeded in four stages. The first task was to identify the occurrence of PEM-related interactions, which are interactive sequences where there is a to-and-from between the parent and the infant in their nonverbal exchange of bodily-manifested mental states. The second required the coder to describe the movements of both the parent and the infant in terms of the movement qualities characterizing them (Tempo, Pathways, Space, Directionality, Tension-Flow, and Pacing, as described in the introduction). The third stage was to rate the quality of each micro-interaction in terms of PEM, which served in the fourth stage to assess the overall interactive episode in terms of the parent's embodied ability to keep the baby in mind and respond to him or her as a subjective being whose movements are meaningful and index their internal words. This capacity is manifested in the parent's willingness to modify his or her own kinesthetic patterns to better suit the infant's mental states. Global PEM scores can range from very low ("1") to very high ("9"). For a more detailed description of the coding process, please see Shai & Belsky (2017). Coding was carried out by a trained postgraduate student supervised and trained by the first author of this manuscript. PEM interrater reliability was measured using 14 pre-recorded parent-infant interactions (20% of the total sample) coded by the first author and the postgraduate student, with ICC of 0.89.

2.2.2. Maternal reflective functioning

We used the Parent Development Interview-Revised-Short Form (PDI-R2-S; Slade et al., 2003), a-35-item semi-structured interview that assesses parents' representations of their relationship with the child and lasts approximately an hour. Example items include " Describe a time in the last week when you and (your child) really "clicked"", "Now, describe a time in the last week when you and (your child) really weren't "clicking", " What gives you the most pain or difficulty in being a parent" and " Tell me about a time in the last week or two when you felt really angry as a parent…What kind of effect do these feelings have on your child?" The PDI transcripts

were used to assess maternal Reflective Functioning (PRF) using The Addendum to the Reflective Functioning Scoring Manual (Slade et al., 2003) developed for specific use with the PDI. The RF scale is an 11-point scale ranging from −1 (negative RF) to 9 (full or exceptional RF), where scores below 5 represent negative, absent or low RF, and scores of 5 and above represent moderate to high levels of RF. Coding was carried out by the second author of this manuscript, who is a trained and reliable PDI-RF coder and trainer, together with an advanced graduate Clinical Psychology student under her supervision. Pre-coding interrater reliability was computed on the basis of 10 interviews with an intraclass correlation coefficient (ICC) of 0.85. Interrater reliability was measured again on 10 interviews during the coding process with an ICC of 0.92. Both coders were blind to the mothers' ratings on the other measures used in the study. *Parenting stress.* We used the Parenting Stress Index-Short Form (PSI/SF; Abidin, 1995), a 36-item self-report questionnaire that measures stress directly associated with the parenting role. Mothers were asked to respond to the items using a 5-point scale, describing the degree to which each of the statements (e.g., "Often I feel that I cannot handle things" and "My child cries or fusses more than other children") was disturbing to them in the past week. A total parenting stress score was obtained by averaging the individual items (Cronbach's $\alpha = 0.87$), with higher scores indicating greater subjective stress.

2.2.3. Co-parenting alliance

We used the Parenting Alliance Inventory (PAI; Abidin & Brunner, 1995), a 20-item self-report questionnaire that measures the degree of parenting cooperation that the respondent believes to have with her spouse. Mothers rated items such as "When there is problem with our child we work out a good solution together" and " I believe my child's other parent is a good parent" on a 5-point scale. Total scores were calculated by averaging the individual items (Cronbach's $\alpha = 0.94$), with higher scores indicating a better coparenting alliance.

2.2.4. Infant temperament

We used the Infant Characteristic Questionnaire (ICQ; Bates, Freeland, & Lounsbury, 1979), a 19-item self-report inventory for parents of infants three months or older, designed to measure parental perception of infant temperament. Mothers rated their infant on a 9-point scale in terms of his or her typical mood states, soothing capabilities, and habits. A total score was obtained by summing up the individual items (Cronbach's $\alpha = 0.73$), with higher scores reflecting a more difficult temperament.

2.3. Procedure

When recruited during their pregnancy, future mothers signed a consent form and gave permission to contact them after they give birth. Consenting women were contacted for the second time three-months postpartum when they were asked to continue their participation in the study.

The post-partum assessment was conducted at the family's home and included both parents signing a consent form permitting the videotaping of the infant. During this visit, the mother completed self-report questionnaires regarding the birth, her and her infant's initial adjustment, and her perceptions of the infant's temperament. Mothers were also interviewed on the PDI-R2-S by a trained researcher and were videotaped during a 10-min free-play interaction with the infant in which mothers were asked to play together as they usually do. The interview and the videotaped interaction were alternated in order from one family to the other.

3. Results

3.1. Zero-order correlations

Descriptive statistics and zero-order correlations for all study variables are presented in Table 1. As predicted, parental embodied metalizing (PEM) and parental reflective functioning (PRF) were moderately positively correlated (H1). PEM was also positively

Table 1
Means, Standard Deviations, and Zero-Order Correlations between Study Variables and Mother and Baby Background Variables.

	1	2	3	4	5
1. PEM					
2. PRF	0.29*				
3. Co-parental Alliance	0.26*	−0.01			
4. Parental Stress	0.06	−0.08	−0.45***		
5. Infant Temperament	0.16	0.09	−0.14	0.44***	
6. Mother's Age	0.10	0.03	0.03	−0.20	−0.13
7. Mother's Education	0.07	0.39**	0.08	−0.11	−0.03
8. Birth week	−0.09	0.03	0.21	−0.27*	−0.14
9. Birth weight	−0.06	0.01	0.14	−0.10	−0.14
10. *Mean*	4.17	4.38	4.30	1.90	3.39
11. *SD*	0.92	1.36	0.52	0.33	0.75

Note. PEM = parental embodied metalizing. PRF = parental reflective metalizing (PDI score).
* $p < 0.05$.
** $p < 0.01$.
*** $p < 0.001$.

Table 2
Regression Coefficients for Parental Stress Regressed on PEM and PRF (Model 1), and While Controlling for Child Temperament (Model 2).

	Model 1			Model 2		
	β	*SE*	*t*	*β*	*SE*	*t*
PEM	0.07	0.13	0.55	0.01	0.12	0.07
PRF	−0.05	0.13	−0.40	−0.08	0.12	−0.69
Infant Temperament				0.46	0.10	4.46***

Note. PEM = parental embodied metalizing. PRF = parental reflective metalizing (PDI score). Model 1 $R^2 = 0.01$, *ns*. Model 2 $R^2 = 0.21$, $p < 0.05$.
*** $p < 0.001$.

correlated with co-parental alliance. Neither PEM nor PRF were correlated with parental stress. However, child temperament and co-parental alliance were both correlated with parental stress in expected directions (see Table 1).

Table 1 also displays correlations between study variables and demographic variables. PRF was positively correlated with maternal years of education, suggesting that more educated mothers have greater verbal reflective capacities, but not necessarily greater embodied capacities.

3.2. Unique associations and mediation analysis

The main analyses were conducted in two stages. First, we examined whether parental PEM and PRF have unique associations with parental stress, above and beyond child temperament (H2). Second, we examined whether PEM and PRF have unique indirect associations with parental stress, via co-parental alliance (H3). Because our data contained a small amount of missing values (5.2% across all study variables), we used full information maximum likelihood (FIML) estimates via Mplus version 7 (Muthén and Muthén, 2016). These estimates are interpreted in the same way as regular regression and correlation coefficients.

Table 2 displays the results of linear regressions predicting parental stress from PEM and PRF (Model 1), and from PEM, PRF, and child temperament (Model 2). Contrary to our second hypothesis, neither PEM nor PRF had unique associations with parental stress, regardless of whether child temperament was statistically controlled.

Consistent with our third hypothesis, however, an indirect association between PEM and parental stress emerged when co-parental alliance was entered as a mediator (see Fig. 1). PEM was positively related to co-parental alliance, above and beyond PRF and child temperament. Co-parental alliance, in turn, was negatively related to parental stress. Biascorrected bootstrapped confidence intervals indicated that this indirect association was significant at the 0.05 level ($\beta = -0.15$, 95% CI [−0.03, −0.27]), suggesting that PEM is negatively related to parental stress through increased co-parental alliance. This indirect association was not found for PRF.

3.3. Alternative model

In addition to our predicted mediation model, we also tested an alternative model in which parental stress was specified as a mediator of the association between both forms of parental mentalizing and parental alliance (i.e., the roles of mediator and dependent variable were switched). This model did no find significant indirect effects from PEM or PRF to parental alliance via parental stress, further supporting our hypothesized causal direction.

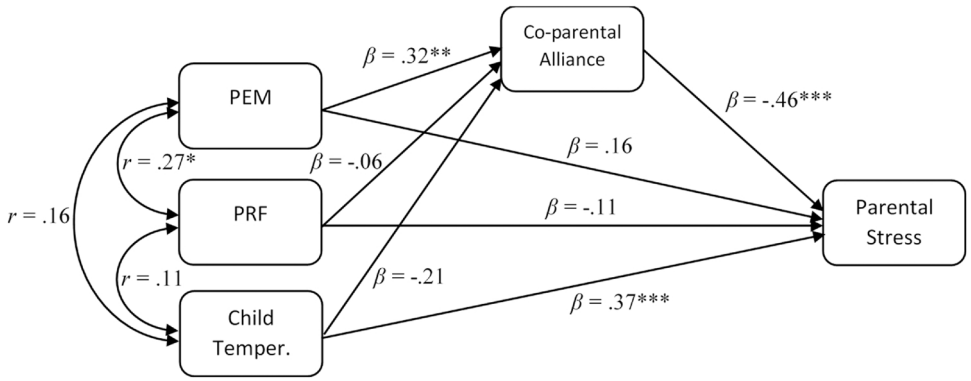

Fig. 1. Standardized full information maximum likelihood (FIML) estimates for the mediation analysis. PEM = parental embodied mentalizing. PRF = parental reflective functioning. Parental Stress R2 = .40, p < .001. *p < .05. **p < .01. ***p < .001.

4. Discussion

The findings of the current study contribute to the existing literature in three ways. Firstly, this study establishes the relationship between PEM and PRF and in doing so compliments the validation of PEM (Shai & Belsky, 2017). Secondly, the study reveals an important difference between PEM and PRF, namely, that PEM, unlike PRF, does not seem to be impacted by education level. Lastly, this study advances our understanding of how parental embodied mentalizing, but not PRF, is connected to how parents experience and report upon their parenting, that is, parental stress and coparental alliance.

With regard to the first contribution of the current work, and in line with our predictions, PRF and PEM were moderately positively correlated, suggesting that the two constructs tap different, but related, aspects of parental mentalizing. This finding is significant in terms of conceptualizing, as well as measuring, parental mentalizing. Specifically, results support the notion that parental mentalizing is a multifaceted construct, and therefore, can be assessed in different ways.

The importance of utilizing two approaches to parental mentalizing manifests itself in the second finding, that is, that PEM, but not PRF, was not affected by the mothers' education level. PRF has previously been found to be related to parental intelligence (e.g., Sleed, 2014). This may be related to the fact that PRF is reliant on verbal expression and linguistically expressed representations. PEM, in contrast, is expressed behaviorally, on the bodily level, and thereby bypasses any dependency on verbal capacities.

This suggested sensitivity of the PEM measure to pick up subtleties of parental mentalizing capacities in early infancy receives further support when considering the third main finding of the study—that higher PEM, but not PRF, was indirectly associated with lower parental stress through greater parental alliance.

To the best of our knowledge, the current study is the first to examine links between parental mentalizing and mothers' subjective experience of parenting. Previous research has focused mostly on associations between parental mentalizing and child outcomes or parenting behavior, whereas the connection between the mother's reflective capacities and her subjective parenting experience during the first months of motherhood remained unexplored. The current work expands our appreciation of the importance of maternal mentalizing capacities to the mother's subjective sense of parenting in the context of the family system.

The findings indicate that a mother who is able to capture, extrapolate, and respond to her baby's behavioral and physical manifestations of internal states (i.e., rated high on PEM) is likely to perceive her spouse as supportive of her parenting, to be able to appreciate the pivotal role he plays in the infant's life, and to feel aligned with him in their role of parenting their infant (i.e., reporting high co-parental alliance). Moreover, mothers who feel more supported by their partner and have more confidence in the partner's parenting capabilities, experience less stress in their parental role. The notion that coparenting has a protective and buffering role in reducing parental stress (Lionetti, Pastore, & Barone, 2015) and fostering the development of a healthy family alliance (Galdiolo & Roskan, 2016) is well documented. The current findings suggest that parental embodied mentalizing can also be viewed as a protective factor in the family system, operating both on the mother's subjective experience of parenting and on the coparental sub-system.

The fact that PEM, but not PRF, was associated with lower parental stress through coparental alliance alludes to the merit in distinguishing between the two types of mentalizing—verbal and embodied—on several aspects. The first pertains to the importance of considering the different mentalizing constructs in the context of young infants, as in the current inquiry. Sleed (2014) noted in a large validation study that the PRF on the PDI is less valid when children are under two months, because the parent is still very much in the midst of getting herself and the baby regulated, and probably has little capacity to put into words how she sees herself or the baby. Moreover, it is possible that at this developmental stage, parental attention, efforts, and consideration of the infant's subjectivity are mainly implicit and visceral, before they become represented in formal thought and articulation. This may translate into more concrete and physical descriptions of the child, the parent-child relationship, and the parental role, which in turn would be reflected in lower PRF scores. Nevertheless, caring for her young infant, a mentalizing mother is constantly reading her infant's mind, but this process occurs first on a visceral, embodied, automated and unconscious level (Shai & Belsky, 2011b; Slade, 2005), similar to relational knowing (Lyons-Ruth et al., 1998).

Thus, it is possible that the verbal measure of parental mentalizing was limited in picking up on a capacity that is very much there, but cannot be represented in words at that moment in time. PEM, in contrast, which assesses parental mentalizing via observed maneuvers and gestures rather than verbal narratives, may be more attuned to relational knowing and more sensitive to variations in caregiver's mentalizing during the infant's first months of life and their associations with parental subjective experiences. This finding, if replicated in larger and more diversified samples, can assist researchers and clinicians in choosing measures sensitive to the specific characteristics of the population tested and especially when focusing on specific child age groups.

Another important distinction concerns the difference between implicit and explicit processing. Explicit mentalizing reflects a relatively slow process, which it typically verbal and requires reflection, awareness, and effort (Allen, Fonagy, & Bateman, 2008; Fonagy & Luyten, 2009; Lieberman, 2006). As such, it is likely captured by the measurement of PRF. In contrast, implicit mentalizing involves faster processing and it is typically, reflexive and requires little or no awareness or effort (Allen et al., 2008; Satpute & Lieberman, 2006), as captured by the measurement of PEM. Most of our daily interactions—especially when it comes to parent-infant interactions—involve implicit and pre-reflective rather than explicit and reflective mentalizing (Allen et al., 2008; Shai & Belsky, 2011b).

The third distinction worth mentioning between PEM and PRF is the context in which parental mentalizing is assessed. PRF is based on an interview, and thus, the measurement of parental mentalizing is inherently offline. That is, PRF is measured at a lagged time, once the occurrence of an event being mentalized about has passed. PEM, in contrast, is an online measurement, meaning that the assessment of parental mentalizing takes place in "real time", at the very moment of the event being mentalized. In other words, the assessment of PRF appraises the parent's representations of the relationship and the capacity to reflect upon these representations,

rather than assessing the relationship itself or the ability to reflect upon the infant's mental states in real-time (Shai & Fonagy, 2014; Shai & Belsky, 2017).

Yet another difference between PEM and PRF is that the measurement of PRF involves a procedure of pondering, reflecting, and verbally expressing the parent's internal representations of the child and their relationship (Slade et al., 2003). This is an intrapersonal action in which the parent's mentalizing capacity is inferred from parental narratives pertaining to situations in which the parent and infant were involved. However, it is measured independently and separately from the infant. In contrast, the assessment of PEM inherently involves an interpersonal process (Shai & Fonagy, 2014), in which the parent's mentalizing is evaluated vis-à-vis the infant's nonverbal initiatives and responsiveness to the parent's interactive actions. This distinction between intra-personal and interpersonal is also evident in that the analysis target of PRF is the parent, whereas the analysis unit in PEM is the parent-infant dyad, from which the parental mentalizing capacity is inferred. That is, parental mentalizing is evaluated on the basis of the actual ability to successfully and accurately detect the child's signals, and modify his or her actions accordingly (Shai & Belsky, 2011a, 2017).

It might be worthwhile to consider in this context the influence of emotional arousal on the capacity to mentalize. Interpersonal encounters often involve strong and highly charged emotional responses, which when activated reduce the mentalizing ability (Bateman & Fonagy, 2005, 2012; Fonagy & Bateman, 2008; Nolte et al., 2010). Therefore, a case can be made that there is a discrepancy between how the parent can think of the child's needs and feelings off-line and how he or she actually interacts with the child such that a parent might be quite reflective in hindsight when asked to ponder about his or her interaction with the child, but fail to demonstrate the same degree of parental mentalizing when emotional arousal is high in an online, actual interaction with the child.

Importantly, no association was found between the two measures of mentalizing and maternal perceptions of infant's temperament. This is consistent with other studies that did not find associations between maternal mentalizing abilities and infant's characteristics (Arnott & Meins, 2007; Heron-Delaney et al., 2016). This suggests that parental mentalizing, at least early in the infant's life, reflects a tendency of the mother rather than a response to the infant. This is not to say that parental mentalizing depends solely on the parent but rather to suggest that early on, when the infant is very young and his or her signaling is still immature, the parent's attention, curiosity, and effortful exploration of the infant's internal state are crucial to the development of a reciprocal parent-infant relationship. Future studies could further explore the interplay and bidirectional effects between the parent and the child's characteristics over time.

4.1. Study limitations and future research directions

The current study joins empirical and clinical interest in the concept of parental mentalizing. By using two distinct methods of assessing parental mentalizing capacities and combining observational, interview, and self-report data, the study contributes to accumulating evidence regarding the importance of parental mentalizing for parental wellbeing, as well as its complexity and multifaceted quality. However, these qualifications need to be viewed in light of several caveats. The study used a cross-sectional design. Therefore, the causality and directionality of the detected effects cannot be inferred. It is our assumption that maternal mentalizing leads to appreciation of the coparental alliance, which in return decreases the subjective experience of parental stress. Recall that in addition to our predicted mediation model, we also tested an alternative model in which parental stress was specified as a mediator of the association between both forms of parental mentalizing and parental alliance (i.e., the roles of mediator and dependent variable were switched). This model did no find significant indirect effects from PEM or PRF to parental alliance via parental stress, further supporting our hypothesized causal direction. Nonetheless, future studies would benefit from taking a longitudinal approach in order to confidently point at causal mechanisms accounting for variations in mentalizing during different developmental phases and their impact on the child's developmental trajectories.

Two more limitations pertain to sample size and demographic characteristics (high education and SES), which limited the power of the model to detect hypothesized associations and the generalizability of the findings to other populations. Replication studies with larger and more diversified populations are needed. Finally, not unlike other studies in the field of parental mentalizing (Camoirano, 2017), fathers' mentalizing and subjective parenting experiences were not assessed. Applying a system approach in the study design, we recommend that future studies include also measurements of fathers' mentalizing as well as observational assessments of co-parenting to better understand coparental relationships and family dynamics in the context of parental mentalizing.

4.2. Clinical implications

This study joins a growing body of research highlighting the importance of parental mentalizing for parents and children and advocating its major role in preventive and therapeutic parental interventions (Fonagy, Sleed, & Baradon, 2016; Pajulo et al., 2012; Rutherford et al., 2013, 2015; Sadler et al., 2013). Many theory-grounded and evidence-based interventions have been developed to foster and enhance parental mentalizing among high risk (e.g., Minding the Baby; Slade, Grienenberger et al., 2005; Slade, Sadler et al., 2005; Slade, Sadler, Mayes, 2005; The Mothers and Toddlers Program; Suchman, Decoste, Castiglioni, Legow, & Mayes, 2008) and low risk populations (e.g., Parents First, see Slade, 2007 for review) and have shown promising outcomes in terms of child outcome, parenting behavior, and the mother-child relationship (see Camoirano, 2017 for a review). By focusing on mothers' subjective parenting experiences and linking parental mentalizing with favorable parenting outcomes, the current study supports the claim that maternal mentalizing serves as a protective factor for parents and children alike and may serve as a valuable treatment goal. The findings further underline the importance of enhancing parents' ability to mentalize the couple and the parents-infant triad. The Lausanne Trilogue Play paradigm (LTP; Fivaz-Depeursinge & Corboz-Warnery, 1999) and its recent adaptation, the Reflective Family Play (LFP; Philipp, 2012), are examples of assessment and intervention models that are intended to foster positive triangular communication and adaptive co-parenting and parental reflective stance in families with young children.

4.3. Conclusion

The current investigation supported the usefulness of approaching parental mentalizing as a nonverbal, embodied, phenomenon alongside more conscious and explicit manifestations such as parental reflective functioning. Furthermore, this study illuminated, for the first time, the important role parental mentalizing plays in parents' wellbeing in their roles as parents and the coparental alliance they experience. The findings of this inquiry support adopting a multifaceted approach when studying parental mentalizing, both in terms of assessing parental mentalizing beyond its verbal expressions to include also embodied aspects, as well as investigating its impact beyond infant development to include the familial context within it operates.

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References

Abidin, R. R., & Brunner, J. F. (1995). Development of a parenting alliance inventory. *Journal of Clinical Child Psychology*, *24*(1), 31–40.
Abidin, R. R. (1995). *Parenting stress index, third edition: Professional manual*. Odessa, FL: Psychological Assessment Resources, Inc.
Allen, J. G., Fonagy, P., & Bateman, A. W. (2008). *Mentalizing in clinical practice*. American Psychiatric Pub.
Arnott, B., & Meins, E. (2007). Links among antenatal attachment representations, postnatal mind-mindedness, and infant attachment security: A preliminary study of mothers and fathers. *Bulletin of the Menninger Clinic*, *71*(2), 132–149.
Askari, M., Noah, S. B. M., Hassan, S. A. B., & Baba, M. B. (2012). Comparison the effects of communication and conflict resolution skills training on marital satisfaction. *International Journal of Psychological Studies*, *4*(1), 182–195.
Bateman, A., & Fonagy, P. (2005). *Psychotherapy for borderline personality disorder*. Oxford: Oxford University Press.
Bateman, A. W., & Fonagy, P. (Eds.), (2012). *Handbook of mentalizing in mental health practice*. American Psychiatric Pub.
Bates, J. E., Freeland, C. A. B., & Lounsbury, M. L. (1979). Measurement of infant difficultness. *Child Development*, *50*(3), 794–803.
Beebe, B., & Lachmann, F. M. (2013). *Infant research and adult treatment: Co-constructing interactions*. Routledge.
Beebe, B., Jaffe, J., Markese, S., Buck, K., Chen, H., Cohen, P., & Feldstein, S. (2010). The origins of 12-month attachment: A microanalysis of 4-month mother–infant interaction. *Attachment & Human Development*, *12*(1–2), 3–141.
Beebe, B. (2000). Coconstructing mother–infant distress: The microsynchrony of maternal impingement and infant avoidance in the face-to-face encounter. *Psychoanalytic Inquiry*, *20*(3), 421–440.
Belsky, J., Crnic, K., & Gable, S. (1995). The determinants of coparenting in families with toddler boys: spousal differences and daily hassles. *Child Development*, *66*(3), 629–642.
Borelli, J. L., West, J. L., Decoste, C., & Suchman, N. E. (2012). Emotionally avoidant language in the parenting interviews of substance-dependent mothers: association with reflective functioning, recent substance use, and parenting behavior. *Infant Mental Health Journal*, *33*(5), 506–519.
Camoirano, A. (2017). Mentalizing makes parenting work: A review about parental reflective functioning and clinical interventions to improve it. *Frontiers in Psychology*, 8.
Deater-Deckard, K., Dodge, K. A., Bates, J. E., & Pettit, G. S. (1996). Physical discipline among African American and European American mothers: Links to children's externalizing behaviors. *Developmental Psychology*, *32*(6), 1065.
Deater-Deckard, K. (1998). Parenting stress and child adjustment: Some old hypotheses and new questions. *Clinical Psychology: Science and Practice*, *5*(3), 314–332.
Delvecchio, E., Sciandra, A., Finos, L., Mazzeschi, C., & Di Riso, D. (2015). The role of co-parenting alliance as a mediator between trait anxiety, family system maladjustment, and parenting stress in a sample of non-clinical Italian parents. *Frontiers in Psychology*, 6.
Ensink, K., Normandin, L., Target, M., Fonagy, P., Sabourin, S., & Berthelot, N. (2015). Mentalizaton in children and mothers in the context of trauma: An initial study of the validity of the Child Reflective Functioning Scale. *British Journal of Developmental Psychology*, *33*(2), 203–217.
Feinberg, M. E. (2003). The internal structure and ecological context of coparenting: A framework for research and intervention. *Parenting: Science and Practice*, *3*(2), 95–131.
Fivaz-Depeursinge, E., & Corboz-Warnery, A. (1999). *The primary triangle*. New York: Basic Books.
Fonagy, P., & Bateman, A. (2008). The development of borderline personality disorder—A mentalizing model. *Journal of Personality Disorders*, *22*(1), 4–21.
Fonagy, P., & Luyten, P. (2009). A developmental, mentalization-based approach to the understanding and treatment of borderline personality disorder. *Development and Psychopathology*, *21*(4), 1355–1381.
Fonagy, P., Bateman, A., & Luyten, P. (2012). Introduction and overview. In A. Bateman, & P. Fonagy (Eds.), *Handbook of mentalizing in mental health practice* (pp. 3–41). Arlington, VA: American Psychiatric Publishing, Inc.
Fonagy, P., Sleed, M., & Baradon, T. (2016). Randomized controlled trail of parent-infant psychotherapy for parents with mental health problems and young infants. *Infant Mental Health Journal*, *37*(2), 97–114.
Galdiolo, S., & Roskan, I. (2016). From me to us: The consturction of family alliance. *Journal of Infant Mental Health*, *37*(1), 29–44.
Gibran, K., (1923/2015). The Prophet. Ballingslöv, Sweden : Wisehouse.
Grienenberger, J. F., Kelly, K., & Slade, A. (2005). Maternal reflective functioning, mother-infant affective communication, and infant attachment: Exploring the link between mental states and observed caregiving behavior in the intergenerational transmission of attachment. *Attachment & Human Development*, *7*(3), 299–311.
Hayes, S. A., & Watson, S. L. (2013). The impact of parenting stress: a meta-analysis of studies comparing the experience of parenting stress in parents of children with and without autism spectrum disorder. *Journal of Autism and Developmental Disorders*, *43*(3), 629–642.
Heron-Delaney, M., Kenardy, J. A., Brown, E. A., Jardine, C., Bogossian, F., Neuman, L., ... Pritchard, M. (2016). Early maternal reflective functioning and infant emotional regulation in a preterm infant sample at 6 months corrected age. *Journal of Pediatric Psychology*, jsv169.
Kwan, R. W., Kwok, S. Y., & Ling, C. C. (2015). The moderating roles of parenting self-efficacy and co-parenting alliance on marital satisfaction among Chinese fathers and mothers. *Journal of Child and Family Studies*, *24*(12), 3506–3515.
Leigh, B., & Milgrom, J. (2008). Risk factors for antenatal depression, postnatal depression and parenting stress. *BMC Psychiatry*, *8*(1), 24.
Lieberman, M. D. (2006). Social cognitive neuroscience: A review or core processes. *Annual Review of Psychology*, *38*, 64–74.
Lionetti, F., Pastore, M., & Barone, L. (2015). Parenting stress: The roles of attachment states of mind and parenting alliance in the context of adoption. *Science and Practice*, *15*(2), 75–91.

Luyten, P., Mayes, L. C., Nijssens, L., & Fonagy, P. (2017). The parental reflective functioning questionnaire: Development and preliminary validation. *Public Library of Science*, *12*(5), e0176218. http://dx.doi.org/10.1371/journal.pone.0176218.
Lyons-Ruth, K., Bruschweiler-Stern, N., Harrison, A. M., Morgan, A. C., Nahum, J. P., Sander, L., ... Tronick, E. Z. (1998). Implicit relational knowing: Its role in development and psychoanalytic treatment. *Infant Mental Health Journal*, *19*(3), 282–289.
Malloch, S. N. (1999). Mothers and infants and communicative musicality. *Musicae Scientiae*, *3*(1_suppl), 29–57.
Margolin, G., Gordis, E. B., & John, R. S. (2001). Coparenting: A link between marital conflict and parenting in two-parent families. *Journal of Family Psychology*, *15*(1), 3.
McHale, J. P., & Rasmussen, J. L. (1998). Coparental and family group-level dynamics during infancy: Early family precursors of child and family functioning during preschool. *Development and Psychopathology*, *10*(01), 39–59.
McHale, J. P. (2007). When infants grow up in multiperson relationship systems. *Infant Mental Health Journal*, *28*, 370–392. http://dx.doi.org/10.1002/imhj.20142.
McMahon, C. A., & Meins, E. (2012). Mind-mindedness, parenting stress and emotional availability in mothers of preschoolers. *Early Childhood Research Quarterly*, *27*, 245–252.
Morrill, M. I., Hines, D. A., Mahmood, S., & Cordova, J. V. (2010). Pathways between marriage and parenting for wives and husbands: The role of co-parenting. *Family Process*, *49*, 59–73.
Murray, L., & Trevarthen, C. (1986). The infant's role in mother–infant communications. *Journal of Child Language*, *13*(01), 15–29.
Muthen, L. K. (2016). *Mplus User's Guide*. Los Angeles: CA: Muthen & Muthen, 1998–2012.
Nolte, T., Hudac, C., Mayes, L. C., Fonagy, P., Blatt, S. J., & Pelphrey, K. (2010). The effect of attachment-related stress on the capacity to mentalize. *Journal of the American Psychoanalytic Association*, *58*(3), 566–573.
Ordway, M. R., Sadler, L. S., Dixon, J., & Slade, A. (2014). Parental reflective functioning: Analysis and promotion of the concept for paediatric nursing. *Journal of Clinical Nursing*, *23*(23–24), 3490–3500.
Pajulo, M., Pyykkönen, N., Kalland, M., Sinkkonen, J., Helenius, H., Punamäki, R. L., & Suchman, N. (2012). Substance-abusing mothers in residential treatment with their babies: Importance of pre-and postnatal maternal reflective functioning. *Infant Mental Health Journal*, *33*(1), 70–81.
Papoušek, H. (2000). In J. D. O. H. E. Fitzgerald (Vol. Ed.), *Intuitive parenting. WAIMH handbook of infant mental health (Volume 3): Parenting and child care*. *3*, (pp. 310–321). New York, NY: Wiley.
Philipp, D. A. (2012). Reflective family play: A model for whole family intervention in the infant and preschool clinical population. *Infant Mental Health Journal*, *33*(6), 599–608.
Rostad, W. L., & Whitaker, D. J. (2016). The association between reflective functioning and parent–child relationship quality. *Journal of Child and Family Studies*, *25*(7), 2164–2177.
Rutherford, H. J., Goldberg, B., Luyten, P., Bridgett, D. J., & Mayes, L. C. (2013). Parental reflective functioning is associated with tolerance of infant distress but not general distress: Evidence for a specific relationship using a simulated baby paradigm. *Infant Behavior and Development*, *36*(4), 635–641.
Sadler, L. S., Slade, A., Close, N., Webb, D. L., Simpson, T., Fennie, K., & Mayes, L. C. (2013). Minding the baby: Enhancing reflectiveness to improve early health and relationship outcomes in an interdisciplinary home-visiting program. *Infant Mental Health Journal*, *34*(5), 391–405.
Satpute, A. B., & Lieberman, M. D. (2006). Integrating automatic and controlled processing into neurocognitive models of social cognition. *Brain Research*, *1079*, 86–97.
Schoppe-Sullivan, S. J., Mangelsdorf, S. C., Frosch, C. A., & McHale, J. L. (2004). Associations between coparenting and marital behavior from infancy to the preschool years. *Journal of Family Psychology*, *18*(1), 194.
Shai, D., & Belsky, J. (2011a). Parental embodied mentalizing: Let's be explicit about what we mean by implicit. *Child Development Perspectives*, *5*(3), 187–188.
Shai, D., & Belsky, J. (2011b). When words just won't do: Introducing parental embodied mentalizing: Introducing parental embodied mentalizing. *Child Development Perspectives*, *5*(3), 173–180. http://dx.doi.org/10.1111/j.1750-8606.2011.00181.x.
Shai, D., & Belsky, J. (2017). Parental Embodied Mentalizing: How the nonverbal dance between parents and infants predicts children's socio-emotional functioning. *Attachment and Human Development*, *19*(2), 191–219. http://dx.doi.org/10.1080/14616734.2016.1255653.
Shai, D., & Fonagy, P. (2014). Beyond words: Parental embodied mentalizing and the parent infant dance. In M. Mikulincer, & P. R. Shaver (Eds.), *Mechanisms of social connections: From brain to group* (pp. 185–203). Washington, D.C: American Psychological Association.
Shai, D. (2011). *The parental embodied mentalizing (PEM) coding system manual*. Birkbeck University of London (Unpublished Manuscript).
Slade, A., Aber, J. L., Berger, B., Bresgi, B. I., & Kaplan, M. (2003). *PDI-R2-S parent development interview revised short version*. New York: The City College of New York.
Slade, A. (2002). Keeping the baby in mind: A critical factor in perinatal mental health. *Zero to Three*, *22*(6), 10–16.
Slade, A. (2007). Reflective parenting programs: Theory and development. *Psychoanalytic Inquiry*, *26*(4), 640–657.
Slade, A. (2005). Parental reflective functioning: An introduction. *Attachment & Human Development*, *7*(3), 269–281. http://dx.doi.org/10.1080/14616730500245906.
Slade, A., Grienenberger, J., Bernbach, E., Levy, D., & Locker, A. (2005). Maternal reflective functioning, attachment, and the transmission gap: A preliminary study. *Attachment & Human Development*, *7*(3), 283–298. http://dx.doi.org/10.1080/14616730500245880.
Slade, A., Sadler, L., De Dios-Kenn, C., Webb, D., Currier-Ezepchick, J., & Mayes, L. (2005). Minding the baby: A reflective parenting program. *The Psychoanalytic Study of the Child*, *60*(1), 74–100.
Slade, A., Sadler, L., & Mayes, L. C. (2005). Maternal reflective functioning: Enhancing parental reflective functioning in a nursing/mental health home visiting program. In L. Berlin, Y. Ziv, L. Amaya-Jackson, & M. Greenberg (Eds.), *Enhancing early attachments: Theory, research, intervention, and policy* (pp. 152–177). New York, NY: Guilford Publications.
Sleed, M. (2014). *The assessment of relational risk in early parent-infant relationships. A dissertation submitted for the degree of (Doctoral dissertation)*. University College London. UCL Discovery.
Smaling, H. J., Huijbregts, S. C., Suurland, J., Heijden, K. B., Mesman, J., Goozen, S. H., & Swaab, H. (2016). Prenatal reflective functioning and accumulated risk as predictors of maternal interactive behavior during free play, the still-face paradigm, and two teaching tasks. *Infancy*, 1–19. http://dx.doi.org/10.1111/infa.12137.
Stacks, A. M., Muzik, M., Wong, K., Beeghly, M., Huth-Bocks, A., Irwin, J. L., & Rosenblum, K. L. (2014). Maternal reflective functioning among mothers with childhood maltreatment histories: Links to sensitive parenting and infant attachment security. *Attachment & Human Development*, *16*(5), 515–533.
Stern, D. N. (1985). *The interpersonal world of the infant*. London: Karnac.
Suchman, N., Decost e, C., Castiglioni, N., Legow, N., & Mayes, L. (2008). The mothers and toddlers program: Preliminary findings from an attachment-based parenting intervention for substance-abusing mothers. *Psychoanalytic Psychology*, *25*(3), 499–517.
Suchman, N. E., Ordway, M. R., de las Heras, L., & McMahon, T. J. (2016). Mothering from the Inside Out: results of a pilot study testing a mentalization-based therapy for mothers enrolled in mental health services. *Attachment human development*, *6*, 596–617.
Thullen, M., & Bonsall, A. (2017). Co -parenting quality, parenting stress, and feeding challenges in families with a child diagnosed with autism spectrum disorder. *Journal of Autism and Developmental Disorders*, 1–9.
Trevarthen, C. (1990). In T. D. Sebeok, & J. Umiker-Sebeok (Eds.), *Signs before speech. The semiotic web*. Mouton de Gruyter. [SB].
Trevarthen, C. (2004). *How infants learn how to mean. A learning zone of one's own*. 37–69.
Trevarthen, C. (2008). The musical art of infant conversation: Narrating in the time of sympathetic experience, without rational interpretation, before words. *Musicae Scientiae*, *12*(1_suppl), 15–46.
Trevarthen, C. (2011). What is it like to be a person who knows nothing? Defining the active intersubjective mind of a newborn human being. *Infant and Child Development*, *20*(1), 119–135.
Tronick, E. Z. (1989). Emotions and emotional communication in infants. *American Psychologist*, *44*(2), 112–119.
Weissman, S., & Cohen, R. S. (1985). The parenting alliance and adolescence. *Adolescent Psychiatry*, *12*, 24–45.