



# Mentalization in children and mothers in the context of trauma: An initial study of the validity of the Child Reflective Functioning Scale

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This study examined the validity of the Child Reflective Functioning Scale (CRFS: Ensink, Target, & Oandason, 2013, *Child reflective functioning scale scoring manual: for application to the Child Attachment Interview*. London, UK: Anna Freud Centre – University College London), a measure designed to assess reflective functioning (RF) or mentalization during middle childhood. Participants were 94 mother–child dyads divided into two subgroups; 46 dyads where children had histories of intrafamilial ( $n = 22$  dyads) or extrafamilial ( $n = 24$  dyads) sexual abuse, and a community control group composed of 48 mother–child dyads. RF of children and their mothers was assessed using videotaped and transcribed data gathered using the Child Attachment Interview and the Parent Development Interview (PDI: Slade, Aber, Bresi, Berger, & Kaplan, 2004, *The parent development interview-Revised*. New York, NY: The City University of New York). The findings indicate that the CRFS proved reliable, with excellent intraclass correlation coefficients for general RF, as well as RF regarding self and others. Significant differences in RF were found between sexually abused children and the control group, and also between children who had experienced intrafamilial and extrafamilial sexual abuse. This provides support for the discriminant validity of the CRFS. Furthermore, maternal RF was associated with child RF. Both abuse and maternal RF made significant contributions to predicting children's RF regarding themselves, but child sexual abuse was the only variable that made a significant contribution to explaining variance in children's RF regarding others.

How do children understand their relationships with their attachment figures and how do they think about themselves? Despite a burgeoning body of research on the development of children's social cognition and understanding of feelings and reactions of others, we know surprisingly little about the development of children's capacities to consider their close relationships and themselves in mental state terms. The reflective functioning (RF) paradigm developed by Fonagy, Steele, Moran, Steele, and Higgitt (1991) provides a methodology for assessing, in adults, this particular dimension of social cognition or

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mentalization, involving the capacity to consider close relationships and the self in terms of mental states and see the behaviours of significant others in terms of underlying psychological motivations, thought, feelings, intentions, and desires (Fonagy, Gergely, Jurist, & Target, 2002). There is evidence suggesting that RF is particularly important in the context of trauma and adversity, with high RF associated with resilience (Berthelot *et al.*, 2014; Ensink *et al.*, 2014; Fonagy, Steele, Steele, Higgitt, & Target, 1994), but at this stage, research on child RF in general and in the context of trauma in particular is hampered by the lack of a reliable and validated measure of child RF. The aim of this study was to provide evidence of the reliability and validity of the Child Reflective Functioning Scale (CRFS) by examining whether the CRFS could be used to detect differences in RF associated with exposure to trauma (sexual abuse), as well as the context of trauma (intra-versus extrafamilial).

### **Development of mentalization and socio-cognitive capacities in children**

Fonagy and Target (1996) have elaborated a developmental model of mentalization and RF based on an integration of findings from research on attachment, Theory of Mind (ToM), social cognition, and emotional understanding. In this model, the early sense of self crystallizes around the experience of being treated by a caregiver as a psychological being with a mind, with the child developing a coherent sense of self and identity through interactions with a caregiver that reflects on his mind (Fonagy, Gergely, & Target, 2007; Fonagy & Target, 2006). As Fonagy and Target (2006) observed, it is also difficult to develop the capacity to imagine the minds of others and to mentalize in relation to others without the experience of having been treated as someone with a mind.

From this perspective, parental RF is considered to be central to the processes through which children develop their mentalization capacities (Slade, 2005) and there is growing direct and indirect evidence in support of this proposition. For example, mothers with higher RF have been shown to use more mind-minded comments that refer to the child's state of mind when interacting with their infants and young children (Rosenblum, McDonough, Sameroff, & Muzik, 2008). In turn, mental state talk across diverse situations ranging from picture-book reading to dinner-time family discussions has consistently been found to be pivotal for the development of children's emotional understanding and ToM (de Rosnay, Harris, & Pons, 2008; Doan & Wang, 2010; Dunn, Brown, & Beardsall, 1991; Ereky-Stevens, 2008; Ruffman, Slade, & Crowe, 2002; Symons, Fossum, & Collins, 2006; Taumoepeau & Ruffman, 2008). Furthermore, there is research evidence that parent-child dyadic co-construction of narratives about emotionally significant events (Bettens, Favez, & Stern, 2003; Laible, Murphy, & Augustine, 2013) facilitates the development of event- and autobiographical memory (Prebble, Addis, & Tippett, 2013), considered central to the development of the self. This research evidence and the developmental model developed by Fonagy and Target (2006) is consistent with the earlier proposition by Vygotsky's (1978) that children learn complex competencies in the context of interpersonal relationships in which they are scaffolded and practiced before they become, through a process of internalization and representation, part of the intrapersonal repertoire.

There is evidence that parental RF predicts the development of *emotional understanding* of children (Steele, Steele, Croft, & Fonagy, 1999), as well as RF in adolescence (Benbassat & Priel, 2012). However, data on the relationship between parental RF and that of children are still lacking.

### **Mentalization in the context of trauma**

Considering the importance of the parent's reflective stance for all the parent-child interactions through which children learn about themselves and others and develop their mentalization capacities, it is not surprising that deficits across a range of mentalization capacities have been identified in maltreated children. Abuse and neglect have been shown to be associated with poor discrimination of all emotions (Edwards, Shipman, & Brown, 2005; Pollak, Cicchetti, Hornung, & Reed, 2000) as well as delays in self-recognition in the mirror between 18 and 30 months (Schneider-Rosen & Cicchetti, 1991), ToM (Cicchetti, Rogosch, Maughan, Toth, & Bruce, 2003; Pears & Fisher, 2005), and emotional understanding (Camras, Sachs-Alter, & Ribordy, 1996; Rogosch, Cicchetti, & Aber, 1995; Shipman & Zeman, 1999). Less is known regarding mentalization in children who have experienced sexual abuse. Sexually abused girls have been found to have lower emotional understanding compared to non-maltreated peers in one study (Shipman, Zeman, Penza, & Champion, 2000) and this requires further replications. Few studies on child maltreatment have specifically addressed the relationship between family processes and children's emotional understanding, but there is some evidence that maltreating parents engage their children less often in emotional discussions (Edwards *et al.*, 2005) and that they manifest impairments in their capacity to understand their children's expression of affect (Shipman & Zeman, 2001). Intrafamilial sexual abuse can be expected to undermine the development of mentalization at multiple levels. The act of abuse can be argued to be incompatible with mentalizing the child's experience (Allen, 2013). Parents who abuse may be unable or unwilling to imagine the child's internal experience, may discourage coherent discourse about mental states, and undermine the development of mentalization in children to avoid engaging with the psychological impact and suffering they inflict (Allen, Fonagy, & Bateman, 2008; Fonagy & Luyten, 2009). Children may be terrified to think of the minds of caregivers who sometimes harbour malevolent intentions or have distorted representations of them and may avoid thinking of this in order to preserve their attachment relationships (Allen, 2013; Fonagy *et al.*, 2002). By comparison, children who experienced extrafamilial sexual abuse are more likely to have access to relationships with parents that have fostered mentalization regarding self and others and will help the child to mentalize the traumatic experience.

### **Developing a reliable measure for assessing mentalization in children**

Whereas the theoretical literature on mentalization in middle childhood is burgeoning, empirical efforts to develop psychometrically sound and age appropriate measure of RF in this subpopulation are lagging behind (Humfress, O'Connor, Slaughter, Target, & Fonagy, 2002; Shmueli-Goetz, Target, Fonagy, & Datta, 2008). The challenge is to develop an assessment procedure that takes advantage of the increasing language capacities of children of this age group, but is able to distinguish between developmentally determined limitations in narrative abilities (Shmueli-Goetz *et al.*, 2008) and mentalization difficulties.

The assessment of mentalization in attachment contexts is arguably the best indicator of an individual's mentalization capacities, and for this reason, it is traditionally coded from the Adult Attachment Interview (AAI; George, Kaplan, & Main, 1996) using the Adult Reflective Functioning Scale (ARFS; Fonagy, Target, Steele, & Steele, 1998). Following the practice of rating adult RF from AAIs, the Child Attachment Interview (CAI; Shmueli-Goetz *et al.*, 2008) also makes it possible to assess RF in children. To pursue this objective, Ensink, Target, and Oandasan (2013) developed the CRFS. The CRFS is applied to the videotaped and transcribed narratives children produce in response to the CAI.

Descriptions of themselves and their attachment relationships are rated to obtain indicators of mentalization regarding self as well as attachment figures. Compared to other understanding, self-understanding has been argued to be a more complex developmental achievement (Bodgan, 2003), involving slightly different, although proximal, neural networks (Lieberman, 2007) and possibly associated with different forms of interpersonal difficulties and psychosocial disturbances (Luyten & Fonagy, 2012).

The main purpose of this study was to examine the reliability and preliminary validity of the CRFS, a measure specifically designed to assess RF or mentalization activated in an attachment context during middle childhood. To do this, we examined whether the CRFS (Ensink *et al.*, 2013) could be used to reliably rate children's RF elicited in response to the CAI questions. The validity of two specific predictions was examined. First, it is generally assumed that abuse and trauma during childhood is associated with negative impacts in a number of domains including self-understanding, social cognition, and emotional understanding (Cicchetti & Toth, 1995). Empirical literature on the impact of child sexual abuse on mentalization is practically non-existent, but based on previous findings with children exposed to physical abuse, we will test the hypothesis that, as compared to matched controls, sexually abused children will have poorer RF. Second, there is a larger number of empirical studies showing that parental mentalization – maternal causal mental state talk, stimulation of perspective taking, family discussion of emotions, etc. – facilitates young children's early self-understanding and other understanding (Sharp & Fonagy, 2008a). There are no comparable studies for middle childhood, but based on findings with younger children as well as adolescents, we predicted that parent mentalization and child mentalization, measured as RF in adult and child interviews, respectively, would be significantly associated.

## Method

### *Participants and procedure*

Participants were 94 mother–child dyads divided into two subgroups. The clinical group consisted of 46 dyads where the children had histories of intrafamilial ( $n = 22$  dyads, 15 girls, 7 boys,  $M$  age = 111 months,  $SD = 17.1$ ) or extrafamilial ( $n = 24$  dyads, 19 girls, 5 boys,  $M$  age = 120 months,  $SD = 18.1$ ) sexual abuse. Intrafamilial abuse was perpetrated either by fathers ( $n = 11$ ), stepfathers ( $n = 3$ ), siblings ( $n = 6$ ), or grandfathers ( $n = 2$ ). Extrafamilial abuse was perpetrated by acquaintances ( $n = 14$ ), members of the extended, but not immediate, family ( $n = 9$ ), or strangers ( $n = 1$ ). Mothers of sexually abused children were single ( $n = 18$ ), separated or divorced ( $n = 13$ ), married ( $n = 9$ ), or cohabiting ( $n = 6$ ). These dyads were referred by Youth Protection Services. In terms of the type and severity of the abuse, 45 (98%) of 46 cases involved genital contact, with 19 (42%) involving penetration.

The community control group was composed of 48 mother–child dyads, selected to broadly match the socio-demographic, age, and gender characteristics of the abused group. Mean age for the 29 girls and 19 boys in this group was 119 months ( $SD = 16$ ). Mothers were cohabiting ( $n = 21$ ), married ( $n = 15$ ), separated or divorced ( $n = 6$ ), or single ( $n = 6$ ). This group was recruited through advertisements at Community Health Services and Day Care centres. To identify and exclude children in the control group with possible histories of sexual abuse and other traumatic life events, parents of control group children were interviewed about the child's developmental history and traumatic life events.

Control group families were matched with families from the clinical group on maternal education and child age (within 6 months). This procedure proved effective, and there were no significant between-group differences with regard to maternal education ( $M = 13.7$  years,  $SD = 2.8$ , for the intrafamilial abuse group;  $M = 13.8$  years,  $SD = 2.3$ , for the extrafamilial group; and  $M = 14.9$  years,  $SD = 3.3$  for the comparison group),  $F(2, 91) = 2.38$ ,  $p > .05$ , child age ( $M = 111$  months,  $SD = 17$ , for the intrafamilial abuse group;  $M = 120$  months,  $SD = 18$ , for the extrafamilial group; and  $M = 119$  months,  $SD = 16$ , for the comparison group),  $F(2, 91) = 2.20$ ,  $p > .05$ , or number of siblings ( $M = 2.38$ ,  $SD = 0.92$ , for the intrafamilial abuse group;  $M = 3.09$ ,  $SD = 2.7$ , for the extrafamilial group; and  $M = 2.15$ ,  $SD = 0.99$ , for the comparison group),  $F(2, 91) = 2.06$ ,  $p > .05$ . The majority of the participants were Caucasians. A signed consent was obtained from all subjects and their parents, and the research was approved by our University Ethics Committee. Parents received a modest stipend to cover transport costs, and children were invited to choose a toy or small gift.

## Measures

### *Child Reflective Functioning Scale*

The CRFS (Ensink *et al.*, 2013) was adapted from the ARFS (Fonagy *et al.*, 1998) and was used to rate videotaped and transcribed data gathered using the CAI (Shmueli-Goetz *et al.*, 2008; Target, Fonagy, Shmueli-Goetz, Datta, & Schneider, 1998). The CAI is a 15-question assessment protocol developed to activate the attachment system and to elicit narratives about the self and relationships with attachment figures. For the purpose of the present study, the CAI was translated into French and then back-translated to assure equivalence with the original English version. Four female doctoral psychology students conducted the interviews.

The CRFS manual enables trained raters to make an objective assessment of children's ability to provide mentalizing accounts of themselves and their key attachment relationships in response to the CAI questions. The manual contains descriptions and examples of different levels and types of CRF. Children's narratives are coded on an 11-point scale (−1 to 9) descriptively anchored at six points in terms of their propensity to consider interpersonal interactions and personal reactions in mental state terms. Examples of the different levels of RF are provided in Table 1. To obtain a general indicator of children's RF (CRF-G), the mean RF of all the coded responses was used. The scale alpha was .94, and item-total correlations ranged from .57 to .79, confirming that the total score (CRF-G) could be used as a good indicator of overall RF. Because of theoretical considerations and previous findings with adults indicating that self- and other understanding may have distinct implications, self and other items were treated as separate scales. (A factor analysis is not reported given that the sample was composed in part of children with histories of sexual abuse involving their fathers and that this may have had an effect on their mentalization regarding fathers that may be particular to this sample and would be unlikely to be replicated in other samples.)

To obtain an indicator of children's RF regarding themselves (CRF-S), the mean RF for the four items eliciting self-descriptions and the child's reactions in response to upsetting events was used. Furthermore, an indicator of CRF-Other (CRF-O) was calculated based on the mean RF on the nine questions regarding the child's relationships with their parents and a description of parents' reactions when upset or when they argue. Inter-rater reliability of the CRFS items has been reported to be good, with intraclass coefficients

**Table 1.** Examples of different levels of child reflective functioning

RF Scores	Example
Bizarre, disorganized response mentalization is avoided	“When was the last time you felt it was fun to be with mom?” – “Uhhh. . . there’s a poem there, fun to be with mom. . . I’m fun to be with mom. . . I’ve got this video of Sesame Street. . .” (–1)
Absence of mentalization	“What happens when dad gets upset with you?” – “I don’t know, it just is” (0)
Self description in terms of behavior, non-mental characteristics	“I have lots of energy, I am athletic. I take part in lots of sports” (1)
Descriptions are given without explicit reference to mental states	“It is fun to be with mum” The child then gives the following example. “Sometimes on a Saturday she says come let me treat you, and we go to the shopping centre and I can try out a dress, or some jewelry, and then we go to McDonalds and have something to eat” (2)
Some vague, basic but unelaborated references to mental states	“I am friendly and helpful, I enjoy helping my friends, I always know how to solve things on the computer” (3)
The child may recognize that when they experience a negative affect, their own behavior may elicit responses from others, which in turn can help to soothe or regulate their affect in various ways	“When I get sad, Mom like, comforts me” (4)
Clear description which shows a solid mental state understanding	What happens when your mum gets upset? “It is usually about homework. By 5 pm I have had enough and I cannot stomach anymore, but it isn’t finished. So then I ask my mum if I can do something else” and she says “only if you have finished your homework. And I say “I can’t stand it anymore” and she says “it is your responsibility to finish it, I can’t do it in your place.” and she says, “I don’t want to see you before you have finished it unless you want to see me get angry.” But I am frustrated, so I argue with her and get angry with her, but I know she is right and that I have to do it. There is no other way around it” (5)
Clearly communicates the fact that she knows what she feels, but intentionally hides this	“I am so angry at her. . . but I would never show that to her” (6)
Reflects an understanding that different people may perceive a given behavior or situation differently often based on differing knowledge of the situation or false belief	“She was upset because she thought the secret was about her but it wasn’t. I did not know how to reassure her and keep the secret at the same time, and whatever I said, she just became more and more convinced it was about her” (7)

*Continued*

**Table 1.** (Continued)

RF Scores	Example
Unusually nuanced understanding of reactions of self and other that also incorporates a sense of feelings and reactions changing over time	“When I was younger I had lots of problems after the abuse. I used to escape into a phantasy life, dreaming about being a princess living in a castle, having beautiful clothes and an expensive car. I felt different from the others and did not want to play with them even when they asked me to. It was really not going well. But now I accept what has happened. It was difficult for me at the time because it was someone in my family, and I felt that my parents and grandparents did not completely take my side and I could not understand why he could get away with doing what he did and the family still kept contact with him. Now I understand that what he did was wrong, that he made a mistake, but he was young and immature. I still find it difficult to see him, but I accept that he is part of the family and they cannot just throw him away, but at the time I could not understand that because I was so upset, and I felt that if they did not do that it was because they did not love me, they did not protect me and support me” (8)

(ICCs) ranging from .60 to 1.00, with a median of .93 (Ensink, 2004). Temporal stability of children’s RF was shown to be high over a 3-month period and adequate over 12 months (Ensink, 2004). Coding was carried out by the first author and two doctoral students trained by the first author to 85% agreement. This level of reliability was achieved after 12 hr of training. Coders were blind to the status of the case. Every effort was made to remove indicators from the transcript that might have indicated the participant’s abuse status, although this was a limited problem as few children disclosed abuse-related information. Responses were screened for inadvertent indications of group identity by the interviewer, and all identifying references were either deleted in their entirety or key indicative content was blanked out (e.g., references to investigations and sexual abuse were taken out of the text).

#### *Maternal RF*

Maternal RF was measured with the Parent Development Interview (PDI) Addendum to the ARFS (Fonagy *et al.*, 1998). The PDI-R (Slade, Bernbach, Grienberger, Levy, & Locker, 2004) is a 45-item interview developed to assess parental representations of the child and of the parent–child relationship. Reliability estimates produced using ICCs range from .78 to .95 (Slade, Grienberger, Bernbach, Levy, & Locker, 2005). The interview was videotaped and transcribed for coding purposes. Each demand question was coded with reference to the manual, which provides illustrations of different types and levels of RF responses. An overall RF score (ranging from –1 to 9) was assigned using the manualized guidelines. All protocols were coded by the first and second author of the study, both trained to code parental RF. Protocols were allocated so that the first author never coded both parent and child measures for any dyad. Inter-rater reliability was calculated on 20% of protocols and was satisfactory (ICCs ranged from .67 to .98 and reached .93 for the global PDI score).

## Results

### **Child RF and mothers' RF in the clinical and comparison groups**

#### *Preliminary analyses*

First, inter-rater reliability of the CRFS was calculated on 30% of protocols and was demonstrated to be excellent (ICCs ranging from .80 to .90). Furthermore, and prior to testing the hypotheses, we examined the distribution of RF and explored the data for potential confounding variables. Gender differences in CRF-S,  $F(1, 93) = .01, p > .05$ , and CRF-O,  $F(1, 93) = .02, p > .05$ , were not significant. The distribution of RF scores was normal/somewhat skewed for both children and parents but not sufficiently to necessitate the use of nonparametric statistics for hypothesis testing. Child RF was significantly correlated with age, and thus, the effect of age was controlled in multiple regression analyses.

#### *Child RF*

From a descriptive viewpoint, mean CRF-G scores were very low for the sexually abused group ( $M = 2.08, SD = 1.44, SE = .21, \text{Min} = -0.25, \text{Max} = 6.92$ ) and, also, to a lesser extent, in the comparison group ( $M = 3.25, SD = 1.02, SE = .15, \text{Min} = 1.17, \text{Max} = 5.83$ ). The difference between the two groups was significant,  $t(93) = 4.51, p < .001$ , and, using conventional interpretative criteria (Cohen, 1988), could be considered large as the mean of the abused group was at the 79th percentile of the comparison group (Hedges'  $g = .94, 95\% \text{ CI: } 0.65\text{--}1.67$ ). Thus, child sexual abuse was associated with increased difficulties in mentalization.

When total RF scores were broken down into separate indicators of CRF-S and CRF-O, mentalization capacities were, again, at the lower end of the spectrum. More specifically, CRF-S was very low in the sexually abused group ( $M = 2.22, SD = 1.76, SE = .25, \text{Min} = -0.50, \text{Max} = 7.75$ ) and, also, but to a certain degree only, in the comparison group ( $M = 3.38, SD = 1.08, SE = .16, \text{Min} = 1.25, \text{Max} = 5.5$ ). This difference was significant,  $t(93) = 3.84, p < .001$ , and, reflected a medium to large effect (Hedges'  $g = .79, 95\% \text{ CI: } 0.56\text{--}1.76$ ). Mentalization capacities about others as measured by CRF-O showed a similar pattern of findings for the sexually abused ( $M = 2.01, SD = 1.39, SE = .20, \text{Min} = -0.13, \text{Max} = 6.5$ ) and comparison ( $M = 3.15, SD = 1.09, SE = .16, \text{Min} = 1.0, \text{Max} = 6.0$ ) groups. Again, this difference was significant,  $t(93) = 4.44, p < .001$ , and the effect size was large (Hedges'  $g = .92, 95\% \text{ CI: } 0.63\text{--}1.65$ ).

Finally, to determine whether there were significant differences in the RF of children who experienced intrafamilial and extrafamilial sexual abuse, additional comparisons were made within the clinical group. At the combined self/other understanding (CRF-G) level, the mentalization capacities of children who had suffered intrafamilial abuse ( $M = 1.65, SD = 1.06, SE = .22, \text{Min} = -0.25, \text{Max} = 4.33$ ) were somewhat lower than those of children in the extrafamilial group ( $M = 2.49, SD = 1.63, SE = .33, \text{Min} = 0.00, \text{Max} = 6.92$ ), and this difference was significant,  $t(93) = 2.13, p = .04$  (Hedges'  $g = .62, 95\% \text{ CI: } 0.05\text{--}1.64$ ). When these results were subdivided into separate dimensions of RF regarding self and other, CRF-S proved to be significantly lower in cases of intrafamilial abuse ( $M = 1.70, SD = 1.50, SE = .31, \text{Min} = -0.50, \text{Max} = 6.50$ ) than in cases of extrafamilial abuse ( $M = 2.70, SD = 1.87, SE = .37, \text{Min} = 0.00, \text{Max} = 7.75$ ),  $t(93) = 2.06, p = .05$ , and the associated effect size was medium (Hedges'  $g = .60, 95\% \text{ CI: } 0.02\text{--}1.98$ ). For CRF-O, the difference between intrafamilial ( $M = 1.61, SD = 0.99, SE = .21, \text{Min} = -0.13, \text{Max} = 3.25$ ) and extrafamilial ( $M = 2.38, SD = 1.60, SE = .32,$



Min = 0.00, Max = 6.50) cases was in the expected direction and reached significance,  $t(93) = 1.99, p = .05$  (Hedges'  $g = .58, 95\% \text{ CI: } -0.01 \text{ to } 1.55$ ).

### Mothers' RF

Mothers' RF varied from very low to rudimentary and was significantly lower in the intrafamilial sexual abuse ( $M = 2.61, SD = 1.64, SE = .34, \text{ Min} = -1.0, \text{ Max} = 6$ ) and extrafamilial sexual abuse ( $M = 3.12, SD = 1.86, SE = .37, \text{ Min} = .05, \text{ Max} = 6$ ) groups than in the comparison group ( $M = 4.35, SD = 1.66, SE = .25, \text{ Min} = 2.2, \text{ Max} = 7.65$ ),  $F(2, 93) = 9.23, p < .001$ . The effect size associated with this group difference was large (Hedges'  $g = .86, 95\% \text{ CI: } 0.77\text{--}2.77$ ).

### Prediction of Child RF

Correlational analyses revealed that children's age ( $r = .28, p < .01, r = .27, p < .01$  and  $r = .26, p < .05$ ) and maternal RF ( $r = .33, p < .01, r = .32, p < .01$  and  $r = .31, p < .01$ ) were, respectively, related to CRF-G, as well as to CRF-S and CRF-O. To better circumscribe the unique effects of this set of predictors, and because CRF-S and CRF-O were not perfectly dependent ( $r = .79, p < .01$ ), three separate hierarchical multiple regression analyses were conducted: one to predict CRF-G, one to predict CRF-S, and one to predict CRF-O. In all three analyses, child age was entered first, followed by mothers' RF and finally sexual abuse status (dummy coded abused vs. comparison, with the comparison participants serving as the reference group). The results of these analyses are presented in Table 2. In the first analysis examining predictors of CRF-G, child age, mothers' RF, and sexual abuse status were all significant unique predictors of CRF-G. More specifically, being an older child, having mothers with elevated RF and the absence of sexual abuse were associated with higher global RF in children. However, when abuse status was entered, the association between CRF-G and mothers' RF became marginally significant. In the second analysis examining predictors of CRF-S, child age, mothers' RF, and sexual abuse status were significant predictors of CRF-S. Again, as with CRF-G, when abuse status was entered, the association between CRF-S and mothers' RF became marginally significant. In the third analysis examining predictors of CRF-O, child age and sexual abuse significantly predicted CRF-O but the effect of mothers' RF became nonsignificant when abuse status was entered into the equation.

Finally, to ascertain whether intrafamilial and extrafamilial child sexual abuse were independent contributors to explained variance in CRF-G, CRF-S, and CRF-O, previous regression analyses were repeated and the role of abuse was assessed by creating a three-category dummy variable, with control children as the reference group. The results showed that intrafamilial and extrafamilial sexual abuse were independent contributors to explained variance in CRF-G ( $\beta = -.44, p < .001$ , for intrafamilial abuse and  $\beta = -.22, p < .05$ , for extrafamilial abuse) and CRF-O ( $\beta = -.40, p < .001$ , for intrafamilial abuse and  $\beta = -.22, p < .05$ , for extrafamilial abuse). For CRF-S, only intrafamilial abuse ( $\beta = -.36, p < .001$ ) was specifically related to child RF.

## Discussion

This study extends the literature on mentalization in middle childhood in three important ways. First, the CRFS used to code the CAI proved reliable with excellent intraclass

**Table 2.** Hierarchical regression analyses for the prediction of child reflective functioning (RF;  $N = 94$ )

Variable	Model 1			Model 2			Model 3		
	B	SE B	$\beta$	B	SE B	$\beta$	B	SE B	$\beta$
Child Reflective Functioning (CRF) General									
Age	.02	.01	.28**	.02	.01	.27**	.02	.01	.27**
Maternal RF				.24	.07	.32**	.13	.07	.18 <sup>†</sup>
Child sexual abuse									
No abuse									
Sexual abuse							-.94	.27	-.34**
$R^2$	.081			.18			.281		
$\Delta R^2$	.071			.16			.26		
F for change in $R^2$	8.08**			11.25**			12.47**		
CRF-Self									
Age	.02	.01	.27**	.02	.01	.26**	.02	.01	.26**
Maternal RF				.26	.08	.31**	.17	.09	.20 <sup>†</sup>
Child sexual abuse									
No abuse									
Sexual abuse							-.89	.31	-.29**
$R^2$	.07			.17			.24		
$\Delta R^2$	.06			.15			.21		
F for change in $R^2$	7.40**			10.39*			8.08**		
CRF-Other									
Age	.02	.01	.26**	.02	.01	.25**	.02	.01	.24**
Maternal RF				.22	.07	.30**	.12	.07	.16
Child sexual abuse									
No abuse									
Sexual abuse							-.94	.27	-.35**
$R^2$	.07			.16			.26		
$\Delta R^2$	.06			.14			.23		
F for change in $R^2$	6.74**			9.45**			12.25**		

Note. <sup>†</sup> $p < .10$ ; \* $p < .05$ ; \*\* $p < .01$ .

correlation coefficients, confirming that it is possible to reliably measure mentalization (RF) in children aged from 7 to 12 years old from the narratives they produce regarding themselves and their relationships with attachment figures.

Second, the association between child sexual abuse and RF supports the criterion validity of the observational coding system specifically developed to assess mentalization with the CAI. This conclusion rests on several complementary empirical findings. For example, when looking at children's mentalization capacities in general (CRF-G), the difference between children who had histories of sexual abuse and the comparison group from the community was not only significant but, by conventional criteria, represented a large effect size. By comparison, the mean RF of children in the normative group indicates that they had developed the capacity to use a rudimentary level of emotional and mental state terms in thinking about themselves and others. The mean RF of the normative group was lower than expected in middle class samples, likely due to the fact that the control group in this study was matched on socio-economic variables with the abuse group. Significant differences between the sexual abuse and comparison group were also evident when using separate indicators to operationalize children's RF regarding themselves (CRF-S)

and others (CRF-O), two important domains of mentalization abilities. These differences were, respectively, of moderate and large magnitude and were maintained even after controlling for children's age and maternal RF. These findings confirm that child sexual abuse is associated with mentalization difficulties in both the domains of CRF-S and CRF-O. Furthermore, even if these comparisons had less statistical power, children with histories of intrafamilial abuse, when compared to children who experienced extrafamilial sexual abuse, had significantly lower mentalization capacities in general (CRF-G). More specifically, children who had experienced intrafamilial sexual abuse had significantly lower mentalization capacities regarding self (CRF-S) and others (CRF-O), suggesting that intrafamilial abuse has a more severe impact on children's capacity to think of self and others in coherent mental state terms than extrafamilial abuse.

Third, maternal RF was associated with child CRF-G, including CRF-S and CRF-O. These findings extend the growing body of research demonstrating the importance of maternal influences in particular on the development of children's ToM and emotional understanding (Sharp & Fonagy, 2008a,b). The relation between maternal and child RF is likely to be mediated by the mother's capacity to imagine the child as a person and psychological being and communicate this to the child and then elaborate or co-construct an understanding with the child. The findings of this study suggest that by middle childhood, the magnitude of this effect is at best moderate.

In addition to confirming the reliability and validity of the CRFS coding system, the study also produced a number of additional findings that contribute to understanding mentalization in children with histories of sexual abuse and their mothers. The findings with regard to specific difficulties in CRF-G, CRF-S, and CRF-O in children with histories of sexual abuse add to the existing evidence of delayed ToM (Cicchetti *et al.*, 2003; Pears & Fisher, 2005), dissociation, as well as problems in identity and incoherence of parental representations in maltreated children (Macfie, Cicchetti, & Toth, 2001). In addition, the findings of the study draw attention to specific difficulties children who have experienced sexual abuse, and particularly intrafamilial sexual abuse, have in mentalizing regarding themselves and others. These difficulties are likely to contribute to subsequent difficulties with identity, sense of self and intimate relationships, which in turn can be hypothesized to increase vulnerability in the context of further stress, and the risk of developing a form of psychopathology in adolescence or adulthood.

Two different patterns emerged when examining the predictors of children's RF-O and RF-S in the context of abuse. The findings of the regression analyses indicate that both maternal RF and sexual abuse made independent contributions to explaining variance in CRF-S. This suggests that the impact of maternal RF remains important for CRF-S, even when considering the impact of abuse and the multiple levels through which it can disrupt children's mentalization capacities regarding themselves. This is consistent with Fonagy and Target's (2006) developmental model where the early sense of self crystallizes around the experience of being treated by a caregiver as a psychological being with a mind and where the child develops a sense of self and identity through interactions with a caregiver that reflects on his mind. In addition to maternal RF, sexual abuse also made a significant contribution to explaining variance in CRF-S. Abuse may contribute to a phobic avoidance of mentalizing and thinking about emotional reactions out of fear of encountering unbearable feelings and thoughts related to the trauma (Briere, Hodges, & Godbout, 2010; Schwarz, 2002).

Sexual abuse was the only variable that explained variance in CRF-O, as the contribution of maternal RF was no longer significant after abuse was entered. One explanation of these findings could be that the experience of abuse and trauma inflicted

intentionally disrupts trust, openness, and curiosity and installs an aversion to considering the intentions and minds of others given the frankly destructive intentions towards him or her that the child must infer from the abusive act. In addition, sexual abuse in the context of attachment relationships and the family may produce a decoupling or inhibition of mentalization that helps children adapt to situations where they cannot avoid a member of the family who abuse them or where they are dependent on attachment figures who provoke fear.

In this study, the CRFS made it possible to identify important deficits in mentalization associated with child sexual abuse. There are important limitations to this study that should be considered before making conclusions based on these findings. The sample size was relatively small, although adequate for testing the hypotheses of this study. Undoubtedly, there was substantial heterogeneity in the sample, the range and context of the sexual abuse was highly variable, and many children may have experienced additional forms of maltreatment. Furthermore, the sample certainly was not of a sufficient size to explore the implication of this heterogeneity on CAI-RF outcomes. The findings of the present study provides preliminary support for the validity of the CRFS, but further work is needed to examine whether children's psychological understanding of self and others has the expected implications for self-concept, social adaptation, and psychopathology. At present, there is no measure that can be considered the gold standard of mentalization capacities or psychological understanding of children and against which the CRFS can thus be compared. However, further research is needed to clarify the relationship between child RF and related constructs such as emotional understanding and ToM.

The validation of CRFS potentially opens the door for child researchers to join researchers working with adult populations and to examine the implications of mentalization capacities in psychopathology. The use of the CRFS does require an investment in training as well as in transcribing and coding the interview, but the training and coding is relatively less complex than that needed to rate attachment. It is likely to present a worthwhile investment for researchers given the lack of alternative measures. Furthermore, many child researchers have already been trained to use the CAI to assess attachment in school-aged children and could use the CRFS to examine the specific contribution of mentalization capacities.

### **Conclusion**

The findings confirm that the CRF scale is a reliable and valid measure that can be used to identify clinically relevant mentalization difficulties and have important research and clinical implications for assessing and understanding the repercussions of child sexual abuse. Sexual abuse, especially intrafamilial sexual abuse, was found to be associated with significant difficulties in mentalization in children as well as their mothers. The findings underscore the importance of maternal RF for the development of CRF-S. It is apparent that in the context of sexual abuse, children and mothers frequently do not consider mental states and see beyond behaviour. This is likely to make it challenging to understand children's psychological reactions consequent to abuse and respond appropriately without additional help and intervention.

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