Mentalization and dissociation in the context of trauma: Implications for child psychopathology

Karin Ensink[1] Ph. D., Michaël Bégin[1] B. A., Lina Normandin[1] Ph. D., Natacha Godbout PhD[2] & Peter Fonagy[3] Ph.D.

1. Université Laval
École de psychologie
2325 rue des Bibliothèques
Québec (QC), Canada G1V 0A6

2. Université du Québec à Montreal
Department of Sexology
455, René Levesque Est, local W-R110
Montréal (Québec) H2L 4Y2

3. University College London
Psychoanalysis Unit
Research Department of Clinical, Educational and Health Psychology
Gower Street
London, UK WC1E 6BT

Corresponding author
Karin Ensink
Université Laval
École de psychologie
Pavillon Félix-Antoine-Savard, FAS-1426
Phone: 1 418-656-2131 #12493
Fax: 1 418-656-3646
E-mail: Karin.Ensink@psy.ulaval.ca

Abstract

Dissociation is a common reaction subsequent to childhood sexual abuse (CSA) and has been identified as a risk factor for child psychopathology. There is also evidence that mentalization contributes to resilience in the context of abuse. However, at this stage little is known regarding the relationship between mentalization and dissociation, and their respective contributions to psychopathology. The aim of this study was to examine pathways from CSA to depressive symptoms, externalizing behaviour difficulties and sexualized behaviour, through mentalization and dissociation. These pathways were examined in a sample of 168 mother-child dyads including 74 dyads where children (aged 7–12) had histories of sexual abuse. Maternal mentalization was assessed using the Parent Development Interview-Revised and children's mentalization was assessed using the Child Reflective Functioning Scale. Children completed the Child Depression Inventory and parents completed the Child Dissociative Checklist, the Child Behavior Checklist and the Child Sexual Behavior Inventory. Direct and indirect paths from CSA to child psychopathology via children's mentalization and dissociation were examined using Mplus. Two distinct paths from abuse to psychopathology were identified. Child mentalization partially mediated the relationship between CSA and depressive symptoms. The effects of CSA on externalizing symptoms and sexualized behaviour difficulties were sequentially mediated through mentalisation and dissociation.

Keywords: Dissociation, Reflective functioning, Child mentalization, Maternal mentalization, Depressive symptoms, Externalization, Sexualized behaviours, Abuse

Many children are challenged with adapting consequent to child sexual abuse (CSA) with approximately 1 in five girls and 1 in 20 boys under the age of 18 affected (Finkelhor, Ormrod, Turner, & Hamby, 2005). CSA has been associated with both internalizing and externalizing behaviour difficulties (Hébert, Langevin, & Bernier, 2013; Hébert, Parent, Daignault, & Tourigny, 2006), as well as sexualized behaviour problems (Friedrich, Davies, Feher, & Wright, 2003). Approximately a third of sexually abused children develop clinically significant levels of internalizing (Mathews, Abrahams, & Jewkes, 2013) and externalizing behaviours (Tremblay, Hébert, & Piché 1999), but the factors conferring risk or resilience in the context of CSA remain inadequately understood (Rathus, Nevid, & Fichner-Rathus, 2008). Dissociation and mentalization are two mental processes of potential importance in the context of trauma (Fonagy, Target & Gergely, 2000). Mentalization (Fonagy et al., 2000) refers to the uniquely human capacity to imagine the intentions and reasons underlying the behaviours and feelings of others, as well as those underlying one's own feelings and behaviours. There is growing evidence that mentalization may be particularly important in the context of trauma (Allen, Fonagy & Bateman, 2008; Fonagy & Luyten, 2009) and dissociation is widely recognized as an important psychological process in models linking sexual abuse with mental health problems (Collin-Vézina & Hébert, 2005; Putnam, 1997). While dissociation precludes and is almost antithetical to an intentional stance (Dennett, 1987; Fonagy et al., 2000), mentalization difficulties could also conceivably increase the risk of resorting to dissociation, but the relationship between dissociation and mentalization in children requires further investigation. Clarifying the respective roles of dissociation and

mentalization in explaining the relationship between child sexual abuse and different types of psychosocial problems, have potentially important implications for interventions.

Dissociation

CSA, regardless of severity, has been shown to be associated with dissociation in children (Collin-Vézina & Hébert, 2005; Friedrich, Jaworski, Huxsahl, & Bengtson, 1997). Dissociation is complex and multifaceted, with key features including: 1) an alteration of consciousness or detachment and disconnection from self and environment, and 2) a segregation of psychological structures and dis-association of neurobiological systems that are normally integrated such as cognition, affect, memory (Brown, 2006; Cardena & Carlson 2011; Frewen & Lanius, 2006; Van der Hart, Nijenhius, & Steele, 2006), and 3) a form of mental escape from overwhelming physical or psychological pain (Foa & Hearst-Ikeda, 1996; Haugaard, 2004; Putnam, 1991). In addition to fear, Freyd (2008) points out that betrayal trauma by caregivers is also an important contributor to dissociation. Putnam (1997) argues that a developmentally sensitive approach is needed to understand infantile forms of dissociative phenomena given that dissociative-like phenomena such as freezing and detachment are evident in infants and children, but do not manifest the same level of complexity as in adults (Putnam, 1997). Children are considered more vulnerable to dissociation because processes that contribute to meta-cognitive integration and mental state understanding, such as the capacity to suspend reality in the context of pretend play, may also potentiate dissociation (Putnam, 1997; Silberg, 2013). In Putnam's (1997) developmental model, dissociative segregation is seen as disrupting the normal integration of self, affect and agency necessary for flexible responding. Instead, regulation strategies developed in the context of trauma are

automatically and inflexibly triggered. In the long term, dissociation is associated with affect avoidance or emotional over modulation (Brand, Lanius, Vermetten, Loewenstein, & Silberg, 2013). Dissociation has been linked with internalizing and externalizing difficulties (Macfie, Cicchetti, & Toth, 2001; Putnam, 1991) and has been found to mediate the relationship between CSA and externalizing difficulties (Collin-Vézina & Hébert, 2005; Kisiel & Lyons, 2001). In sum, based on the existing evidence it would seem that dissociation is a likely process through which child sexual abuse could be linked to child psychopathology. However, little is known regarding the mediating effect of dissociation on CSA and sexualized behaviours in children.

Mentalization and Psychopathology

Fonagy and Target (1996) have proposed an attachment-based 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. According to this model, from infancy onwards, children discover and learn about their minds through early interactions with parents who have an interest in the subjective experience of the child, treat the child as a being with a mind, and interpret their behaviour as subjectively motivated. In other words, the child learns about their minds in interaction with caregivers who "mind" their minds (Slade et al., 2005). In early childhood, understanding of self is further elaborated in interactions where the child can confide and reflect on his experience with a caregiver (Fonagy, Gergely, Jurist, & Target, 2002). In line with this, parental RF has been shown to predict the development of emotional understanding and mentalization of children (Steele, Steele, Croft, & Fonagy, 1999; Ensink et al., 2015), as well as RF in adolescence (Benbassat & Priel,

2012).

There is evidence that low mentalization may be a risk factor associated with depressive disorders in adults (Fischer-Kern et al., 2013) and mentalization has been found to mediate the relationship between abuse and externalizing difficulties in adolescents (Taubner et al., 2013). This suggests that mentalization may be important for children's self- and affect regulation in the context of sexual abuse, but this needs to be empirically tested.

Mentalization in the Context of Trauma

Sexually abused girls have been found to have lower emotional understanding compared to their peers (Shipman, Zeman, Penza, & Champion, 2000), and difficulties to consider their own affective reactions and close relationships in mental state terms. Children's mentalization capacities were also associated with the level of maternal mentalization (Ensink, et al., 2015). The experience of abuse may lead children to avoid thinking of the minds of others who might harbour malevolent intentions, especially in the context of intra-familial abuse (Allen, 2013; Fonagy, Gergely, & Jurist, 2002). Furthermore, in contexts of intra-familial abuse parents may discourage coherent discourse about mental states and undermine the development of mentalization in children, partly to avoid engaging with the suffering they inflict (Allen, Fonagy, & Bateman, 2008; Fonagy & Luyten, 2009). In sum, existing evidence points to sexual abuse having a negative impact on children's mentalization capacities, and this in turn may have implications for self and affect regulation as well as interpersonal functioning.

The Current Study

The aim of this study was to examine pathways from CSA to child

psychopathology symptoms through mentalization and dissociation. In terms of the model, we hypothesized that mental processes including mentalization and dissociation may account for the effect of CSA on psychopathology symptoms, while controlling for maternal education and RF, as well as child age. More specifically, CSA is hypothesized to have a negative impact on children's mentalization, which in turn would lead to increased dissociation, both leading to psychopathology. Well developed child mentalization capacities are expected to be linked with lower levels of dissociation and psychopathology, because mentalization can be seen as an important inner resource that help children maintain a sense of who they are, understand that they are not to blame for what happened, and make their emotional reactions understandable. Sexual abuse implies a betrayal of trust that others, especially attachment figures, will respect and protect the child, and this is theorised to lead to a shut down or loss of interest in thinking about the minds of others and the self. A shut down or inhibition of agentful mentalizing of experiences and others may contribute to increased use of dissociation as it becomes the only available strategy for dealing with affect and distress. Dissociation and states of detachment or affect avoidance, where a child is not cognitively or emotionally present, can undermine their ability to integrate affective experience underlying flexible responding with an increased risk of rigid or automatic trauma related responses that are not appropriate in low risk contexts later in life. In the absence of previous studies examining both mentalization and dissociation as possible mediators of the relationship uniting CSA and psychopathology, we examined parallel as well as sequential effects of mediation using path analysis, to clarify the pathways through which these mental

processes may explain the link between CSA and different types of psychopathology (i.e., depression, externalizing behaviours, and sexualized behaviours).

Method

Participants and Procedure

Participants were 168 mother–child dyads divided into two subgroups. The sexually abused group consisted of 74 dyads (44 girls and 30 boys aged 7-12, *M* = 113 months, *SD* = 19.8) where the child had a history of sexual abuse and a community control group of 97 dyads (52 girls and 42 boys aged 7-12, *M* = 112 months, *SD* = 17.8). Sexually abused children and their mothers were referred to the university clinic by doctors or mental health practitioners at community health services and hospitals who suspected sexual abuse. Information regarding sexual abuse was based on medical and social work reports and information from police inquiries, including statements of admission by the abuser. The community control group was recruited through advertisements at Community Health Services and schools through pamphlets soliciting participation in a study on the impact of sexual abuse as part of a control group. Parents of control group children were interviewed about the child's developmental history and traumatic life events to exclude children with possible sexual abuse. The control group was selected to broadly match the sociodemographic, age (within six months), and gender characteristics of the abused group. This procedure proved only partially effective and there was a significant between-group difference in terms of maternal education, and this was subsequently controlled for in the path analyses.

The majority of the participants were Caucasian (98%), reflecting the socio-demographics of the region in Canada where the study was conducted. Assessments took

place at a university child and adolescent consultation service. 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 Child Reflective Functioning Scale (CRFS; Ensink, Target, & Oandason, 2013) was adapted from the Adult Reflective Functioning Scale (ARFS; Fonagy Target, Steele, & Steele, 1998). The CRFS was used to rate transcribed Child Attachment Interviews (CAI; Shmueli-Goetz, Target, Fonagy, & Datta, 2008; Target, Fonagy, Shmueli-Goetz, Schneider, & Datta, 2000). The CAI contains four items eliciting self-descriptions and reactions in response to upsetting events and nine questions regarding the child's relationships with his/her parents and a description of parents' reactions when upset or when they argue. The CRFS coding manual enables trained raters to reliably assess children's ability to provide mentalizing accounts of themselves and their attachment relationships. Children's accounts are coded on an 11-point scale (ranging from -1 to 9) in terms of their propensity to consider interpersonal interactions and personal reactions in mental state terms. The mean score is used as an indictor of their level of mentalization, with a mean of five, indicative of a simple but solid understanding of self and relationships in mental state terms, expected in low risk samples. Inter-rater reliability of the CRFS items has been found to be good with intra-class coefficients (ICCs) ranging from .6 to 1.00, and a median of .93 (Ensink, 2004). Temporal stability of children's RF has been shown to be high over a 3-month period (Ensink, 2004).

Interviews were conducted by four female psychology students. Child RF was rated by the first author and two postgraduate psychology students trained to a criterion

of 85% agreement. Raters were blind with regard to group membership. Inter-rater reliability was calculated on 30% of protocols and was excellent (ICCs ranging from .80 to .90).

Maternal reflective functioning: Maternal RF was measured using the Parent Development Interview (PDI) Addendum to the ARFS (Fonagy et al., 1998). The PDI is a 45-item semi-structured interview developed to assess parental representations of the child and of the parent-child relationship and was revised (PDI-R; Slade, Aber, Bresgi, Berger, & Kaplan, 2004) for the assessment of RF across a range of domains: in relation to the child, the parent's own parents, and the self. In order to do this, four of the questions from the Adult Attachment Interview (George, Kaplan, & Main, 1985) designated by Fonagy et al. (1998) as demand questions and directly tied to the assessment of RF, were included. The revised version was also developed to be applicable to a larger age range, and can be used with parents of children from infancy to adolescence. Reliability estimates produced using intraclass correlation coefficients range from .78 to .95 (Slade, Grienenberger, Bernbach, Levy, & Locker, 2005). In the present study, two questions relating specifically to sexual abuse were added: the first to determine the mother's reaction to the child's abuse and her comprehension of how her reaction may have affected the child, and the second asking about the mother's own experience of abuse. This 1-hour interview was videotaped and transcribed for coding purposes. Each demand question is 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) is assigned following the guidelines in the manual and which is most representative of the parent's propensity to use mental state understanding when thinking

about their child. All protocols were coded by two of the authors of the study, both trained to code parental RF. Protocols were allocated so that the authors 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 .73 for the global PDI score).

Child Dissociative Checklist (CDC): The CDC is a 20-item questionnaire developed by Putnam (1990) as a parent-report measure of dissociative symptoms during the past 12 months in children aged 5-12. Dissociative symptoms are rated on a 3-point Likert scale and total scores of 12 or above are considered indicative of clinically significant dissociative symptoms. For example, parents are asked to rate items such as "Child goes into a daze or trance-like state at times or often appears 'spaced-out" and "Teachers may report that he or she 'daydreams' frequently in school." The CDC has been shown to have good psychometric properties including high discriminant validity and a good test-retest reliability (Putnam, 1993).

Child Depression Inventory (CDI): The CDI is a 27-item scale developed by Kovacs (1979) as a self-report questionnaire used to rate the severity of symptoms related to depression in children and adolescents aged 7–17. It takes 15–20 minutes to complete and covers 5 factor areas: negative mood, interpersonal problems, ineffectiveness, anhedonia and negative-self-esteem. Children are asked to rate statements related to sadness, pessimism, self-deprecation, self-hate, self-blame, suicidal ideation, crying spells, irritability, reduced social interest, indecisiveness, negative body image, school-work difficulty, sleep disturbance, fatigue, reduced appetite, somatic concerns, loneliness, feeling unloved. Based on the Beck Depression Inventory (Beck, 1961) for adults, the

CDI is widely used and accepted as an assessment of the severity of depressive symptoms in children and has been shown to have good psychometric properties including high reliability and well-established validity. Each item is rated on a three-point scale from 0 to 2, and children can obtain total scores from 0 to 52 that are then converted to standardized T-scores. T-scores of 65 and higher are considered as indicative of clinically significant depressive symptoms. A raw score of 36 or higher on the CDI reflects depression.

Child Externalized Behaviour Difficulties: The Child Behavior Checklist (CBCL) is a 118-item questionnaire used to assess a broad range of internalizing and externalizing difficulties (Achenbach, 1991). In the present study, we used the parent report externalizing scale for children aged 6–18 (Achenbach & Rescorla, 2001). Parents are asked to rate aggressive and rule-breaking behaviour on a three-point scale as 0 (absent), 1 (occurs sometimes), or 2 (occurs often) for items such as, "breaks rules at home, school, or elsewhere". The CBCL has been demonstrated to have good psychometric properties (Achenbach & Rescorla, 2001).

Child Sexualized Behavior Inventory (CSBI): The CSBI is a 35-item parent report behaviour checklist developed by Friedrich et al. (2001) to assess sexual behaviour in children 2–12 years during the previous 6 months and takes 10–13 minutes to complete. It covers nine domains including boundary issues, sexual interest, exhibitionism, sexual intrusiveness, gender role behaviour, sexual knowledge, self-stimulation, voyeuristic behaviour and sexual anxiety. Each item is rated on a 4-point scale from 0 (never) to 4 (at least once a week). The CSBI has been demonstrated to have good psychometric properties including item-total correlations and test-retest reliability

(Friedrich et al., 2001). Total scores are converted to t-scores and t-scores above 65 are considered indicative of clinically significant problems (Friedrich et al., 2001)**.**

Data analyses plan: Missing data was imputed using the Expectation Maximization (EM) method. EM is a Maximum Likelihood-based (ML-based) method with an algorithm that generates parameter estimates by cycling iteratively between an Expectation and a Maximization step. The conditional expectation of the complete data log-likelihood in the expectation step is computed based on the observed data and the current parameter estimates, and produces estimated values for the missing data. In the maximization step, the expected log-likelihood is maximized to obtain updated parameter estimates. The iterative process stops when the parameter estimates converge to a pre-established criterion which is .001 in this study meaning that every new iteration changes the estimated values by less than the established criterion (Gold & Bentler, 2000).

As part of the exploratory data analyses, a MANOVA was used to compare maternal and child RF, child age, maternal education as well as depressive symptoms, externalizing difficulties and sexualized behaviour between sexually abused children and the control group. Correlational analysis was used to examine relationships between the variables of interest, as well as potential control variables. Exploratory *t*-tests were used to examine whether gender effects were present, as well as to examine whether there were significant differences associated with intra- and extra-familial abuse.

Next, pathways from sexual abuse through child RF and child dissociation to child psychopathology were examined using a path analysis model in Mplus 7.12

(Muthén & Muthén, 1998-2012). The model tested indirect effects, which involve the same calculations as mediation analyses. Effects of sexual abuse to indicators of child psychopathology (i.e., depression, externalizing and sexualizing difficulties), through two potential mediators (i.e., child RF and dissociation) were tested. The indirect effect of sexual abuse on dissociation through child RF was also computed in the model. Furthermore, three sequential indirect effects from abuse through child RF first and then dissociation to child psychopathology were computed simultaneously. Sequential mediation is used to test the hypothesis that a causal chain is "linking the mediators, with a specified direction of causal flow" (Hayes, 2012, p. 14). All indirect effects were bootstrapped 1000 times in order to construct bias-corrected 95% confidence intervals (CIs). The bootstrap procedure drew 1000 random samples with replacement of the original sample to construct CIs. Since indirect effects are calculated from the product of unstandardized coefficients, we first standardized all continuous variables in order to see the magnitude of the effects, path coefficients (*b*) are thus partially standardized indirect effects. The model tested whether the indirect effects are significantly different from 0. Indirect effects are considered significant at the 0.05 level when the 95% CI does not include the null value 0. Because of their expected relationships with the variables of interest, three covariates, namely maternal RF, child age and maternal education, were added to control for their potential effect on the dependent variables.

Different fit indices were used to test the adequacy of the model: the chi-square statistic, the Comparative Fit Index (CFI), the Tucker-Lewis Index (TLI), the Root Mean Square Error of Approximation (RMSEA), and the Standardized Root Mean Square Residuals (SRMR). Guidelines suggest that non-statistically significant chi-square value

or ratio of chi-square to degrees of freedom (χ^2/df) less than 3, values above .95 for the CFI and TLI (Hoyle, 1995) and values below .05 for the RMSEA and SRMR indicate an excellent fit (Browne & Cudeck, 1993; Ullman, 2001).

Results

Preliminary Analyses: As part of the exploratory analyses, a MANOVA was used to examine whether there were significant differences between sexually abused children and children from the comparison group in terms of maternal RF, child RF, dissociation and psychopathology. The results of the MANOVA as well as the means and standard deviations for each variable in the sexually abused group and the comparison group are reported in Table 1. The RF of sexually abused children and their mothers were significantly lower than that of the comparison group, and sexually abused children manifested significantly more dissociation, depressive symptoms, externalizing difficulties and sexualized behaviours. The groups also differed in terms of maternal education, with mothers of sexually abused children having fewer years of education. All effect sizes were moderate to strong, ranging from .46 to .90 (Cohen's *d*; see Table 1). Children with histories of intra-familial and extra-familial sexual abuse were also compared on key variables but the results revealed non-significant differences. Results indicated no significant gender effects with regard to child RF, dissociation, depression or externalizing and sexualizing difficulties. Relationships between maternal RF, child RF, child psychopathology, and child age and mothers' education were examined using correlational analysis with an alpha threshold of .01 and are presented in Table 2.

Path Analysis: A path analysis was conducted to test the hypotheses that child RF mediates the relationship between sexual abuse and dissociation, and that child RF and dissociation both mediate the relationship between abuse and child psychopathology. Maternal education and maternal RF were entered as covariates to control for their potential effect in the model, as both were associated with child RF and child psychopathology. Because child age was moderately associated with child RF, it was also entered in the path analysis model as a control variable. Fit indices indicated that the hypothesized model was a good representation of the observed data ($\chi^2(2) = 1.86$, $p = .359$, $\chi 2/df = .93$ CFI = 1.00; TLI = 1.01; RMSEA = .00 and SRMR = .01) (see Figure 1).

Results show that sexual abuse and lower child RF lead to higher levels of dissociation. Tests of indirect effects revealed that the product coefficient for the path from abuse to dissociation going through child RF was significant (b = .221, 95% CI [.098, .384]), suggesting partial mediation. The total effect of sexual abuse on dissociation was reduced from a β of .799 to .578, indicating that child RF can be considered as a partial mediator of the relationship between abuse and dissociation. The proportion of the total effect of abuse on dissociation going through RF was 27.7%.

Regarding child reported depression, results showed that sexual abuse, lower child RF and maternal RF lead to higher levels of depression. Results yielded a significant indirect effect % CI [.085, .371]); after introducing child RF, the direct effect of abuse on depression remained significant but was reduced from β= .575 to β= .424, indicating partial mediation with 33.7% of the total effect of abuse on depression

explained by child RF. The indirect effect through dissociation was not significant. The model explained 25.8% of the variance in children' symptoms of depression.

With regard to externalizing difficulties, results showed that higher levels of dissociation lead to more externalizing. The indirect effect of sexual abuse on externalizing difficulties through dissociation was significant (b = .421, 95% CI [.233, .676]) and explained 61.2% of the total effect of abuse on externalizing difficulties. Results also indicated a significant sequential mediation; the indirect effect through child RF and dissociation, respectively, was significant (b = .161, 95% CI [.069, .279]), explaining 23.6% of the total effect of abuse on externalizing behaviours. After introducing the mediators, the total effect of sexual abuse on externalizing difficulties decreased from β = .683 to a non-significant direct effect of β = .076, indicating full mediation. The model explained 57.6% of variance in externalizing difficulties.

In terms of sexualized behaviour difficulties, only dissociation had a significant direct effect (β= .521; p < .01). The indirect effect from sexual abuse through dissociation was also significant (b = .301, 95% CI [.160, .499]). After introducing dissociation into the model, the effect of sexual abuse was reduced from β= .262 to β= -111 and became non-significant, indicating full mediation. Results also confirmed that the sequential indirect effect through child RF and dissociation was significant (b = .115, 95% CI [.047, .214]) and explained 43.9% of the total effect of abuse on sexualized behaviours. The model explained 27.3% of the variance in sexualized behaviour difficulties.

Discussion

The aim of this study was to examine pathways from CSA to depression, externalizing and sexualized behaviour difficulties through mentalization and

dissociation. The path analysis revealed distinct paths involving mentalization and dissociation to psychological symptoms of 7–12 year olds. Childrens's mentalization partially mediated the relationship between CSA and depressive symptoms, and mentalization and dissociation sequentially mediated the relationship between CSA and externalizing as well as sexualised behaviour difficulties.

As expected, sexually abused children experienced significantly more dissociation, depressive symptoms, and externalizing and sexualised behaviour difficulties than the comparison group. Furthermore, their reflective functioning, as well as that of their mothers, was significantly lower than that of the comparison group. The average reflective functioning of children was low in both groups (2.9 in the sexually abused group and 3.7 in the comparison group), and below the expected mean in low risk samples (i.e., 5) indicative of a solid mental state understanding (Ensink, 2004). However, the relatively low averages scores of the comparison group, that was selected to broadly match the socio-economic status of the sexually abused group, is consistent with the scores observed in higher risk adult samples (i.e., around 4) and suggests that mental state understanding is present but incomplete. The low mean observed in the sexually abused group suggests a level of reflexive functions where basic mental states and emotion are identified, but at a very simple level, without an understanding of the links between behaviours, affect states and emotions. As hypothesized, higher child and maternal RF were linked with less psychopathology. Lower maternal and child RF were related to higher levels of dissociation, which in turn was associated with more psychopathology.

The finding that the relationship between CSA and depressive symptoms was partially mediated by mentalization extends the results of previous research showing that adults with diagnoses of depression tend to have lower reflective functioning (Fischer-Kern, et al., 2013). Mentalization can be seen as an important inner resource that is central to an intentional stance where children actively try to make sense of experience and integrate it into their identities. We have previously argued that mentalization contributes to resilience because rich semantic representations of self and others contribute to cognitive flexibility and reframing, and are key to an autobiographical sense of self and identity. If CSA contributes to a defensive shutting down of mentalization, children may be more vulnerable to blaming themselves and may have little capacity to cognitively reframe negative affects and perceptions regarding themselves. Consistent with findings in previous studies (Macfie et al., 2001; Putnam, 1991), a significant but weak bivariate correlation was evident between dissociation and depressive symptoms, however, when dissociation and mentalization were considered together in the model, only mentalization remained significantly related to depression. This suggests that CSA is associated with more depressive symptoms partially through its negative impact on children's mentalization.

With regard to behavioural difficulties (externalizing and sexualized behaviour difficulties), dissociation was found to be the key mental process mediating the impact of sexual abuse. The negative impact of dissociation was confirmed in two different ways. First, through simple effects of mediation where the relationships between CSA and externalizing as well as sexualized difficulties were fully mediated by dissociation. Second, through a sequential mediation where CSA lead to lower mentalization that in

turn was related to higher levels of dissociation leading to externalizing and sexualized behaviour difficulties. This confirms and extends previous findings where dissociation was found to mediate the relationship between abuse and externalizing behaviour problems (Collin-Vezina & Hébert, 2005). Our findings suggest that dissociation may create a context where anomalous behaviours are initiated by the child that would usually be inhibited through a process of mental self-monitoring (Heyes & Frith, 2014). The finding that dissociation is central in processes associated with externalizing and sexualizing behaviours, partly in itself and partly with RF, nuanced our predictions based on the model proposed by Bateman and Fonagy (2008) where mentalizing is considered to be the key mental process that has a social regulation role (McGeer, 2007). The findings of the current study also diverge somewhat from those of Taubner and Curth (2013), where mentalization in adolescents was found to mediate the relationship between abuse and externalizing behaviour difficulties. However dissociation was not considered in either Bateman & Fonagy's (2008) conceptual model or in Taubner and Curth's (2013) empirical study with adolescents. Furthermore, abuse experiences were distal in the study by Taubner and Curth (2013), while those in the present study were proximal. Abuse related neurophysiological dysregulation and dissociation could be assumed to peak proximal to abuse. As dysregulation attenuates over time, maintained mentalization capacities may become increasingly important in re-establishing self and affect regulation. Hence Taubner and Curth's findings indicating that in adolescence mentalization mediated the relationship between CSA and behaviour difficulties, and our findings suggesting that dissociation also plays a significant mediation role in this

relationship, may suggest that mentalization has a lagged effect that becomes evident more distal to abuse.

The finding that dissociation mediates the relationship between CSA and sexualizing behaviour difficulties is new and suggests that dissociation may be an important and often overlooked process in linking CSA and sexualizing behaviour difficulties. Addressing dissociation may help children who sexualize regain access to cognitive and affective resources that are important for them to develop increasing awareness and control over sexual behaviours. This is especially important given that sexualized behaviours place them at risk for rejection and further abuse.

The question remains why dissociation should have such a strong role in mediating the relationship between CSA and externalizing and sexualized behaviour difficulties. Based on findings from previous studies (Collin-Vézina & Hébert, 2005), we can assume that the direction of the effect is from dissociation to externalizing and sexualized behaviours, but this needs to be confirmed in longitudinal research. Emotion over modulation (Frewen & Lanius; 2006), with trauma contributing to a narrowed range of tolerable affects with high intensity affects triggering attempts at suppression and dissociation, may be a key process underlying the maintenance of maladaptive response patterns. By precluding the development of strategies for tolerating and integrating affect, dissociation conceivably increases the risk of manifesting behaviours maladapted to the demands of particular interpersonal contexts. Previously we have assumed that insufficient mentalizing alone was the key mechanism in a process where actions and behaviours become mismatched to reality (Fonagy & Target, 2000; Fonagy & Target, 2007). However, the current findings suggest that in addition, dissociative detachment

from experience may also be pertinent to this process, with lower mentalization in the aftermath of abusive experiences contributing to higher levels of dissociation in children. When resources like the ability to suspend reality, used in play to develop mentalization in the course of normal development are instead invested in elaborating a parallel world of the child's creation that becomes as real to them as external reality (Putnam, 1996), this may further contribute to maintaining maladaptive behaviours as the child is not cognitively and affectively engaged in assessing social contexts and their responses.

This study has a number of strengths including the focus on both dissociation and mentalization as mental processes that cold mediate the relationship between abuse and psychopathology, as well as the inclusion of three types of difficulties that children are known to experience in the context of abuse. In addition, the study has a comparatively large sample size. However, several limitations must also be considered. The use of parent-report measures of dissociation, externalizing and sexualized behaviour difficulties may have inflated the reported relationships. Also, the use of a general indicator of dissociation does not account for the heterogeneity of dissociative processes and leaves unanswered questions about whether specific dimensions of dissociation such as detachment or altered states of consciousness may account for the mediation findings.. Given that the current study employed a cross-sectional design; longitudinal research is warranted in order to clarify the relationship between dissociation and mentalization over time, both in the context of trauma and in normal development. More specifically, the relationship between mentalization and dissociation and their respective roles in psychopathology need to be examined longitudinally during early childhood as well as in middle childhood and adolescence.

Conclusion

The findings of this study nuance our understanding of how mentalization and dissociation together contribute to psychopathology in the context of CSA. Constriction of mentalization in the context of CSA and a breakdown of interpersonal trust appears a key process contributing to depression. Dissociation appears a central process accounting for the relationship between CSA and externalizing difficulties, as well as sexualized behaviour difficulties, with a shutdown of mentalization related to higher levels of dissociation. These findings indicate that in addition to the usual treatment focus of helping children elaborate narratives regarding abuse, interventions to activate mentalization regarding self and others may contribute to overcoming negative affects and perceptions that underlie depression. Consolidating mentalization in the context of sexual abuse could potentially reduce recourse to dissociation by developing other resources to use faced with difficult affects and interpersonal situations. Furthermore, identifying dissociative processes that undermine recovery in the context of externalizing and sexualized behaviour difficulties, and helping child victims of CSA mentalize the unbearable affect states and sexual impulses may be key to developing mentalizing strategies that can restore a sense of agency.

References

Achenbach, T. M. (1991). Manual for the Child Behavior Checklist/4-18 and 1991 profiles. Burlington: University of Vermont, Department of Psychiatry.

Achenbach, T. M., & Rescorla, L. A. (2001). Manual for the ASEBA school-age forms and profiles. Burlington: University of Vermont, Research Center for Children, Youth, & Families.

Allen, J. G., Fonagy, P., Bateman, A. W. (2008) *Mentalizing in clinical practice*. Arlington, USA: American Psychiatric Publishing

Bateman, A., & Fonagy, P. (2008). Comorbid antisocial and borderline personality disorders: Mentalization-based treatment. *Journal of Clinical Psychology, 64*, 181-194. doi: 10.1002/jclp.20451

Beck, A. T., Ward, C. H., Mendelson, M., Mock, J., & Erbaugh, J. (1961). An inventory for measuring depression. *Archives of General Psychiatry, 4*, 561-571

Benbassat, N., & Priel, B. (2012). Parenting and adolescent adjustment: The role of parental reflective function. *Journal of Adolescence*, *35*, 163–174. doi: 10.1016/j.adolescence.2011.03.004

Brand, B. L., Lanius, R., Vermetten, E., Loewenstein, R. J., & Spiegel, D. (2012) Where are we going? An update on assessment, treatment, and neurobiological research in dissociative disorders as we move toward the DSM-5. *Journal of Trauma and*

Brown, R. J. (2006) Different types of "dissociation" have different psychological mechanisms. *Journal of Trauma & Dissociation*, *7*, 7–28. doi: 10.1300/J229v07n04_02.

Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. *Sociological Methods & Research, 21*, 230–258.

Cardeña, E., & Carlson, E. B. (2011). Acute stress disorder revisited. *Annual Review of Clinical Psychology*, *7*, 245–267. doi:10.1146/annurev-clinpsy-032210-104502

Collin-Vézina, D., & Hébert, M. (2005). Comparing dissociation and PTSD in sexually abused school-aged girls. *Journal of Nervous and Mental Disease, 193*, 47-52.

Ensink, K. (2004). *Assessing theory of mind, affective understanding and reflective functioning in primary school-aged children*. Unpublished PhD dissertation. UK: University of London.

Ensink, K., Normandin, L., Target, M., Fonagy, P., Sabourin, S., & Berthelot, N. (2015). Mentalization of 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*, 203-217. doi: 10.1111/bjdp.12074

Ensink, K., Target, M., & Oandasan, C. (2013). Child reflective functioning scale scoring manual: For application to the Child Attachment Interview. Unpublished manuscript, London, UK: Anna Freud Centre - University College London.

Finkelhor, D., Ormrod, R.K., Turner, H.A., & Hamby, S.L. (2005). The victimization of children and youth: A comprehensive, national survey. *Child Maltreatment, 10*(1), 5-25.

Fischer-Kern, M., Fonagy, P., Kapusta, N. D., Luyten, P., Boss, S., Naderer, A., Leithner, K. (2013). Mentalizing in female inpatients with major depressive disorder. *The Journal of Nervous and Mental Disease*, *201*, 202–207. doi:10.1097/NMD.0b013e3182845c0a

Foa, E. B., & Hearst-Ideka, D. (1996). Emotional dissociation in response to trauma: An information-processing approach. In Michelson, L. K. & Ray, W. J. (Eds), *Handbook of dissociation: Theoretical, empirical, and clinical perspectives* (pp. 207-224). New York, NY: Plenum Press.

Fonagy, P., Gergely, G., Jurist, E. L., & Target, M. (2002). Affect regulation, mentalization and the development of the self. New York: Other Press.

Fonagy, P., & Luyten, P. (2009). A developmental, mentalization-based approach to the understanding and treatment of borderline personality disorder. *Development and Psychopathology*, *21*, 1355–1381. http://doi.org/10.1017/S0954579409990198

Fonagy, P., & Target, M. (1996). Playing with reality: I. Theory of mind and the normal development of psychic reality. *International Journal of Psychoanalysis, 77*, 217-233.

Fonagy, P., & Target, M. (2000). Playing with reality III: The persistence of dual psychic reality in borderline patients. *International Journal of Psychoanalysis, 81*, 853-874.

Fonagy, P., & Target, M. (2007). Playing with reality: IV. A theory of external reality rooted in intersubjectivity. *International Journal of Psychoanalysis, 88*, 917-937.

Fonagy, P., Target, M., & Gergely, G. (2000). Attachment and borderline personality disorder: a theory and some evidence. *Psychiatric Clinics of North America, 23*, 103-122. doi:10.1016/S0193-953X(05)70146-5

Fonagy, P., Target, M., Steele, H., & Steele, M. (1998). Reflective-functioning manual, version 5.0, for application to Adult Attachment Interviews. London, UK: University

College London.

Friedrich, W. N., Davies, H., Feher, E., & Wright, J. (2003). Sexual behavior problems in preteen children: Developmental, ecological, and behavioral correlates. *Annals of the New York Academy of Sciences, 989,* 95–104.

Frewen, P. A., & Lanius, R. A. (2006) Toward a psychobiology of posttraumatic self-dysregulation. *Annals of the New York Academy of Sciences, 1071*, 110-124.

Friedrich, W. N., Fisher, J. L., Dittner, C. A., Acton, R., Berliner, L., Butler, J., Damon, L., Davies, W. H., Gray, A., & Wright, J. (2001). Child Sexual Behavior Inventory: normative, psychiatric, and sexual abuse comparisons. *Child Maltreatment, 6*, 27-49. doi: 10.1177/1077559501006001004

Friedrich, W. N., Jarwoski, T. M., Huxsahl, J., & Bengston, B. (1997) Dissociative and sexual behaviors in children and adolescents with sexual abuse and psychiatric histories. *Journal of Interpersonal Violence, 12*, 155-171.

Freyd, J. J. (2008). A new publisher, a new archive, and an old mystery. *Journal of Trauma & Dissociation, 9*, 439-444. http://dx.doi.org.acces.bibl.ulaval.ca/10.1080/15299730802275537

George, C., Kaplan, N., & Main, M. (1985). *The Adult Attachment Interview.* Unpublished manuscript, University of California at Berkeley.

Gold, M. S., & Bentler, P. M. (2000) Treatments of missing data: A Monte Carlocomparison of RBHDI, Iterative stochastic regression imputation, and Expectation-Maximization. *Structural Equation Modeling: A Multidisciplinary Journal, 7*, 319-355. doi : 10.1207/S15328007SEM0703_1

Haugaard, J. J. (2004). Recognizing and treating uncommon behavioral and emotional disorders in children and adolescents who have been severely maltreated: dissociative disorders. *Child Maltreatment, 9*, 146–153. doi: 10.1177/1077559504264311

Hayes, J. A. (2012). PROCESS: A versatile computational tool for observed variable mediation, moderation, and conditional process modeling [White paper]. Retrieved from http://www.afhayes.com/public/process2012.pdf

Hébert, M., Langevin, R., & Bernier, M.-J. (2013). Self-reported symptoms and parents' evaluation of behavior problems in preschoolers disclosing sexual abuse. *International Journal of Child, Youth & Family Studies, 4*, 467-483.

Hébert, M., Parent, N., Daignault, I. V., & Tourigny, M. (2006). A typological analysis of behavioral profiles of sexually abused children.*Child Maltreatment, 11*, 203-216.

Heyes, C. M., & Frith, C. D. (2014). The cultural evolution of mind reading. *Science, 344*, 1-6. doi: 10.1126/science.1243091

Hill, J., Fonagy, P., Lancaster, G., & Broyden, N. (2007). Aggression and intentionality in narrative responses to conflict and distress story stems: an investigation of boys with disruptive behaviour problems. *Attachment and Human Development*, 9, 223-237.

Hoyle, R. H. (1995). The Structural Equation Modeling approach: Basic concepts and fundamental issues. In Hoyle, R. H. (Ed.), *Structural equation modeling: Concepts, issues, and applications*. (pp. 1–15). Thousand Oaks, CA: Sage Publications.

Kisiel, C. L., & Lyons, J. S. (2001). Dissociation as a mediator of psychopathology among sexually abused children and adolescents. *American Journal of Psychiatry, 158*, 1034–1039. http://doi.org/10.1176/appi.ajp.158.7.1034

Kovacs, M. (1985). The Children's Depression Inventory (CDI). *Psychopharmacology Bulletin, 21*, 995-998.

Macfie, J., Cicchetti, D., & Toth, S. L. (2001). Dissociation in maltreated versus nonmaltreated preschool-aged children. *Child Abuse & Neglect, 25*, 1253-1267.

Mathews, S., Abrahams, N., & Jewkes, R. (2013). Exploring mental health adjustment of children post sexual assault in South Africa. *Journal of Child Sexual Abuse, 22*, 639–657. doi: 10.1080/10538712.2013.811137

Muthén, L. K., & Muthén, B. O. (1998-2012). *Mplus User's Guide* (Seventh edition ed.). Los Angeles, CA.

McGeer, V. (2007) The regulative dimension of folk psychology. In Hutto, D., & Ratcliffe, M. M. (Eds) *Folk Psychology Re-Assessed* (pp. 137-156). Dordrecht, Netherlands: Springer.

Putnam, F. W. (1990). *Child dissociative checklist, version 3.0 – 2/90*. Bethesda, MD : National institute of mental health. Laboratory of developmental psychology.

Putnam, F. W. (1991). Dissociative disorders in children and adolescents. A developmental perspective. *Child and adolescent psychiatric clinics of North America, 14*, 519-531.

Putnam, F. W. (1993). Dissociative disorders in children: Behavioral profiles and problems. *Child Abuse & Neglect, 17*, 39-45.

Putnam, F. W. (1996). Child development and dissociative disorder. *Child and adolescent psychiatric clinics of North America, 5*, 285-301.

Putnam, F. W. (1997). *Dissociation in children and adolescents: A developmental perspective*. New York, NY : Guilford Press.

Rathus, S. A., Nevid, J. S., & Fichner-Rathus, L. (2008). *Human sexuality in a world of diversity* (7th Ed.). Boston, MA: Pearson.

Schimmenti, A., & Caretti, V. (2014) Linking the overwhelming with the unbearable: developmental trauma, dissociation, and the disconnected self. *Psychoanalytic Psychology*, 1-26.

Shipman, K., Zeman, J., Penza, S., Champion, K. (2000). Emotion management skills in sexually maltreated and non maltreated girls: a developmental psychopathology perspective. *Development and Psychopathology*, *12*, 47-62. doi:10.1017/S095579400001036

Shmueli-Goetz, Y., Target, M., Fonagy, P., & Datta, A. (2008). The Child Attachment Interview: A psychometric study of reliability and discriminant validity. *Developmental Psychology*, *44*, 939–956. doi: 10.1037/0012-1649.44.4.939

Silberg, J. L. (2013). The Child Survivor: Healing Developmental Trauma and Dissociation. New York, NY: Routledge.

Slade, A., Aber, J. L., Bresgi, I., Berger, B., & Kaplan (2004). *The Parent Development Interview–Revised. Unpublished protocol*. New York, NY: The City University of New York.

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*, 283–298. doi: 10.1080/14616730500245880

Slade, A., Sadler, L., De Kios-Kenn, C., Webb, D., Currier, Ezepchik, J., & Mayes, L. (2005) Minding the baby: A reflective parenting program. *The Psychoanalytic Study of the Child, 60* 74-100.

Steele, H., Steele, M., Croft, C., & Fonagy, P. (1999) Infant-mother attachment at one year predicts children's understanding of mixed emotions at six years. *Social Development, 8*, 161-178. doi: 10.1111/1467-9507.00089

Target, M., Fonagy, P., Shmueli-Goetz, Y., Schneider, T., & Datta, A. (2000). *Child Attachment Interview (CAI): Coding and classification manual. Version III. Unpublished manuscript*. London, UK: University College London.

Taubner, S., Hörz, S., Fischer-Kern, M., Doering, S., Buchheim, A., & Zimmermann, J. (2013). Internal structure of the Reflective Functioning Scale. *Psychological Assessment, 25*, 127–135.

Taubner, S., & Curth, C. (2013). Mentalization mediates the relation between early traumatic experiences and aggressive behavior in adolescence. *Psihologija*, *46*, 177–192. doi: 10.2298/PSI1302177T

Tremblay, C., Hébert, M., & Piché, C. (1999). Coping strategies and social support as mediators of consequences in child sexual abuse victims. *Child Abuse & Neglect*, *23*, 929–945. doi: 10.1016/S0145-2134(99)00056-3

Ullman, S. E. (2001). Structural equation modeling. In B. G. Tabachnick & L. S. Fidell (Eds.), *Using multivariate statistics* (4th ed., pp. 966). Needham Heights, Mass: Allyn and Bacon.

Van der Hart, O., Nijenhuis, E. R. S., & Steele, K. (2006). The haunted self: Structural dissociation and the treatment of chronic traumatization. New York, NY: Norton.

Vermetten, E., Dorahy, M., & Spiegel, D. (2007). *Traumatic dissociation: Neurobiology and treatment*. Arlington, VA: American Psychiatric Publishing Inc.

Zurbriggen, E. L. & Freyd, J. J. (2004). The link between child sexual abuse and risky sexual behavior: The role of dissociative tendencies, information-processing effects, and consensual sex decision mechanisms. In Koenig, L. J., Doll, L. S., O'Leary, A., & Pequegnat, W. (Eds) *From child sexual abuse to adult sexual risk: Trauma, revictimization, and intervention* (pp. 135-157). Washington, DC: American Psychological Association. doi: 10.1037/10785-007

Table 1: Group comparisons (MANOVA) for child age, mother and child RF and indicators of psychopathology.

Variables	Minimum	Maximum	Groups	Means	Std. Deviation	F	Cohen's *d*
Child age	84	153	Abuse	112	19.8	0.14	.05
	84	155	Control	113	17.8		
Maternal education	6	21	Abuse	13.5	3.0	18.70*	.66
	8	24	Control	15.7	3.6		
Maternal RF	-1	6	Abuse	2.92	1.40	12.88*	.56
	1	7	Control	3.69	1.36		
Child RF	0	7	Abuse	1.85	1.39	23.40*	.75
	-1	7	Control	2.84	1.26		
Dissociation	0	27	Abuse	8.50	6.27	34.42*	.90
	0	31	Control	3.34	5.12		
Depression	34	78	Abuse	51.78	9.33	22.42*	.71
	37	64	Control	46.40	5.31		
Externalizing	44	86	Abuse	64.52	11.53	32.85*	.89
	30	84	Control	54.00	12.04		
Sexualizing	42	111	Abuse	69.27	24.74	9.21*	.46
	42	111	Control	59.37	17.47		

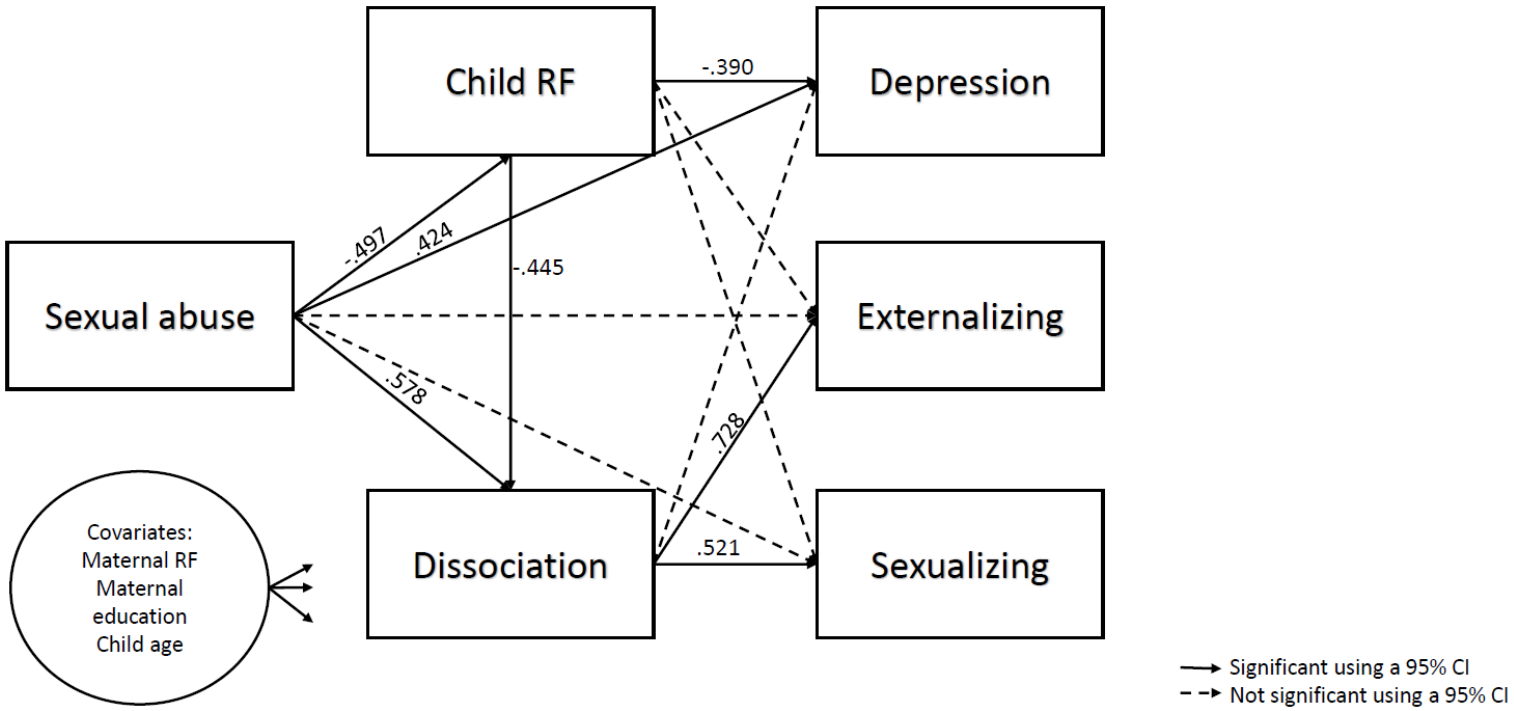
Notes: Child age (in months); Maternal RF assessed with the PDI-R; Child RF assessed with the CRFS applied to the CAI; Dissociation assessed with the CDC; Depression assessed with the CDI; Externalizing difficulties assessed with the CBCL-Parent; Sexualizing difficulties assessed with the CSBI; * $p < .01$.

Table 2: Correlations between age, mother's education, maternal and child RF and child psychopathology (N=168).

	Child age	**Maternal education**	**Maternal RF**	**Child RF**	**Dissociation**	**Depression**	**Externalizing**	**Sexualizing**
Child age	-	-	-	-	-	-	-	-
Maternal Ed	-.046	-	-	-	-	-	-	-
Maternal RF	-.023	.393*	-	-	-	-	-	-
Child RF	.440*	.403*	.248*	-	-	-	-	-
Dissociation	-.113	-.347*	-.322*	-.562*	-	-	-	-
Depression	-.105	-.304*	-.034	-.436*	.193*	-	-	-
Externalizing	-.048	-.231*	-.304*	-.429*	.687*	.231*	-	-
Sexualizing	-.132	-.246*	-.253*	-.239*	.488*	.207*	.531*	-

Notes: Maternal RF assessed with the PDI-R; Child RF assessed with the CRFS applied to the CAI; Dissociation assessed with the CDC; Depression assessed with the CDI; Externalizing difficulties assessed with the CBCL-Parent; Sexualizing difficulties assessed with the CSBI; * $p < .01$

Figure 1: Direct effect of sexual abuse, child RF and dissociation on child psychopathology (N = 168).



Notes: Maternal RF assessed with the PDI-R; Child RF assessed with the CRFS applied to the CAI; Dissociation assessed with the CDC. Covariates were allowed to predict all dependant variables in the model. Parameters are standardized.