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## Emotion dysregulation in sexually abused preschoolers: Insights from a story completion task

## Abstract

Child sexual abuse (CSA) during the preschool period can seriously undermine children's ability to develop emotional competency (Cicchetti & Toth, 1995). Narrative tasks, such as the MacArthur Story Stem Battery (MSSB), are particularly adapted to gain a better understanding of young children's self-regulation processes (Holmberg et al., 2007). To explore the emotion regulation competencies of sexually abused preschoolers, we developed a coding grid and undertook a detailed analysis of abused and non-abused children's narratives using the MSSB (Bretherton & Oppenheim, 2003). A sample of 62 sexually abused and 65 non-abused preschoolers 3½ to 6½ years old was recruited ( $M = 4.29$  years,  $SD = .92$ ) and children were presented with nine stories and an expressive vocabulary test (Brownell, 2000). Analyses were performed to compare abused and non-abused children's narratives and to assess the contribution of CSA to children's narratives. CSA was associated with fewer demonstrations of empathy, help, and comfort, and less coherent and resolved stories. The narratives of CSA victims also included less emotions and emotional variations. The influence of CSA appeared the strongest in the stories involving fear. These findings suggest the presence of emotion dysregulation among sexually abused preschoolers, but also insecure attachment, as well as a sense of betrayal, isolation, and powerlessness.

Child sexual abuse (CSA) is a prevalent social problem with dramatic consequences for the victims. According to a meta-analysis, approximately 18% of women and 7.6% of men have been sexually abused before the age of 18 years (Stoltenborgh, van IJzendoorn, Euser, & Bakermans-Kranenburg, 2011). Victims present with a plethora of behavioral (e.g., substance abuse, self-mutilation), sexual (e.g., sexual promiscuity), emotional (e.g., dissociation, anxiety, anger), relational (e.g., interpersonal problems, social maladjustment), and mental and physical health-related problems (Hillbert, Hamilton, Giachritsis, & Dixon, 2011). Emotion dysregulation is a core feature of most of these problems (Aldao, Nolen-Hoeksema, & Schweizer, 2010; Blair et al., 2015) and is the focus of the present investigation of sexually abused preschoolers.

Emotion regulation is defined as “the extrinsic and intrinsic processes responsible for monitoring, evaluating, and modifying emotional reactions, especially their intensive and temporal features, to accomplish one’s goals.” (Thompson, 1994). Emotion regulation develops rapidly during the first few years of life (Cole, Michel, & O’Donnell-Teti, 1994; Holodynski & Friedlmeier, 2006). From birth to approximately 4 years of age, the regulation of emotion transitions from external regulation, relying mostly on caregivers’ interventions, to internal or self-regulation (Eisenberg & Morris, 2002). Cognitive strategies become more predominant during the preschool period as children are increasingly competent at selecting strategies that are best tailored to the situations (Eisenberg & Morris, 2002). The development of emotion self-regulation competencies is strongly related to the quality of children attachment to their primary caregiver (Waters et al., 2010).

According to the Developmental Psychopathology Framework, traumatic life events occurring during the crucial preschool period, especially interpersonal trauma such as CSA, could create disruptions in normal developmental processes and undermine core abilities such as competencies in regulating emotions and the development of secure attachment representations

and of healthy representations of the self. These disruptions could then lead to an inability to resolve subsequent fundamental developmental tasks (e.g., self-esteem, self-other understanding, positive peer relationships) and increase the risks of maladaptation (Cicchetti & Toth, 1995). The manipulation, secrecy, intrusiveness, and mixed emotions and sensations often associated with CSA and the limited cognitive and emotional resources of preschool children could be especially damaging (Cicchetti & Banny, 2014; Finkelhor & Browne, 1985). Indeed, in addition to highlighting the relevance of abuse characteristics (e.g., forms of abuse, duration, severity) in the understanding of the consequences associated with maltreatment, the Developmental Psychopathology Framework emphasizes the importance of the timing of maltreatment experiences and the sensitivity of early developmental periods such as the preschool years, especially for the development of emotion regulation competencies (Cicchetti & Toth, 1995).

Preschool victims of CSA are an understudied population. The few available studies suggest sexually abused preschoolers show more emotion dysregulation (e.g., tantrums, impulsivity, lack of empathy) than non-abused children and emotion dysregulation mediates the association between CSA and internalizing and externalizing problems (BLIND, 2016; BLIND, 2015; BLIND, 2017). Two of these studies relied only on parents' and/or early childhood educators' reports on the Emotion Regulation Checklist (ERC; Shields & Cicchetti, 1997), a questionnaire from which two broad subscales (emotion regulation and emotional lability/negativity) were derived. While providing essential information on emotion regulation competencies, this questionnaire does not provide researchers with fine-grained information pertaining to children's emotion regulation strategies in specific contexts.

To overcome this limitation and provide a more detailed assessment of sexually abused preschoolers' inner regulatory abilities, we developed a coding scheme of their narratives to be used with the MacArthur Story Stem Battery (MSSB; Bretherton & Oppenheim, 2003) (see

BLIND, 2015). Previous studies using the MSSB have shown that well-regulated children tell more coherent stories that reach emotional resolution using prosocial and positive themes than children with lower emotion regulation capacities (MacFie & Swan, 2009; Robinson & Kelsay, 2002; Warren, 2003). We therefore undertook to compare sexually abused preschoolers to their non-abused peers using 33 codes assessing their narrative content and performance in nine stories. A factor analysis of children's narratives was performed and four global factors were derived: Optimal Emotion Regulation (e.g., empathy, affection, conflict resolution, coherence), Under-Regulation/Aggression (e.g., aggression, conflict escalation, danger), Lability/Impulsivity (e.g., impulsivity, emotional incoherence and exacerbation), and Conflict (e.g., conflict, blaming others, anger; BLIND, 2015). Results indicated that sexually abused boys had higher scores on the Under-Regulation/Aggression factor than non-abused preschoolers and abused girls. However, using a factorial approach resulted in a loss of information pertaining to the specific strategies used by abused children in given stories.

The present study aimed at further exploring the association between emotion regulation and CSA in preschoolers by conducting a fine-grained analysis of their narratives and comparing them with non-abused preschoolers. More specifically, the objectives were: 1) to compare each MSSB codes of abused and non-abused children across all nine stories; and 2) to assess the association between CSA and the MSSB codes within each story. These analyses were intended to provide a deeper understanding of the specific emotion regulation strategies used by young CSA victims when faced with various situations eliciting different emotional reactions.

Given that CSA is a major trauma and that traumatic events have a detrimental impact on the development of emotion regulation, we hypothesized that sexually abused preschoolers will show poor emotion regulation competencies during the narrative task. More specifically, we hypothesized they will tell less coherent and resolved stories that include less positive (e.g.,

empathy, affection) and more negative (e.g., aggression) themes than non-abused preschoolers. Since early interventions have been found to be effective in preventing enduring emotional and behavior problems in at-risk children, crucial information could be derived and used to inform practice (Lieberman & Ippen, 2011). The wide-ranging implications of emotion dysregulation (Aldao et al., 2010; Cicchetti & Toth, 1995) make it an important target for preventive and curative initiatives aimed at fostering resilience in children exposed to a traumatic event such as CSA at a very young age.

## **Method**

### **Participants**

A sample of 127 children (62 sexually abused; 65 non-abused) aged 3½ to 6½ years old ( $M = 4.29$ ;  $SD = 0.92$ ) was recruited between 2011 and 2013. Sexually abused children and their parents (93% mothers) were recruited by our team at two intervention centres offering services to sexually abused children and their family in BLIND, BLIND. Sexual abuse included acts ranging from non-contact CSA (e.g., exhibitionism) to more severe acts such as penetration. The comparison group was recruited in childcare centres from the same areas. Efforts were made to recruit from childcare centres in disadvantaged neighborhoods given the low socioeconomic background of most children from the CSA group. Sociodemographic data are presented in Table 1. Group differences were found for family structure, maternal education, and annual family income indicating greater disadvantage in the CSA group (more single-parent families, lower maternal education and family income). However, groups were similar in terms of children's gender, age, and ethnicity. Exclusion criteria were not speaking French or English and parent's or child disability affecting their understanding of the tasks involved.

### **Procedure**

Children in the CSA group were recruited during the intake interview at two intervention

centers. All parents gave informed written consent and children consented orally. Children in the comparison group completed the tasks at home after they and their parent consented. For both groups, while parents completed questionnaires alone, a trained research assistant presented the children with the narrative task and the vocabulary test in a separate room. Research assistants were students in psychology and sexology who had a background in child development and basic interview techniques. They were trained by the first author through several steps: 1) presentation of the narrative task; 2) role-play practices with detailed feedback; and 3) detailed feedback following administrations with study participants. Narratives were audio recorded and verbatim transcribed for future coding. A small financial compensation was offered to parents (\$20) and children received small gifts (e.g., coloring books, small teddy). Families in the CSA group were clearly informed that their participation in the study was voluntary and that refusing to participate would not affect service provision. Ethics Committees of the BLIND approved this study.

## Measures

**Sociodemographic information.** Parents completed a questionnaire designed for this study providing information on child gender and age, mothers' ethnicity and education, and family characteristics.

**Expressive vocabulary.** Because expressive vocabulary is associated with narrative performance, children's expressive vocabulary was assessed using the Expressive One-Word Picture Vocabulary Test, a validated and standardized measure (EOW; Brownell, 2000). Children were asked to identify what was on a series of pictures increasing in complexity. Based on their performance and age, standard scores were derived using the norms provided. This test has adequate psychometric properties with high internal consistency ( $\alpha = .95$  to  $.96$ ), mean test-retest stability ( $r = .90$ ), and inter-rater agreement (100%) and acceptability of responses (99.4%; Brownell, 2000). Mean scores for the CSA and the comparison groups are presented in Table 1.

Abused children had lower scores than non-abused children.

**MacArthur Story Stem Battery (MSSB).** The MSSB is a narrative task used to assess young children's mental representations of relationships and themselves (Holmberg, Robinson, Corbitt-Price, & Wiener, 2007). Children aged 3-to-7 years old are invited to complete emotionally charged situations introduced by an interviewer using dolls and props. The MSSB was originally developed to address the interests of the members of the MacArthur Research Network on Early Childhood Transition, including language development, family conflict and relationships/attachment, and moral development (see Bretherton & Oppenheim, 2003). It was designed to be flexible and adaptable to allow examining various aspects of preschoolers' functioning (Holmberg et al., 2007). It is not a standardized test, and omissions or additions of stories are often considered to better fit studies purposes (see Bretherton & Oppenheim, 2003 for more details; Holmberg et al., 2007). In terms of coding, the content (what is happening) and performance (how the story is told) during the task are both evaluated using selected codes that are relevant to the object of study (Bretherton & Oppenheim, 2003).

For the purpose of this study, children were presented with eight stories (following one warm-up story) from the MSSB, and one story specifically designed for this study (Table 2). Given the focus of this study, emotion regulation, the stories were selected for the various emotions they could elicit. The novel story stem was elaborated to assess children's reactions when faced with disappointment, an emotion that was absent from the original MSSB stories (Bretherton & Oppenheim, 2003). As instructed by the original developers, after introducing the story, the interviewer asked children to "tell and show what happens next" using small figurines representing a family (mother, father, two boys or two girls depending on child gender). The interviewer then described what the child was enacting and repeated what he/she was saying for the benefit of the audio record used for future coding. Interviewers were allowed to encourage



children with open questions but were instructed not to insist more than once if children were not addressing the initial conflict.

**Emotion regulation coding.** The coding scheme that we developed is based on two existing systems: the Narrative Emotion Code (Warren, 2003) and the coding system of the MacArthur Group (see Robinson & Kelsay, 2002 for details). It includes 29 content items (Table 3) referring to a variety of positive and negative themes that children can include in their narratives: prosocial themes (e.g., empathy/help/comfort, affiliation, conflict resolution), themes related to over-regulation of emotions (e.g., sudden onset of sleep, denial, role reversal), and themes related to under-regulation of emotions (e.g., aggression, conflict escalation, sexualized activity). Four performance items were also included (Table 3) in order to assess narrative coherence and resolution, impulsivity, and emotional exacerbation and lability. Various scales ranging from 0-1 to 1-10 were used. For the first objective of the study, a global score was calculated for each code across all nine stories (i.e., the sum of scores across all nine stories for each code). Inter-rater agreement, calculated on 25% of the stories, was adequate ( $r = .79$ ).

## Results

### Preliminary analyses

Bivariate correlation analyses were performed on the items composing the coding scheme using the global scores. A few strong correlations ( $r = .70$  or more) were found between content codes and performance codes (Empathy/Help/Comfort and Narrative Coherence =  $.70$ , Blaming Others and Anger =  $.71$ , Denial and Narrative Coherence =  $-.86$ ). However, because these codes provided detailed information of clinical relevance, they were included in the following analyses.

Bivariate correlations were also computed between the global scores for each code across narratives and child age and vocabulary score. Because child age was correlated with 17 out of 33 codes (significant correlations between  $r = .18$  and  $.38$ ), age was used as a control variable in the

analyses aiming to identify group differences. Vocabulary scores, that were correlated with 11 out of 33 codes (significant correlations between  $r = .18$  and  $.34$ ), were also used as a control variable. *T*-tests were used to test for gender differences. Results indicate that child gender was associated with six codes out of 33 (significant results ranging from  $t(125) = -2.35$  to  $-3.54$ ) and was also included as a control variable in subsequent analyses. Because family structure (single-parent family or not) was only associated with two codes out of 33 using *t*-tests (Sharing and Emotional Incoherence to the Negative), and in order to reduce the number of variables, it was not included as a control variable in subsequent analyses.

In order to compare the global scores of sexually abused and non-abused preschoolers for the overall narrative task, *t*-tests were first performed to identify codes for which there were significant differences between groups. Results indicated that abused children integrated less Empathy/Help/Comfort themes in their narratives than non-abused children,  $t(125) = 3.58, p < .001$ , and had higher scores of Denial and of Passive Refusal of Empathy:  $t(125) = -4.04, p < .001$  and  $t(125) = -2.12, p = .038$ , respectively. They also had lower scores of Narrative Coherence and of Emotional Lability:  $t(125) = 3.97, p < .001$  and  $t(125) = 2.98, p = .004$ . There were no other group differences. Therefore, only these codes were included in our main analyses on the overall narrative task.

To further explore group differences for each code in each story separately, bivariate analyses were also conducted (chi square and *t*-tests) and results are summarized in Table 4. For the sake of conciseness, only significant results are reported. These codes were included in the main analyses.

### **Group differences across all nine stories**

To compare abused and non-abused children's scores for the overall narrative task, analyses of covariance (ANCOVAs) were performed with CSA status and child gender as

grouping variables, and age and vocabulary scores as control variables. Effect sizes for each variable are presented using  $\eta^2$ : between .01 and .05 is considered a small effect size, .06 to .13 a medium effect size, and .14 and more, a large effect size (Cohen, 1988).

Results are presented in Table 5. The group difference was still significant ( $\eta^2 = .033$ ) for the Empathy/Help/Comfort code when child gender, age, and vocabulary were included in the analyses. Age ( $\eta^2 = .117$ ), gender ( $\eta^2 = .050$ ), and vocabulary ( $\eta^2 = .040$ ) were also associated with this code. Older children, girls, and children with higher vocabulary scores had higher scores of Empathy/Help/Comfort.

After all other variables were entered in the model, Denial was not associated with CSA. Age ( $\eta^2 = .201$ ), gender ( $\eta^2 = .041$ ), and vocabulary ( $\eta^2 = .067$ ) were associated with Denial. Boys, younger children, and children with lower vocabulary scores had higher scores of Denial. Passive Refusal of Empathy did not yield significant results. Emotional Lability was not associated with CSA after all variables were included in the model. Only age was associated with this code, with older children displaying more lability than younger ones ( $\eta^2 = .043$ ). Finally, the group difference on Narrative Coherence remained significant after all other variables were included in the model ( $\eta^2 = .040$ ). Abused children had lower scores. Age ( $\eta^2 = .176$ ), gender ( $\eta^2 = .057$ ), and vocabulary ( $\eta^2 = .061$ ) were also associated with scores. Girls, older children, and children with higher vocabulary scores had higher scores of Narrative Coherence.

In sum, after controlling for the potentially confounding effects of gender, age, and vocabulary, differences between sexually abused and non-abused children in the narrative task remained for displays of Empathy/Help/Comfort and Narrative Coherence.

### **CSA as a predictor for each code in each individual story**

To determine whether CSA was associated with specific scores of content and performance in each story, after controlling for potentially confounding variables, logistic

regression (for binary variables) and linear regression analyses (for continuous variables) were performed. Control variables – gender, age, and vocabulary – were entered in a first step using the Forward Method (Forward Selection for linear regressions and Forward Stepwise with Likelihood Ratio criteria for logistic regressions). Then, using the forced entry method, CSA status was entered in the model. Results are summarized in Table 4. For conciseness, only significant results pertaining to the abuse status are presented. Percentage of explained variance for each code at the final step of the analysis is presented using the adjusted  $R^2$  for linear regressions and the Cox and Snell  $R^2$  for logistic regressions.

In the *Spilled Juice* story, CSA remained significantly associated with two codes after all variables entered the model: Blaming Others ( $R^2 = .04$ ) and Joy ( $R^2 = .03$ ). CSA was associated with less blame of someone else and higher scores of Joy. In the *Injured Knee* story, CSA remained significantly associated with two codes after all variables were entered in the model: Worries ( $R^2 = .07$ ) and Emotional Lability ( $R^2 = .04$ ). CSA was associated with higher scores of Worries and lower scores of Emotional Lability.

In the *Fear of the Monster* story, CSA remained significantly associated with three codes after all variables entered the model: Empathy/Help/Comfort ( $R^2 = .05$ ), Affection ( $R^2 = .06$ ), and Narrative Coherence ( $R^2 = .13$ ). CSA was associated with less Empathy/Help/Comfort and Affection. It was also associated with lower scores of Narrative Coherence. In the *Scary Dog* story, CSA remained significantly associated with four codes after including all other variables in the regressions: Empathy/Help/Comfort ( $R^2 = .14$ ), Denial ( $R^2 = .10$ ), Joy ( $R^2 = .03$ ), and Narrative Coherence ( $R^2 = .15$ ). CSA was associated with less Empathy/Help/Comfort and higher scores of Denial.

In the *Separation/Reunion* story, CSA remained significantly associated with two codes after all variables were entered: Affiliation ( $R^2 = .06$ ) and Impulsivity ( $R^2 = .06$ ). CSA was

associated with less affiliation and higher scores of Impulsivity. In the *Conflict with a Friend* story, CSA remained significantly associated with one code in the regression analyses:

Empathy/Help/Comfort ( $R^2 = .15$ ). CSA was associated with less Empathy/Help/Comfort. In the *Lost Keys* story, CSA remained significantly associated with one code after introducing the other variables in the model. CSA was associated with lower levels of Emotional Lability ( $R^2 = .04$ ).

In the *Cancelled Activity* story, CSA remained significantly associated with two codes after all variables entered the model: Denial ( $R^2 = .06$ ) and Narrative Coherence ( $R^2 = .09$ ). CSA was associated with higher levels of Denial and lower levels of Coherence. Lastly, in the *Family Fun* story, CSA remained significantly associated with one code in the regression analyses. CSA was associated with lower scores of Emotional Lability ( $R^2 = .04$ ).

To summarize, CSA was associated with less narrative coherence and resolution in three out of eight stories (i.e., *Fear of the Monster*, *Scary Dog*, and *Cancelled Activity*) and with less Emotional Lability in three other stories (i.e., *Injured Knee*, *Lost Keys*, and *Family Fun*). CSA was also associated with fewer themes of empathy, help, and comfort in three stories (i.e., *Fear of the Monster*, *Scary Dog*, and *Conflict with Friend*), with more denial of the problem in the *Scary Dog* story and the *Cancelled Activity* story, and with less affection in the *Fear of the Monster* story. In the *Separation/Reunion* story, CSA was associated with less Affiliation and more impulsivity. Negative associations were also found between CSA and joy in the *Scary Dog* story and blaming others in the *Spilled Juice* story whereas positive associations were found between CSA and worries in the *Injured Knee* story and joy in the *Spilled Juice* story. CSA was associated with a larger number of codes in the stories involving fear: *Fear of the Monster* (three) and *Scary Dog* (four).

## Discussion

This exploratory study aimed to compare the themes and narrative performance of

sexually abused and non-abused preschoolers in a story completion task designed to elicit various emotions and emotion regulation strategies. The degree to which CSA was associated with content and performance themes was also assessed using a fine-grained analysis of individual codes in each story separately. After controlling for potentially confounding variables (gender, expressive vocabulary, and age), results are in line with our hypotheses, with abused children displaying various signs of emotion dysregulation (e.g., less coherence, less positive themes, more denial). Hence, consistent with the Developmental Psychopathology Framework (Cicchetti & Toth, 1995), our findings underscore that CSA is a trauma that can seriously impair the development of emotion regulation competencies.

More specifically, pertaining to children's narratives across the nine stories, results indicate that abused preschoolers were less likely to include empathy, help, and comfort themes in their narratives. These findings are consistent with Finkelhor and Browne's (1985) *Traumagenic Dynamics Model*, more specifically with the betrayal and stigmatization dynamics. The betrayal dynamic refers to the sense of betrayal sexually abused children often experience after discovering that a responsible adult, someone they depended on, caused them harm. It can also refer to the sense of betrayal towards other responsible adults or non-offending caregivers who failed to protect them against the abuse. Sexually abused preschoolers may therefore be less likely to include empathy, help, and comfort themes in their narratives because they feel they cannot get help and comfort from their caregiver when confronted with difficult situations. The stigmatization dynamic refers, among other things, to the sense of isolation that can be experienced by sexually abused children. Stigmatization may be induced by the negative messages voiced by the perpetrator, confidants, or by other people. This could in part explain why abused children did not include more empathy, help, and comfort themes in their narratives given they are likely to feel different, unworthy and isolated with no one to support them. This is

also consistent with the assumption of Developmental Psychopathology that maltreatment can alter the development of a positive sense of self in young children (Cicchetti & Toth, 1995). Moreover, because sexually abused children are more likely to present with insecure attachment than non-abused children (Alexander, 1992; Charest, Hébert, & Bernier, 2018; Cicchetti & Toth, 1995), they may come to expect less support, warmth, sensitivity, and help from significant others when facing adversity.

Compared with their non-abused peers, sexually abused children also had lower scores of narrative coherence. They were less likely to resolve the induced conflicts and to tell rich, coherent stories with positive endings, a possible sign of emotion dysregulation (MacFie & Swan, 2009; Robinson & Kelsay, 2002; Warren, 2003). Because narrative resolution and coherence were highly correlated with denial, these findings suggest that sexually abused children used more strategies of over-regulation, such as avoidance, denial, or distraction, when faced with stressful situations. In their theoretical model, Finkelhor and Browne (1985) also described the sense of powerlessness often experienced by CSA victims. Abused children, and maybe even more so for young children, find themselves in an unescapable traumatic situation and emotional suppression, dissociation, and denial are often the only strategies they can use during the abuse, but also afterward, to alleviate their distress. They try to cope with the trauma with little internal and, sometimes, external resources (Ford, 2013; Sigurdardottir, Halldorsdottir, & Bender, 2013; Silberg, 2014; Walsh, Fortier, & DiLillo, 2010). Experiencing such a trauma may also prevent the development of more adaptive strategies of emotion regulation (Cicchetti & Toth, 1995).

A closer look at specific codes in each of the nine stories shows that CSA was a strong predictor of children's narrative in the stories involving fear. In the *Fear of the Monster* and the *Scary Dog* stories, CSA was associated with less empathy, help, and comfort themes. It was also

associated with fewer demonstrations of affection in the *Fear of the Monster* story. As discussed previously, this could be related to the Betrayal and Stigmatization dynamics described by Finkelhor and Browne (1985) and also to the insecure attachment often reported among sexually abused preschoolers (Charest et al., 2018). In both stories, CSA was associated with less narrative coherence and for the *Scary Dog*, with more denial of the problem. These results are also in line with the Powerlessness dynamic discussed previously (Finkelhor & Browne, 1985). Being sexually abused is usually a frightening experience for young victims, in part because of the powerlessness experienced, but also given the physical coercion or threats that can take place during and after the abuse (Finkelhor & Browne, 1985). Our findings suggest that sexually abused preschoolers struggle the most when faced with situations involving fear and that the regulatory capacities that seem to be the most affected by such an abuse are those pertaining to the emotion of fear.

Emotion dysregulation among sexually abused preschoolers could account for most of the findings pertaining to specific stories. In the *Injured Knee* story, a situation involving pain, CSA was found to predict more worries but also less emotional variations. Abused children seemed unable to resolve the worries displayed in the story with the characters being grounded or stucked in this negative emotional state. Abused children may have more trouble recovering from experiences of distress. CSA was also associated with less variation in the emotional content in the *Lost Keys*, a story involving anger between parents. In the *Cancelled Activity*, a story designed to elicit disappointment, CSA was associated with more denial of the situation and the production of unresolved and incoherent stories. Overall, these findings suggest that when facing difficult situations, abused children are more likely to use avoidance strategies but with little positive outcomes (Finkelhor & Browne, 1985; Sigurdardottir et al., 2013; Walsh et al., 2010). Avoidance coping is clearly linked to higher levels of psychological distress in victims of CSA



(Whiffen & MacIntosh, 2005).

On the other hand, the increased impulsivity displayed by abused children in the *Separation/Reunion*, a story originally designed to activate the attachment system, could signal a deficit in emotion self-regulation but also insecure attachment, especially disorganized attachment (Fearon, Bakermans-Kranenburg, Van IJzendoorn, Lapsley, & Roisman, 2010). Moreover, in line with the Stigmatization and Betrayal dynamics and the Developmental Psychopathology model (Cicchetti & Toth, 1995; Finkelhor & Browne, 1985), CSA was associated with less affiliation in the *Separation/Reunion*. Abused children were less inclined to seek the support of significant others (siblings and grandma in this story) when coping with the separation from their main attachment figures. Also in the *Conflict with a Friend* story, CSA was associated with less empathy, help, and comfort themes. Sexually abused children were less likely to have an adult intervene to help resolve the conflict. Again, it appears that sexually abused preschoolers were expecting less support from their attachment figures than non-abused children when it comes to resolving situations that might exceed their social and emotional competencies (Alexander, 2015; Cloitre, Stovall-McClough, Zorbas, & Charuvastra, 2008). Finally, CSA was associated with less blame of another character in the story of the *Spilled Juice*, a story that can induce embarrassment, a finding also consistent with the Stigmatization dynamic (Finkelhor & Browne, 1985). Sexually abused children often experience guilt or blame themselves, at least partly, for the abuse (Gauthier-Duchesne, Hébert, & Daspe, 2017; Feiring, Taska, & Lewis, 1998; Quas, Goodman, & Jones, 2003). This could explain why sexually abused preschoolers were more likely to have the main character of the story take responsibility for the mess created by the spilled juice.

In sum, consistent with the well-established theoretical models emphasizing the impacts of maltreatment and sexual abuse on young children (Developmental Psychopathology,

Traumagenic Dynamics, Attachment Theories), our findings suggest that the narratives of sexually abused preschoolers differ from those of non-abused preschoolers in a way that could indicate the presence of emotion dysregulation, insecure attachment, and a sense of betrayal, stigmatization, and powerlessness. These findings bring further support to existing conceptual and empirical literature on correlates of CSA and provide valuable information on the inner experiences of preschool victims, an understudied population. Other variables, such as child gender, age, and expressive vocabulary, are also important to consider in order to understand the narrative content and performance of preschool children. The narratives of older children and children with higher levels of expressive vocabulary were more coherent, with more positive content and ending than those of younger children and of children with lower levels of vocabulary. Previous studies have found associations between language development, emotion regulation, and trauma. Language helps organizing, expressing, and representing affective experiences and is therefore central to the development of emotion regulation (Cole et al., 2010; Jachimovicz, 2010). Furthermore, trauma have been associated with impairment in the development of language (Cook et al., 2005). Gender was also a significant predictor of children's narratives. Denial, worries, and impulsivity were more often found in boys and blaming others in girls. In line with previous studies, these findings seem to indicate that poor emotion self-regulation competencies are more likely to be found among boys than among girls (Bretherton & Oppenheim, 2003; Clyman, 2003; BLIND, 2016; BLIND, 2017).

### **Limitations and Implications**

This exploratory study is the first, to our knowledge, to have undertaken a detailed analysis of the narratives of sexually abused preschoolers with an emphasis on emotion regulation. It is therefore innovative and provides important insights into the inner regulatory processes of this vulnerable population. However, some limitations should be acknowledged.

Although CSA significantly predicted several dimensions of preschoolers' narrative content and performance, it is important to note that the variance explained by CSA was small in most cases (3-7%), except for codes related to narrative coherence with explained variance reaching 16%. Additionally, in the Scary Dog story, the variance explained by CSA reached higher levels for empathy/help/comfort and denial, with 14% and 10%, respectively. However, for the logistic regressions, we did report the most conservative variance estimation. It is also worth mentioning that several content and performance codes were not associated at all with CSA in our sample. Other variables should be considered in order to gain a thorough understanding of sexually abused preschoolers' inner regulatory processes. Second, the sample size was small, especially the number of boys, limiting the statistical power of the analyses. Third, the cross-sectional design prevents from drawing any conclusions regarding the direction of the effects or imply causation. Lastly, there were some significant sociodemographic differences between our abused and non-abused groups.

Despite these limitations, our results are interesting enough to warrant further exploration of the inner regulatory abilities of young sexually abused victims using a larger sample including more boys and a matched comparison group. Disentangling the associations between language, sexual abuse, gender, and emotion regulation could be relevant. A prospective longitudinal study could also be of great interest to allow tracking changes in social and emotional developmental trajectories of sexually abused preschoolers as a result of the CSA.

While replication of our results is essential to confirm the uncovered associations, some practical implications can be derived from this study. Enhancing emotion regulation abilities in young victims of sexual abuse could be an important part of the treatment provided to the victims and their families. While under-regulation of emotion, because of its association with externalizing problems (Eisenberg, Hofer, Sulik, & Spinrad, 2013; Southam-Gerow & Kendall,

2002; Zeman, Cassano, Perry-Parish, & Stegall, 2006), is often more disruptive, our results tend to show that targeting over-regulation of emotion is crucial with young victims of sexual abuse. As several authors have pointed out, over-regulation of emotion, generally associated with internalizing symptoms, often go undetected (Eisenberg et al., 2013; Flett & Hewitt, 2013; Zeman et al., 2006). A thorough assessment carried out by professionals working with CSA victims is thus essential. In addition to that, targeting the relationships of young victims of sexual abuse with their caregiver through dyadic interventions could provide these children with the support, help, and comfort they desperately need. Ultimately, helping young victims of sexual abuse develop optimal emotion regulation and coping strategies, as well as a sense of security in their interpersonal relationships, could have a significant impact on their social and emotional development and foster resilience despite exposure to such a tragic event at such a young age.

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### Tables

Table 1

Description of the MSSB stories

Title	Content
Anniversary (warm-up)	The family is celebrating Mathilde/Mathieu's birthday (the main child character)
Spilled Juice	Mathilde/Mathieu accidentally spilled juice while sitting at the table with the family.
Injured Knee	Mathilde/Mathieu is playing in the park and hurt her/his knee while climbing a big rock.
Fear of the Monster	After going to bed, Mathilde/Mathieu thinks she/he saw a monster and calls for help.
Scary Dog	While the family is at the park, Mathieu/Mathilde is playing with a ball and a scary barking dog suddenly appears.
Separation/Reunion	Parents are leaving for the week-end and children are staying with grandma. The next day, the parents return.
Conflict with a Friend	Mathilde/Mathieu is playing with a ball when a friend comes and grabs the ball roughly without asking.
Lost Keys	The parents are fighting about lost keys while Mathieu/Mathilde is present.
Cancelled Activity*	Mathilde/Mathieu is very excited and getting ready for a sledding activity when mom comes and says the activity is cancelled because it is too cold outside.
Family Fun	The family is at home on their day off and parents ask the kids what they want to do as a family activity.

\* The cancelled activity story was designed for the purpose of this study.

Table 2  
Items for the emotion regulation coding

Codes	Scale	Description
<i>Content</i>		
Empathy/Help/Comfort	0-1	A character shows empathy to another one, provide help, or comfort.
Repair/Guilt	0-1	A character asks for forgiveness after a conflict or a mistake, try to repair the damages.
Affiliation	0-1	Two or more characters are participating in an activity together.
Affection	0-1	Demonstrations of affection such as kisses, hugs, compliments, warm touches.
Conflict resolution	0-1	Characters are resolving an interpersonal conflict.
Sharing	0-1	Characters are sharing something, such as an object or food.
Aggression	0-5	Interpersonal aggression: verbal (coded 1), physical (2), dysregulated or unprovoked (3), a child attacking an adult (4), someone is killed (5).
Injury/Pain	0-1	A character is clearly injured or in pain because of an attack, an accident, or a sickness.
Active refusal of empathy	0-1	A character actively refused to provide help after being explicitly asked.
Verbal conflict	0-1	Verbal altercation between characters.
Conflict escalation	0-1	A conflict between characters is escalating.
Sexualized activity	0-1	Description or presentation of an activity that is sexual in nature.
Self-blame	0-1	A character takes the blame for something he did or did not commit.
Blaming others	0-1	A character blames another one for something he/she did or did not commit.
Danger	0-3	Continuity of a danger theme (coded 1); exacerbation of a danger theme already introduced or introduction of a new danger in the narrative (2); trapped in a dangerous situation (3).
Object destruction	0-2	Destruction of an object (coded 1; e.g., the car, the juice pitcher); making a mess or trashing a place (2).
Excessive maturity/Role reversal	0-1	A child character is taking an inappropriate parental role (e.g., separating the parents during a conflict).
Grandiose child	0-1	A child character is displaying excessive power or triumph.
Emotional incoherence to the positive	0-1	Incoherent/unexplained shift from negative to positive emotional content.
Emotional incoherence to the negative	0-1	Incoherent/unexplained shift from positive to negative emotional content.

Family dislocation	0-1	Definite separation of the family or disappearance of a family member.
Sudden onset of sleep	0-1	A character suddenly goes to sleep without explanation or logical/identifiable reason.
Denial of the conflict	0-2	The conflict introduced in the story is not addressed/acknowledged. Coded 1 if it is addressed after a reminder, coded 2 if it is not.
Passive refusal of empathy	0-1	A demand or a need is created for a character, but no one provides an answer or help. No active refusal.
Joy	0-4	Words or sounds associated with joy (0 = absence to 4 = really intense)
Fear	0-4	Words or sounds associated with fear
Sadness	0-4	Words or sounds associated with sadness
Worries	0-4	Words or sounds associated with worries/anxiety
Anger	0-4	Words or sounds associated with anger
<hr/> <i>Performance</i> <hr/>		
Emotional exacerbation	0-2	Overall emotional intensity displayed, from inhibition to exacerbation.
Emotional lability in the content	0-2	Overall level of emotional fluctuations as indicated by the content of the story.
Impulsivity	0-2	Level of impulsivity displayed while telling the story (0 = no impulsivity to 2 = high impulsivity).
Narrative coherence	0-10	Overall level of coherence and development of the story

Table 3  
Sociodemographic information of study participants

Variables	SA group	Comparison group	Statistical test
	<i>M (SD) /%</i>		
Age ( <i>n</i> = 127)	4.31 (1.03)	4.28 (0.80)	$t(125) = -0.18, p = .857$
Gender ( <i>n</i> = 127)			$\chi^2(1) = 0.11, p = .745$
Girls	82.3	80.0	
Boys	17.7	20.0	
Mothers' ethnicity ( <i>n</i> = 124)			$\chi^2(1) = 0.96, p = .328$
Caucasian	81.4	87.7	
Other	18.6	12.3	
Family structure ( <i>n</i> = 127)			$\chi^2(3) = 45.87, p < .001$
Family of origin	29.0	87.7	
Single-parent	48.4	10.8	
Other	22.5	1.5	
Maternal education ( <i>n</i> = 124)			$\chi^2(4) = 50.52, p < .001$
Elementary	5.1	0.0	
High School	42.4	3.1	
College*	30.5	15.4	
Undergraduate	16.9	43.1	
Graduate	5.1	38.5	
Annual family Income ( <i>n</i> = 117)			$\chi^2(1) = 41.73, p < .001$
Less than \$60 000 CAN	85.2	25.4	
\$60 000 CAN +	14.8	74.6	
	86.37		
Expressive vocabulary ( <i>n</i> = 127)	(14.31)	101.60 (13.98)	$t(125) = 6.07, p < .001$

\*College education in the Province of Quebec is between high school and university (12<sup>th</sup> to 14<sup>th</sup> years of education)

Table 4  
Bivariate analyses and regression analyses results for each story

Story	Code	Bivariate Statistical Test	Regression Results at the Final Step	
			$\beta/B$ ( $\Delta R^2/OR$ ) for CSA	Other significant variables
Spilled Juice	Blaming Others	$\chi^2(1) = 4.50^*$ $t(125) = -$	-0.91* (0.40)	--
	Denial	2.82**	.09 (.02)	Vocabulary (-), age (-), gender (+ boys)
	Joy	$t(125) = -2.06^*$	.18* (.03)	--
Injured Knee	Empathy/Help/Comfort	$\chi^2(1) = 8.55^{**}$ $t(125) = -1.21^*$	-0.76 (0.47)	Vocabulary (+), age (+)
	Denial	$t(125) = -2.62^*$	.12 (.01)	Age (-)
	Worries	$t(125) = 2.40^*$	.20** (.05)	Gender (+ boys)
	Emotional Content Liability	$t(125) = 3.27^{**}$	-.23* (.04)	--
	Narrative Coherence		-.18 (.03)	Vocabulary (+), age (+)
Fear of the Monster	Empathy/Help/Comfort	$\chi^2(1) = 6.09^*$	-1.23* (0.29)	--
	Affection	$\chi^2(1) = 7.34^{**}$	-1.09** (0.34)	--
	Denial	$t(125) = -2.38^*$	.10 (.01)	Vocabulary (-), age (-)
	Narrative Coherence	$t(125) = 3.49^{**}$	-.22* (.04)	Age (+)
Scary Dog	Empathy/Help/Comfort	$\chi^2(1) = 8.60^{**}$	-1.21** (0.30)	Age (+)
	Sudden Onset of Sleep	$\chi^2(1) = 3.88^*$ $t(124) = -$	-18.48 (0.00)	--
	Denial	3.17**	.28** (.08)	Age (-)
	Joy	$t(124) = 2.15^*$ $t(124) =$	-.19* (.04)	--
	Narrative Coherence	4.27***	-.36*** (.13)	Age (+)
Separation/Reunion	Affiliation	$\chi^2(1) = 4.04^*$	-0.87* (0.42)	Age (+)
	Denial	$t(125) = -2.42^*$	.12 (.01)	Vocabulary (-), age (-), gender (+ boys)
	Impulsivity	$t(125) = -2.20^*$	.20* (.04)	Gender (+ boys)
	Narrative Coherence	$t(125) = 2.6^{**}$	-.18 (.03)	Vocabulary (+), age (+)
	Empathy/Help/Comfort	$\chi^2(1) = 15.16^{***}$	-1.05* (0.35)	Vocabulary (+)
Conflict with a Friend	Blaming Others	$\chi^2(1) = 7.54^{**}$	-0.73 (0.48)	Vocabulary (+), age (+), gender (+ girls)
	Passive Refusal of Empathy	$\chi^2(1) = 5.01^*$	0.47 (1.60)	--
	Sudden Onset of Sleep	$\chi^2(1) = 3.88^*$	1.29 (3.65)	--
Lost Keys	Emotional Content Liability	$t(123) = 2.43^*$	-.21** (.05)	--
	Excessive Maturity/Role			
Cancelled Activity	Inversion	$\chi^2(1) = 5.13^*$ $t(125) = -$	-18.75 (0.00)	--
	Denial	2.99**	.23* (.04)	--
	Narrative Coherence	$t(125) = 2.87^{**}$	-.20* (.03)	Age (+)
Family Fun	Emotional Content Liability	$t(124) = 2.39^*$	-.21* (.04)	-

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

Table 5  
ANCOVAs results for the complete narrative task

Codes	SA group		Comparison group		Group	Age	Vocabulary	Gender	Gender x Group
	Girls <i>M (SD)</i>	Boys <i>M (SD)</i>	Girls <i>M (SD)</i>	Boys <i>M (SD)</i>					
Empathy/Help/Comfort	2.63 (1.71)	2.00 (1.73)	3.60 (1.33)	3.08 (1.26)	4.10*	16.11***	5.00*	6.31*	0.01
Denial	6.35 (3.22)	6.82 (2.79)	4.35 (1.87)	5.23 (2.92)	3.75	30.43***	8.74**	5.21*	0.26
Passive Refusal of Empathy	2.29 (1.97)	2.91 (2.30)	1.67 (1.53)	1.92 (1.80)	1.17	3.17	3.17	2.06	0.13
Emotional Content Labilty	5.96 (3.41)	7.00 (3.46)	7.85 (2.47)	7.38 (3.38)	1.78	5.49*	0.28	0.00	1.19
Narrative Coherence	44.08 (13.03)	39.36 (15.60)	52.31 (9.04)	48.54 (12.72)	5.00*	25.84***	7.86**	7.34**	0.01

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .