Does the Type of Abuse Matter? Study on the Quality of Child Attachment Narratives in a Sample of Abused Children

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Abstract Child abuse has been associated with the development of insecure-disorganized patterns of attachment. However, the way in which different types of abuse relate to variations in attachment representations is not entirely clear. Thus, the objective of this study was to determine the relationship between three types of abuse (sexual abuse, physical abuse, and neglect) and the quality of child attachment representation, as assessed through attachment narratives. The results indicate that abuse in general, as well as each of its typologies in particular, is associated with insecure-disorganized attachment narratives. No differences were observed in the association between each individual type of abuse and the quality of attachment narratives, as well as between the number of abuse experiences and the quality of attachment. The findings are discussed from attachment theory and the literature on child development and maltreatment.

Keywords Sexual abuse · Physical abuse · Neglect · Attachment representation

The formation of attachment relationships is an evolutionary outcome considered a major milestone in human psychological development (Sroufe et al. 2005). Both the theory and the empirical evidence suggest that the quality of child attachment

mainly depends on the characteristics of parental care during childhood (Ainsworth et al. 1978; Bowlby 1969/1998; Weinfield et al. 2008). If caregivers are sensitive to the child's care demands and respond contingently through physical closeness, providing protection and emotional well-being in situations in which the child feels threatened, it is highly likely that the child will develop secure attachment patterns (Ainsworth et al. 1978; Pasco Fearon and Belsky 2016). If caregivers reject or respond inconsistently to the activation of the child's attachment behaviors, the secure attachment strategy fails. In order to maintain the bond and closeness with the caregiver, the child would implement secondary attachment strategies such as deactivation or hyperactivation of the system that regulates attachment behaviors (Main 1990). If the parents' responses are chaotic or threatening, the child would not be able to establish an organized attachment strategy (Main 1990; Main and Hesse 1990). Repetition of these interaction patterns generates expectations in the child, favoring the development of mental representations of his or her self, of the caregiver, and of the relationship between them. This representational system or Internal Working Model (IWM) of attachment will allow him or her to interpret and anticipate the behavior of others and control his or her own behaviors (Bretherton and Munholland 2016). Considering that the configuration of the attachment representations depends on the particularities of the interaction between the caregiver and the child, it has been suggested that the characteristics of these mental representations will be in accordance with the attachment strategy developed by the child (Miljkovitch et al. 2004). This would imply that the organization of the IWM that guides the interpretation of information, as well as the thoughts, emotions, and behaviors related to attachment, will have specific characteristics depending on the attachment strategy developed by the child (Miljkovitch et al. 2004; Miljkovitch and Pierrehumbert 2008).

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It is widely accepted that child abuse constitutes an alteration in the parental care that adversely affects attachment quality (Cicchetti 2016), favoring the development of insecure, generally disorganized, attachment patterns (Baer and Martinez 2006; Carlson et al. 1989; Cyr et al. 2010; Howe 2005). Abuse would not only affect behavioral aspects related to attachment (behavior patterns and attachment strategies), but also the psychological processes involved, like defensive processes and mental representations of attachment (Fresno et al. 2012; Howe 2005). Nevertheless, the relationship between certain characteristics of abuse, such as the typologies of the abuse, and the organization of attachment is not entirely clear. In most of these studies, abuse has been considered as a broad category, which has not allowed observing in detail the relationship between these two variables (Baer and Martinez 2006; Carlson et al. 1989; Cyr et al. 2010; Pickreing Stronach et al. 2011).

Studies focused on the psychological effects of abuse show specific associations between particular types of abuse (sexual, physical, or neglect) and psychological, social, and health problems (Berliner 2011; Cicchetti and Toth 2005; Corwin and Keeshin 2011; Farrell Erickson and Egeland 2011; Finkelhor et al. 2007). Considering these particular associations, it would be reasonable to ask whether different types of abuse could be related specifically to differences in the attachment quality. The few studies that have explored this subject in children show heterogeneous results (Baer and Martinez 2006; Cyr et al. 2010; Hodges et al. 2000; Pickreing Stronach et al. 2011; Toth et al. 1997, 2000; Waldinger et al. 2001).

Regarding attachment narratives and different types of abuse (sexual, physical, and neglect), Toth et al. (1997) ($N = 107$) reported that physically abused children had more negative maternal representations compared to neglected and sexually abused children and to the control group. Victims of sexual abuse had more positive self-representations than neglected children. Physically abused children showed more negative self-representation than the non-abused group. In a study considering the same typologies of abuse, Toth et al. (2000) ($N = 126$) only found an association between certain types of abuse and the non-abused group of children, but no differences were found within the different types of abuse groups. They observed that victims of physical abuse reported less positive and more negative representations of parents in their narratives, along with more grandiose self-representations, than non-abused children. Children victims of neglect have more negative self-representations than non-abused children. Waldinger et al. (2001) ($N = 71$) showed that physically abused children express less desire to be close to others than sexually abused children. The sexually abused group refers to being appreciated by “others” with more frequency than physically abused children, victims of neglect, and the non-abused

group. Finally, children victims of neglect represented the others as wounded, sad, and anxious individuals more often than those who suffered the other two types of abuse and the non-abused group. Pickreing Stronach et al. (2011) ($N = 123$ mother-preschooler dyads) considered the relationship between different types of abuse and the organization of attachment behaviors, as well as the qualitative characteristics of the attachment narratives of preschool children. The attachment organization was assessed by an adaptation of the Strange Situation Procedure and the outcome was operationalized into attachment categories (secure, avoidant, anxious ambivalent, and disorganized). The results indicated that abused children presented lower levels of secure attachment and higher levels of disorganized attachment compared to non-abused children. Regarding attachment narratives, children reported less positive global representations of the mother-child relationship than non-abused children. No association was found between different types of abuse and attachment organization.

These results describe an association between different types of abuse and some aspects of attachment narratives related to attachment insecurity. However, they are less conclusive when different types of abuse were compared. It should be noted that the characteristics of the narratives of attachment considered in these studies are related to the quality of attachment (Toth et al. 1997). Nevertheless, they do not represent a conclusive descriptor of attachment organization as a stable behavioral pattern like the attachment behavior described in the Strange Situation Procedure considered in the Pickreing Stronach et al. (2011) study. In this research, no significant differences were found in relation to attachment organization across different types of abuse.

Regarding the number of maltreatment experiences, it has been pointed out that the co-occurrence of different types of abuse is a risk factor for developmental and mental health problems (Cicchetti and Toth 2016; Finkelhor et al. 2007). However, no differences related to the number of abuse and the characteristics of the attachment representations within the group of abused children has been reported (Pickreing Stronach et al. 2011).

These results may suggest that the organization of attachment is disturbed by abuse in general regardless of the type of abuse or the frequency of its occurrence. However, it is also possible that these results reflect the fact that the categorical approach used to assess attachment might not be suited for the detection of variations in attachment organization. These variations could potentially be detected using a methodology that is more sensitive to inter-individual differences, like a dimensional approach (Cummings 2003). Another explanation for the results concerning the differences between types of abuse in the Pickreing Stronach’s study could be the fact that the physical and sexual abuse typologies were collapsed in only one category, which made it impossible to identify any difference in attachment quality between these two types of abuse.

Considering that the association between abuse types and attachment quality is not entirely conclusive, the present study aims to determine the relationship between different types of abuse (physical abuse, sexual abuse, and neglect) and the quality of child attachment representations through an analysis of attachment narratives operationalized in categorical and in dimensional terms. The main hypothesis is that abused children have attachment representations with higher levels of insecurity than non-abused children, regardless of whether the attachment is reported in categories or dimensions. Moreover, it is expected that this association will remain when each typology of abuse is considered separately. Additionally, differences in the association between type of abuse and the quality of attachment, as well as between the number of maltreatments and the quality of attachment are expected.

Method

Sample

This study included 96 children of low socioeconomic status (44 girls and 52 boys; mean age = 6 years, $sd = 1.2$, age range 3.4–8 years). Convenience sampling allowed the organization of the sample into two groups: victims of abuse and children not believed to be victims of abuse. The study group included children identified as victims of some type of abuse (sexual abuse, physical abuse, or neglect) by child protective service professionals employed by the government of Chile (National Service for Minors, SENAME). A modified Maltreatment Classification System (English and the LONGSCAN Investigators 1997) was used to identify the abuse experienced by participants. The information used to determine abuse and its classification in typologies was extracted from SENAME databases. Although co-occurrence of different types of abuse is common, exclusive groups that would allow identification of a typology of preferential abuse to determine its effect on attachment were defined (Toth et al. 1997, 2000; Waldinger et al. 2001). Thus, three subgroups were formed: child victims of primarily sexual abuse ($n = 18$); child victims of primarily physical abuse ($n = 15$); and child victims of primarily neglect ($n = 18$). The first group included children victims of sexual abuse that may or may not have experienced physical abuse and/or neglect. The second comprised child victims of physical abuse without sexual abuse who may have experienced neglect. The children in the third group had no reported history of sexual abuse or physical abuse, only of neglect. Although emotional abuse might have been present in this sample, it was not considered, as there were no explicit records of this type of abuse. During the study, the abused children were involved in public programs that provided psychological care in cases of child abuse. In order to control the possible effects of psychological intervention, the narratives

of children in this group were assessed before they started their psychotherapy process. The control group comprised 48 children without known histories of abuse and of similar age and socioeconomic background as the children in the study group. Socioeconomic status is relevant because insecurity, particularly disorganized styles of attachment, increases with lower socioeconomic status (van IJzendoorn and Kroonenberg 1988). Children in the control group were recruited from public educational establishments, and the condition of not having experienced abuse was met based on the judgment of school management and teachers. For this reason, the group is referred to as having “no suspicion of abuse”; it is not possible to ascertain that there is no abuse in their homes. Children with intellectual disability, developmental disorders, or previous clinical diagnosis that could affect their performance in the evaluation were excluded from both groups.

This study was approved by the Committee on Bioethics of the University of Talca in accordance with the provisions laid down by the National Fund for Science and Technology (Fondo Nacional de Ciencia y Tecnología, FONDECYT) of the Government of Chile. For children to participate in the study, responsible adults had to sign an informed consent describing the characteristics of the research, its procedures, and the measures taken to safeguard the children’s welfare. If the adult authorized child participation, an informative session was held in which the child was asked explicitly whether he or she wished to participate in the study, and the child’s response was recorded in a written agreement form. Only the children who explicitly agreed to participate were included in the study.

Measurement

Attachment representations were assessed using the Attachment Story Completion Task (ASCT) (Bretherton et al. 1990), which requires children to complete five stories with the help of figures that represent a family. The themes of the stories are designed to trigger attachment representations and feelings in the children. The activity is filmed and lasts approximately 30 min. The ASCT was applied by psychologists trained in this instrument, and the narratives were analyzed with the Q-sort A.S.C.T. coding system (Miljkovitch et al. 2004). This method allows the examination of attachment narratives through three elements: the content of the stories, the manipulation of the figures, and the relationship established by the child with the evaluator during the activity. Attachment representation quality is described by four attachment dimensions that depict the representational level of attachment strategies: security, deactivation, hyperactivation, and disorganization. Each participant receives a score in each of the four dimensions. For encoding, an observer watched the video and then characterized the child’s narrative (verbal and scenic) through a series of 65 cards that describe various

aspects of the narrative, classifying cards using the Q-sort methodology (e.g., card 16: Authority is exercised by the parental figures and not the child protagonist; card 24: The child clearly differentiates between generations (i.e., parental and child roles)). In the first classification, the observer compared the content of each card to the video, sorting the cards freely into three columns (true, neither true nor false, false). After a second viewing of the video, the observer arranged the cards into seven categories: very true, true, less true, neither true nor false, less false, false, or very false. Each category assigns a value to the card (very true = 7, true = 6, less true = 5, neither true nor false = 4, less false = 3, false = 2, very false = 1). The third step entailed a “forced classification” wherein a certain number of cards must be placed in each category to simulate a normal curve (very true, 5 cards; true, 8 cards; less true, 12 cards; neither true nor false, 15 cards; less false, 12 cards; false, 8 cards; very false, 5 cards). Each card was scored according to the values described above. To calculate the “Q” index, a correlation is computed between the scores obtained by each participant, with each of the four “prototypes” created by experts for each dimension of attachment (secure, deactivated, hyperactivated, and disorganized). This method allows observation of how closely the narrative matches the archetype of each dimension. Q scores were converted into T scores for statistical analysis and to determine attachment categories.

The results were then operationalized into four attachment categories, secure, deactivated, hyperactive, and disorganized, by analysis of the scores from the disorganization dimension expressed as T scores. The child was classified as displaying a disorganized attachment strategy if the score in this dimension was 1.5 standard deviations above the average ($T > 65$), regardless of the score in the other dimensions. If the T score in the disorganization dimension was below 65, the security dimension was analyzed. If the score in this dimension was less than 0.5 standard deviations below the average ($T > 45$), the child was classified as displaying secure attachment strategy. Subsequently, in those cases in which the T scores were below 45 in the security dimension and below 65 in the disorganization dimension, the child was classified as displaying deactivated or hyperactivated attachment strategies, depending on which T score was highest (Zaouche-Gaudron and Pierrehumbert 2008). For example, a participant who has the following T scores in the four dimensions of attachment, secure = 55, deactivated = 30, hyperactivated = 25, disorganized = 75, will be classified as disorganized, because his score in this dimension exceeded 1.5 standard deviations ($T > 65$). If the T score of the disorganized dimension had been 50, the participant would have been classified in the secure category, because his score in the disorganized dimension is below 1.5 standard deviations and the score in the secure dimension is more than 45. If the T score of the disorganized dimension had been 50 and the secure score under 45

(e.g. $T = 40$), the subject would have been classified in the deactivated category, since this dimension has a higher score ($T = 30$) than that of the hyperactivity dimension ($T = 25$). The Q-sort A.S.C.T. has been used in transcultural studies, including Spanish-speaking samples in Spain and Chile (Pierrehumbert et al. 2009). Narrative codification was performed by two blind evaluators who were psychologists trained in this analysis system. According to the intraclass correlation coefficient, the interrater agreement in this study was 0.94, 0.95, 0.87, and 0.89 for each attachment dimension.

Child abuse was assessed using the Modified Maltreatment Classification System, (M.M.C.S) (English and the LONGSCAN Investigators 1997), which classifies child abuse based on consensual typologies. In this case, the instrument was used to identify sexual abuse, physical abuse, and neglect. Therefore, the number of abuses that a child could present may vary from one to three abuses. Information on each child was obtained from the files of child protection centers and then compared to the instrument’s descriptors of each type of abuse for classification.

Procedure

With the sponsorship of SENAME and the collaboration of the CRATE Foundation, the researchers were able to access the child protection centers that assist victims of child abuse in Chile. Center staff were asked to select those children who in their records had stated that they had experienced at least one of the three types of abuse considered and to contact their caregivers. Written informed consent and assent were given in the presence of a professional from the institution who acted as a witness of faith. The children were evaluated in SENAME centers or in their schools. Simultaneously, information from the data files of the SENAME centers was collected to determine the types of child abuse experienced. Information on the children in the control group was obtained through their teachers or school management.

Data Analysis

Chi-square tests were performed to determine the relationship between abuse and the quality of attachment, operationalized into categories. When the expected frequency was less than five in more than 20% of the boxes, Fisher’s exact test was used to calculate the significance of the association between categorical variables in small samples (Field 2009). Effect size is also reported using Cramer’s V test, (reference values: .1 = small, .3 = medium, .5 = large) (Cohen 1988). Due to the sample size, the attachment variable was dichotomized in two categories in three different ways, secure vs. insecure, secure vs. disorganized, and disorganized vs. others attachments (organized attachments strategies: secure, deactivated, and hyperactivated). The reason to considered disorganized

category versus secure and others categories of attachments is to observe exhaustively the relationship between disorganization and abuse as has been done in previous studies (Cyr et al. 2010). The abuse variable was categorized by type of abuse to examine the relationship between the different types of abuse and attachment. First, each type of abuse was tested against the non-abused category and its relationship with the dichotomized attachment variable. Next, the relationship between the different types of abuse and the dichotomized attachment variable was analyzed as well.

To determine the relationship between types of child abuse and attachment quality operationalized in dimensions, the following tests were used ANOVA, Brown-Forsythe, Welch, Tukey's, and effect size through the omega square. The Mann-Whitney U-test was used when nonparametric tests were required. The association between number of maltreatments and attachment operationalized in dimensions was determined by correlation analysis and mean differences. Finally, to test the possible influence of cognitive maturation on the quality of the narratives, mean difference analyses were carried out (Pierrehumbert et al. 2009). The analyses were performed using SPSS (v. 17).

Results

The association between abuse (abuse vs. non-abuse) and attachment (secure vs. insecure) was significant ($\chi^2(1) = 4.55$, $p < .05$), with a Cramer's V of .22, indicating a small effect size. Also a significant association was observed between abuse (abuse vs. non-abuse) and the frequency of disorganized versus secure attachment ($\chi^2(1) = 14.89$, $p < .001$), with a medium effect size (Cramer's V of .42), and between disorganized versus other attachment categories ($\chi^2(1) = 17.61$, $p < .001$) with a medium effect size (Cramer's V of .42) (Table 1).

Table 1 Frequency of attachment categories in groups of abused and non-abused children

Cat. attachment	Abused		Non-abused		$\chi^2(1)$	Cramer's V
	n	%	N	%		
Secure	26	41.9	36	58.1	4.55*	.22
Insecure	22	64.7	12	35.3		
Secure	26	41.9	36	58.1	14.89**	.42
Disorganized	19	90.5	2	9.5		
Disorganized	19	90.5	2	9.5	17.61**	.43
Others Attachment	29	38.7	46	61.3		

* $p < .05$, ** $p < .001$

No association was found between different types of abuse and attachment when each type of abuse was compared separately to the non-abuse category and the attachment quality was categorized as secure vs. insecure. Nevertheless, when the disorganization attachment category was considered (secure vs. disorganized, disorganized vs. other attachments), a higher frequency of disorganized attachment was observed in every type of abuse compared with the non-abused category, with a medium effect size in the case of physical abuse and neglect, and a large effect size in the case of sexual abuse (Table 2). There was no significant association between any type of abuse and secure versus insecure attachment ($\chi^2(2) = .336$, $p = .845$), secure versus disorganized attachment ($\chi^2(2) = .765$, $p = .682$) or disorganized vs. others attachments ($\chi^2(2) = 1.307$, $p = .520$).

Table 3 shows a significant relationship between abuse (abused vs. non-abused) and both hyperactivated and disorganized attachment, with higher scores for each dimension in the abused group. A medium effect size for hyperactivated attachment ($w^2 = .11$, 95% CI [52.98, 59.08] and [46.44, 51.52]) and a large effect size for disorganized attachment ($w^2 = .18$, 95% CI [55.83, 62.36] and [47.47, 52.17]) were observed. When the mean of the attachment dimensions were compared between each type of abuse and the non-abuse category, a significant difference between groups was observed only for the hyperactivated attachment ($F(3,92) = 5837$, $p < .01$, Brown-Forsythe $p < .01$, Welch $p < .01$) and disorganized attachment ($F(3,92) = 8.243$, $p < .001$, Brown-Forsythe $p < .01$, Welch $p < .001$) dimensions. The Tukey test showed differences between the non-abused group and the physically abused group and between the non-abused group and the sexually abused group only in hyperactivated and disorganized attachment. The scores in these dimensions are higher for the physically and sexually abused children compared to the non-abused group. Finally, no differences in score means were found when the types of abuse were compared for secure ($F(2,45) = .118$, $p = .889$, Brown-Forsythe $p = .886$, Welch $p = .884$), deactivated ($F(2,45) = .002$, $p = .998$, Brown-Forsythe $p = .998$, Welch $p = .998$), hyperactivated ($F(2,45) = 1891$, $p = .163$, Brown-Forsythe $p = .171$, Welch $p = .260$), or disorganized attachment ($F(2,45) = 1.142$, $p = .328$, Brown-Forsythe $p = .331$, Welch $p = .345$).

Correlation analysis showed no association between the number of maltreatment and attachment quality in any of the four dimensions (secure, $r = .087$, $p = .400$; deactivated, $r = -.035$, $p = .733$; hyperactivated, $r = -.159$, $p = .121$; disorganized, $r = -.176$, $p = .086$). No association was found either when the means of the scores of the four dimensions were compared between subjects who experienced one, two, or three types of abuse (secure, Brown-Forsythe $p = .806$, Welch $p = .751$; deactivated, Brown-Forsythe $p = .819$, Welch $p = .833$; hyperactivated, Brown-Forsythe $p = .111$, Welch $p = .155$; disorganized, Brown-Forsythe $p = .154$, Welch $p = .128$).

Table 2 Frequency of attachment categories in children grouped by type of abuse (physical, sexual, neglect) vs non-abused children

Attachment categories	Secure						Disorganized						Others attachments					
	n (%)	Insecure n (%)	χ^2 (1)	Cramer's V	Secure n (%)	Disorganized n (%)	χ^2 (1)	Cramer's V	Disorganized n (%)	Others attachments n (%)	χ^2 (1)	Cramer's V	Disorganized n (%)	Others attachments n (%)	χ^2 (1)	Cramer's V	Disorganized n (%)	Others attachments n (%)
Sexual	9 (20)	9 (81.8)	3.77	ns	9 (20)	9 (81.8)	15.48 ^{a***}	.53	9 (81.8)	9 (16.4)	19.8 ^{a***}	.55	9 (81.8)	9 (16.4)	19.8 ^{a***}	.55	9 (81.8)	9 (16.4)
Non-abused	36 (80)	12 (57.1)			36 (80)	2 (18.2)			2 (18.2)	46 (83.6)			2 (18.2)	46 (83.6)			2 (18.2)	46 (83.6)
Physical	9 (20)	6 (33.3)	1.26 ^a	ns	9 (20)	5 (71.4)	8.14 ^{a*}	.40	5 (71.4)	10 (17.9)	9.8 ^{a**}	.39	5 (71.4)	10 (17.9)	9.8 ^{a**}	.39	5 (71.4)	10 (17.9)
Non-abused	36 (80)	12 (66.7)			36 (80)	2 (28.6)			2 (28.6)	46 (82.1)			2 (28.6)	46 (82.1)			2 (28.6)	46 (82.1)
Neglect	8 (18.2)	7 (36.8)	2.54 ^a	ns	8 (18.2)	5 (71.4)	9.01 ^{a**}	.42	5 (71.4)	10 (17.9)	9.8 ^{a**}	.39	5 (71.4)	10 (17.9)	9.8 ^{a**}	.39	5 (71.4)	10 (17.9)
Non-abused	36 (81.8)	12 (63.2)			36 (81.8)	2 (28.6)			2 (28.6)	46 (82.1)			2 (28.6)	46 (82.1)			2 (28.6)	46 (82.1)

ns = not significant. * $p < .05$, ** $p < .01$, *** $p < .001$. ^a Fisher's exact test

Finally, considering the sample range of age, to determine the possible influence of cognitive maturation on narratives quality, the whole sample was divided into two groups, below and above the median of age (Median = 70.5 months). The mean scores in the four attachment dimensions were compared using Brown-Forsythe and Welch test. No associations were found between age and attachment dimensions scores (secure, Brown-Forsythe $p = .676$, Welch $p = .676$; deactivated, Brown-Forsythe $p = .991$, Welch $p = .991$; hyperactivated, Brown-Forsythe $p = .096$, Welch $p = .096$; disorganized, Brown-Forsythe $p = .267$, Welch $p = .267$).

Discussion

The results of this study indicate that child abuse and its typologies are associated with insecure attachment narratives, mainly of disorganized type, from both a categorical and a dimensional attachment approach. This implies that, in response to situations that trigger attachment, as would be the case of ASCT stories, child abuse victims are more likely to deploy narratives guided by disorganized representational strategy. The narratives of these children were characterized by the development of stories marked by loss of control and catastrophic endings, where the main characters were portrayed as helpless and powerless, or deploying violent strategies of control. Narratives were generally disorganized and incoherent, without a clear logical sequence. During the evaluation, the child was sometimes inhibited or very anxious, and on many occasions it was observed that he/she hits the figures without a clear narrative purpose. Moreover, dimensional analysis allowed detecting that narratives of abused children had characteristics associated with hyperactivated representational strategy in a higher degree than did non-abused children. This implies that children in the abused group had higher levels of anxiety that disrupted their ability to engage in play activity and a higher level of focus on negative aspects in their narratives than children not abused. This disruption in the play is consistent with the reported difficulties of children classified with ambivalent anxious attachment in Strange Situation Procedure (Ainsworth et al. 1978).

From the perspective of attachment theory, the dominance of narratives that describe negative representations in abused children is consistent with the postulates of this developmental approach. It has been suggested that in situations of abuse perpetrated by caregivers, children develop negative representations of the self and others, representing themselves as incompetent and helpless, and the world as a threatening place (Howe 2005). In this study, the negative evaluation of the self is observed, for example, in stories where the child was represented as deserving punishment or blows. The negative evaluation of others is evidenced in stories where, for example, all characters died, or where no one can prevent a monster

Table 3 Analysis of variance for the effects of child abuse (sexual abuse + physical abuse + neglect) in the four attachment dimensions in terms of the *t* score, Brown-Forsythe test, Welch, U Mann-Whitney and effect size (w^2)

Dimensions of attachment		M	SD	Range Confidence		<i>F</i> (1,94)	<i>p</i>	Brown-Forsythe	Welch	w^2
				Inf.	Sup.					
Security	Abused	49.6	9.2	46.93	52.26	1.146	.29	ns	ns	.00
	Non-abused	51.8	11.2	48.59	55.07					
Deactivation	Abused	49.0	7.7	46.73	51.22	.052	.82	ns	ns	.01
	Non-abused	48.5	10.4	45.54	51.57					
Hyperactivation	Abused	56.0	10.5	52.98	59.08	12.762	.00**	.00**	00**	.11
	Non-abused	49.0	8.7	46.44	51.52					
Disorganization	Abused	59.1	11.2	55.83	62.36	21.507	.00 ^b **			.18
	Non-abused	49.8	11.2	47.41	52.17					

Confidence interval = 95%. * $p < .05$; ** $p < .01$. ^b Significance Mann-Whitney *U* test. ns = not significant

from devouring the main character of the story. The preponderance of negative aspects in the attachment narratives are similar to those reported by other studies with samples of abused children (Clayman 2003; Pickreing Stronach et al. 2011; Toth et al. 1997; Toth et al. 2000; Waldinger et al. 2001).

We believe that the dominance of negative aspects of the self and the other, as well as the inconsistencies in the logical sequences of the stories, and the impulsive or erratic behaviors perceived in the narratives of abused children would be related to segregation of the representational attachment system (Bowlby 1980/1993). This particular defensive process implies that in situations of abuse, multiple representations of the self and the other, not integrated and inconsistent with each other, are generated and stored in different memory systems, which may or may not be connected. When the attachment system is activated, these segregated representational models would access the consciousness in an alternating way, allowing contradictory behavior and communication (Howe 2005). Thus, it can be argued that the narrative production of abused children categorized as disorganized could be the manifestation of multiple representations of attachment stored in different representational systems resulting from the segregation of the attachment system due to abuse experiences. On the other hand, the anxiety reported in disorganized and hyperactivated attachment narratives would be related to the activation of negative emotions associated with the negative representations of the self and the other product of maltreatment experiences. According to Bowlby (1980/1993), negative representational models would have been excluded from consciousness as a strategy for dealing with the emotional suffering involved in feeling threatened or abandoned by their attachment figures. From this assumption, it is reasonable to argue that when the excluded representational models are activated and access to consciousness, anxious states related to these representations are also present. From another perspective, it is possible that anxiety could be related to the emotional deregulation caused by an alteration in the stress regulation system due to the exposure to permanent stressors, as would

be the case in maltreatment experiences (Cicchetti 2016). These alterations in stress regulation result in children with high anxiety levels whose stress increases when faced with new situations or stimuli, affecting their overall performance (attention, memory, learning, etc.) (Brown et al. 2014; Cicchetti and Toth 2005; Ford 2009).

The results of our study regarding the overrepresentation of disorganized narratives are in agreement with the studies that have reported a greater proportion of disorganized attachment patterns. This concordance is supported by the similar quality of attachment reported in different samples with abused children (disorganized attachment), and by the theoretical assumption that behaviors and representations of attachment are two manifestations of the same psychological construct (Baer and Martinez 2006; Carlson et al. 1989; Cyr et al. 2010; Howe 2005). This indicates that child maltreatment would be associated with both disorganized behavioral attachment patterns as well as the development of disorganized representational strategies.

Regarding the typologies, as well as the number of abuses and their relation with the quality of the representations of attachment, no association between different types of abuse and the quality of attachment narratives was observed in both categorical and dimensional terms. Similarly, no association was found between the number of maltreatments and the quality of the narratives. These results are consistent with the findings of Pickreing Stronach et al. (2011) regarding the organization of attachment, but are different from those reported on the relationship between types and number of abuses with psychopathological symptoms (Berliner 2011; Cicchetti and Toth 2005; Corwin and Keeshin 2011; Farrell Erickson and Egeland 2011; Finkelhor et al. 2007).

From a bioecological perspective of development, close interactional processes involved in psychological development, like the characteristics of parental care, can be specifically related to different developmental outcomes (Bronfenbrenner and Morris 2006; Cicchetti 2016; Cicchetti and Toth 2016). Thus, it is possible that maltreatment is

particularly associated with the development of attachment and, in a different way, with the manifestation of certain specific psychopathological symptoms more directly associated with the characteristics of a particular type of maltreatment (e.g. sexual abuse, $\rightarrow$ intrusive PTSD symptoms). Regarding the quality of attachment, child abuse, independent of its typology and number of abuses, can in itself imply a “sufficient” disturbance of the parental behaviors involved in the configuration of attachment, favoring the development of a disorganized attachment. For example, maltreatment behaviors would generate feelings of fear and threat in the child, which would prevent them from establishing an organized attachment strategy by simultaneously activating incompatible behavioral systems such as attachment and fear (Main and Hesse 1990). Moreover, the types of maltreatment and their number can be conceived as proxy variables of disturbed communication patterns in the parent-child relationship (intrusive, self referential, helpless, and fearful parental behaviors), which would be the interactions involved in the development of disorganization (Lyons-Ruth et al. 1999).

With respect to the discrepancies between our results and those reported by Toth et al. (1997), where associations were established between some characteristics of the attachment representations and certain types of abuse, we propose that this may be due to the fact that the representational aspects considered, although they are part of the same psychological construct (IWM), correspond to levels of analysis different from those considered in this study. In Toth et al.'s (1997) study, the representation of the self or of the other was evaluated as separate representational components, which does not necessarily allow for considering the organization of the IWM as a whole. The coding system used in the present study allows us to characterize representational strategies as an organized representational system that directs behavior in a particular way. The classification of the attachment representational strategy includes the evaluation of the positive and negative characteristics of the self and the other, as well as the coherence of the narrative and the resolution of the stories (Miljkovitch et al. 2004). Therefore, by focusing the analysis on separate components (e.g. self and other), it would be possible to detect associations with certain types of abuse, because specific parental care events could be stored in mental schemes closer to the direct experience (Bretherton and Munholland 2016). However, it may be that the global organization of the representational model could be similar between different types of abuse, independent of some variations in the representation of its components. This would explain that in this study, and in that of Pickreing Stronach et al. (2011), no differences were found between types of maltreatment by considering attachment as an organized attachment system.

Despite the contributions of this study to the understanding of the relationship between abuse and attachment

representation, some limitations should be mentioned. First, although the size of our sample was similar to most studies on the relationship between abuse and attachment in children (Cyr et al. 2010; Fresno et al. 2012), the sample size was relatively small. On the other hand, the data collected correspond to abuse experiences that were sufficiently evident (or serious) to be detected by the Chilean protection service. Caution is required in generalizing these results to other populations of child victims of abuse. Second, only three types of abuse were considered, so it is not known whether there would be differences in the attachment quality when other types of abuse are considered. For example, psychological abuse, which is present in most cases of abuse, includes parental behaviors that make the child feel unloved, rejected, frightened, or valued only when he meets the needs of others (Hart et al. 2011). Behaviors such as spurning, terrorizing, isolating, and denying emotional responsiveness to the child (Hart et al. 2011) negatively affect key aspects of attachment involved in the development of secure attachment (Main and Hesse 1990; Cicchetti and Toth 2016; Fresno et al. 2012; Lyons-Ruth et al. 1999). Even though we agree that psychological abuse is relevant to study the relationship between abuse and attachment, we were unable to consider it because it was not recorded clearly in the databases that we used. Another limitation is that there is no absolute certainty that the children in the comparison group did not experience abuse, since the information used to include these children came from teachers and school employees.

Additionally, the severity of the abuse experienced by these children (potential damage, frequency, duration) was not considered, so it is not possible to conclude that a specific type of abuse affects attachment uniformly, regardless of its severity. Furthermore, this study did not consider variables that can influence parental practices and in this way influence the attachment of the child (Pasco Fearon and Belsky 2016). Finally, the study design was cross-sectional, so it is not possible to establish a causal relationship between the studied variables.

In order to gain deeper insight into the relationship between abuse and attachment, we suggest that future studies consider abuse as a complex variable including aspects related to the severity of the abuse (frequency, duration, perpetrator, co-occurrence, degree of harm, etc.). Regarding the types of maltreatment, the consideration of psychological abuse is relevant. It has been shown that this kind of maltreatment is a key factor that allows a better understanding of the relationship between child abuse and subsequent psychological problems (de Araújo and Lara 2016; Dias et al. 2015; Hart et al. 2011; Nanda et al. 2016; Paul and Eckenrode 2015).

With regards to attachment in particular, it would be relevant to consider instruments that assess the various aspects related to attachment, as its pattern of organization, the characteristics of mental representations, and defensive processes,

in combination with the measurement of physiological stress markers. Research should also consider aspects of the proximal and distal context that influence the exercise of parenting, like those related to the characteristics of parents and the characteristics of the environment where the family resides (Cicchetti and Toth 2016; Pasco Fearon and Belsky 2016). Child abuse is a phenomenon that affects psychological development, nevertheless, the manner in which this occurs is not yet completely understood. Research on the effects of maltreatment is still necessary to gain insight into this matter, as well as to improve policies that protect and promote children's wellbeing.

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Compliance with Ethical Standards

Conflict of Interest Andrés Fresno declares that he has no conflict of interest.

Rosario Spencer declares that she has no conflict of interest.

Camila Espinoza declares that she has no conflict of interest.

Ethical Standards and Informed Consent All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation [institutional and national] and with the Helsinki Declaration of 1975, as revised in 2000. Informed consent was obtained from all patients for being included in the study.

References

- Ainsworth, M. D. S., Blehar, M. C., Waters, E., & Wall, S. (1978). *Patterns of attachment: A psychological study of the strange situation*. Hillsdale: Erlbaum.
- Baer, J. C., & Martinez, C. D. (2006). Child maltreatment and insecure attachment: A meta-analysis. *Journal of Reproductive and Infant Psychology*, 24(3), 187–197. doi:10.1080/02646830600821231.
- Berliner, L. (2011). Child sexual abuse: Definitions, prevalence and consequences. In J. E. B. Myers (Ed.), *The APSAC handbook on child maltreatment* (3rd ed., pp. 215–232). New Delhi: SAGE Publications.
- Bowlby, J. (1969/1998). *El apego y la pérdida - 1. El apego* [Attachment and loss: Attachment]. Barcelona: Paidós.
- Bowlby, J. (1980/1993). *El apego y la pérdida: La pérdida* [Attachment and loss: Loss]. Barcelona: Paidós.
- Bretherton, I., & Munholland, K. A. (2016). Internal working model construct in light of contemporary neuroimaging research. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (pp. 63–90). New York: Guilford Press.
- Bretherton, I., Ridgeway, D., & Cassidy, J. (1990). Assessing internal working models of the attachment relationship. An attachment story completion task for 3-year-olds. In M. Greenberg, D. Cicchetti, & E. M. Cummings (Eds.), *Attachment during the preschool years* (pp. 273–308). Chicago: University of Chicago Press.
- Bronfenbrenner, U., & Morris, P. (2006). The bioecological model of human development. In R. M. Lerner (Ed.), *Handbook of child psychology, vol. 1: Theoretical models of human development* (pp. 793–828). Hoboken: John Wiley & Sons, Inc.
- Brown, A. D., Becker-Weidman, E., & Saxe, G. N. (2014). A developmental perspective on childhood traumatic stress. In M. J. Friedman, T. M. Keane, & P. A. Resick (Eds.), *Handbook of PTSD: Science and practice* (pp. 331–350). New York: The Guilford Press.
- Carlson, V., Cicchetti, D., Barnett, D., & Braunwald, K. (1989). Disorganized/disoriented attachment relationships in maltreated infants. *Developmental Psychology*, 25, 525–531. doi:10.1037/0012-1649.25.4.525.
- Cicchetti, D. (2016). Socioemotional, personality, and biological development: Illustrations from a multilevel developmental psychopathology perspective on child maltreatment. *Annual Review of Psychology*, 67, 187–211. doi:10.1146/annurev-psych-122414-033259.
- Cicchetti, D., & Toth, S. (2005). Child maltreatment. *Annual Review of Clinical Psychology*, 1, 409–438. doi:10.1146/annurev.clinpsy.1.102803.144029.
- Cicchetti, D., & Toth, S. L. (2016). Child maltreatment and developmental psychopathology: A multilevel perspective. In D. Cicchetti (Ed.), *Developmental psychopathology: Maladaptation and psychopathology* (Vol. 3, pp. 457–512). Hoboken: John Wiley & Sons, Inc.
- Clayman, R. (2003). Portrayals in maltreated Children's play narratives: Representations or emotion regulation? In R. N. Emde, D. P. Wolf, & D. Oppenheim (Eds.), *Revealing the inner worlds of young children: The Macarthur story stem battery and parent-child narratives* (pp. 201–221). New York: Oxford University Press.
- Cohen, J. (1988). *Statistical power analysis for the behavioral science* (2nd ed.). New York: Academic Press.
- Corwin, D. L., & Keeshin, B. R. (2011). Estimating present and future damages following child maltreatment. *Child & Adolescent Psychiatric Clinics of North America*, 20(3), 505–518. doi:10.1016/j.chc.2011.03.005.
- Cummings, E. M. (2003). Toward assessing attachment on an emotional security continuum: Comment on Fraley and Spieker (2003). *Developmental Psychology*, 39(39), 405–408. doi:10.1037/0012-1649.39.3.405.
- Cyr, C., Euser, E. M., Bakermans-Kranenburg, M. J., & van Ijzendoorn, M. H. (2010). Attachment security and disorganization in maltreating and high-risk families: A series of meta-analyses. *Development and Psychopathology*, 22, 87–108. doi:10.1017/S0954579409990289.
- de Araújo, R. M. F., & Lara, D. R. (2016). More than words: The association of childhood emotional abuse and suicidal behavior. *European Psychiatry*, 37, 14–21. doi:10.1016/j.eurpsy.2016.04.002.
- Dias, A., Sales, L., Hessen, D. J., & Kleber, R. J. (2015). Child maltreatment and psychological symptoms in a Portuguese adult community sample: The harmful effects of emotional abuse. *European Child & Adolescent Psychiatry*, 24(7), 767–778. doi:10.1007/s00787-014-0621-0.
- English, D. J., & the LONGSCAN Investigators (1997). *Modified Maltreatment Classification System (MMCS)*. Retrieved from Injury Prevention Research Center, LONGSCAN website: <http://www.iprc.unc.edu/longscan/pages/maltx/mmcs/LONGSCAN%20MMCS%20Coding.pdf>.
- Farrell Erickson, M., & Egeland, B. (2011). Child neglect. In J. E. B. Myers (Ed.), *The APSAC handbook on child maltreatment* (3rd ed., pp. 102–123). New Delhi: SAGE Publications.
- Field, A. (2009). *Discovering statistics using SPSS*. London: SAGE Publications.
- Finkelhor, D., Ormrod, R. K., & Turner, H. A. (2007). Poly-victimization: A neglected component in child victimization. *Child Abuse & Neglect*, 31, 7–26. doi:10.1016/j.chiabu.2006.06.008.

- Ford, J. D. (2009). Neurobiological and developmental research: Clinical implications. In C. A. Coutois & J. D. Ford (Eds.), *Treating complex traumatic stress disorder* (pp. 31–57). New York: The Guilford Press.
- Fresno, A., Spencer, R., & Retamal, T. (2012). Maltrato infantil y representaciones de apego: defensas, memoria y estrategias, una revisión. *Universitas Psychologica*, 11(3), 829–838.
- Hart, S. N., Brassard, M. R., Davidson, H. A., Rivelis, E., Diaz, V., & Binggeli, N. J. (2011). Psychological maltreatment. In J. E. B. Myers (Ed.), *The APSAC handbook on child maltreatment* (third ed., pp. 125–144). Thousand Oaks: Sage Publications, Inc..
- Hodges, J., Steele, M., Hillman, S., Henderson, K., & Neil, M. (2000). Effects of abuse on attachment representations: Narrative assessments of abused children. *Journal of Child Psychotherapy*, 26(3), 433–455. doi:10.1080/00754170010003674.
- Howe, D. (2005). *Child abuse and neglect: Attachment, development and intervention*. New York: Palgrave Macmillan.
- Lyons-Ruth, K., Bronfman, E., & Parsons, E. (1999). Maternal frightened, frightening or disrupted behavior and disorganized infant attachment patterns. *Monographs of the Society for Research in Child Development*, 64, 67–96. doi:10.1111/1540-5834.00034.
- Main, M. (1990). Cross-cultural studies of attachment organization: Recent studies, changing methodologies, and the concept of conditional strategies. *Human Development*, 33, 48–61. doi:10.1159/000276502.
- Main, M., & Hesse, E. (1990). Parents' unresolved traumatic experiences are related to infant disorganized attachment status. In M. Greenberg, D. Cicchetti, & E. M. Cummings (Eds.), *Attachment during the preschool years: Theory, research and intervention* (pp. 161–182). Chicago: University of Chicago Press.
- Miljkovitch, R., & Pierrehumbert, B. (2008). Des stratégies comportementales d'attachement aux stratégies représentationnelles : construction et validité des cartes de codage pour les histoires à compléter. *Enfance*, 60, 22–30. doi:10.3917/enf.601.0022.
- Miljkovitch, R., Pierrehumbert, B., Bretherton, I., & Halfon, O. (2004). Associations between parental and child attachment representations. *Attachment & Human Development*, 6(3), 305–325. doi:10.1080/14616730412331281557.
- Nanda, M. M., Reichert, E., Jones, U. J., & Flannery-Schroeder, E. (2016). Childhood maltreatment and symptoms of social anxiety: Exploring the role of emotional abuse, neglect, and cumulative trauma. *Journal of Child & Adolescent Trauma*, 9(3), 201–207. doi:10.1007/s40653-015-0070-z.
- Pasco Fearon, R. M., & Belsky, J. (2016). Precursors of attachment security. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (third ed., pp. 291–313). New York: Guilford Press.
- Paul, E., & Eckenrode, J. (2015). Childhood psychological maltreatment subtypes and adolescent depressive symptoms. *Child Abuse & Neglect*, 47, 38–47. doi:10.1016/j.chiabu.2015.05.018.
- Pickreing Stronach, E. P., Toth, S. L., Rogosh, F., Oshri, A., Manly, J. T., & Cicchetti, D. (2011). Child maltreatment, attachment security, and internal representations of mother and mother-child relationships. *Child Maltreatment*, 16(2), 137–145. doi:10.1177/1077559511398294.
- Pierrehumbert, B., Santelices, M. P., Ibáñez, M., Alberdi, M., Ongari, B., Roskam, I., Stievenard, M., Spencer, R., Fresno Rodríguez, A., & Borghini, A. (2009). Gender and attachment representations in the preschool years: Comparisons between five countries. *Journal of Cross-Cultural Psychology*, 40(4), 543–566. doi:10.1177/0022022109335181.
- Sroufe, L. A., Egeland, B., Carlson, E. A., & Collins, W. A. (2005). *The development of the person: The Minnesota study of risk and adaptation from birth to adulthood*. New York: Guilford Press.
- Toth, S. L., Cicchetti, D., Macfie, J., & Emde, R. N. (1997). Representation of self and other in the narratives of neglected, physically abused, and sexually abused preschoolers. *Development and Psychopathology*, 9, 781–796. doi:10.1017/S0954579497001430.
- Toth, S. L., Cicchetti, D., Macfie, J., Maughan, A., & Vanmeenen, K. (2000). Narrative representations of caregivers and self in maltreated pre-schoolers. *Attachment & Human Development*, 2, 271–305. doi:10.1080/14616730010000849.
- van IJzendoorn, M. H., & Kroonenberg, P. M. (1988). Cross-cultural patterns of attachment: A meta-analysis of the strange situation. *Child Development*, 59, 147–156. doi:10.2307/1130396.
- Waldinger, R. J., Toth, S. L., & Gerber, A. (2001). Maltreatment and internal representations of relationships: Core relationships themes in the narratives of abused and neglected preschoolers. *Social Development*, 10, 41–58. doi:10.1111/1467-9507.00147.
- Weinfield, N., Sroufe, A., Egeland, B., & Carlson, E. (2008). Individual differences in infant-caregiver attachment: Conceptual and empirical aspects of security. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (pp. 78–101). New York: Guilford Press.
- Zaouche-Gaudron, C., & Pierrehumbert, B. (2008). Annexe : L'utilisation des narratives d'attachement. *Enfance*, 60(1), 92–102. doi:10.3917/enf.601.0093.