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The Effect of Childhood Trauma on Later Psychological Adjustment

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This study examined whether adult attachment and cognitive distortion mediate the relationship between childhood trauma and psychological adjustment. The participants were 219 students (40 men and 117 women) enrolled in a university degree. Participants completed the Childhood Trauma Questionnaire, which assessed retrospective accounts of childhood trauma; the Relationships Scales Questionnaire, which measured two dimensions of adult attachment (model-of-self and model-of-other); the Cognitive Distortions Scale, which measured internal attributions and perceptions of controllability; and the Trauma Symptom Inventory, which assessed posttraumatic symptoms and was used in this study to measure psychological adjustment. Results supported the hypothesis that model-of-self and cognitive distortion are related constructs. The influence of model-of-self on psychological adjustment however was only via its effect on cognitive processes. In other words, a negative model-of-self influenced cognitive distortion, which in turn influenced the expression of symptoms in adults reporting a history of childhood trauma. The implications for therapy were considered.

Keywords: *childhood trauma; adult attachment, cognitive distortion, psychological adjustment*

This article addresses self-report of childhood trauma in a nonclinical sample of university students. Childhood trauma is defined as a psychological result of an external blow, whether sudden or a series, that renders the child temporarily helpless and breaks past ordinary coping mechanisms (Terr, 1991). Some may disagree that abuse and neglect necessarily lead to trauma. Nevertheless, Bernstein and Fink (1994), citing the literature on

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childhood trauma, offered a definition that includes child abuse and neglect: verbal assaults on a child's sense of worth, bodily assaults that pose risk of injury, sexual contact with the child, failure to provide basic psychological/emotional needs, and failure to provide basic needs. A common denominator of psychological trauma can be intense fear, helplessness, loss of control, and threat of annihilation (Andreasen, 1985). Symptoms of psychological trauma may develop such as personal and interpersonal dysfunction, dissociation, depression, and hypervigilance (Briere & Runtz, 1989, 1993; Browne & Finkelhor, 1986; Cole & Putnam, 1992; Kendall-Tackett, Williams, & Finkelhor, 1993).

According to Briere's (1996) self-trauma model, the child who experiences abuse suffers a disruption in development. For Briere, the disruption is to the attachment system and to cognitive development. His model also accounts for disrupted development as a result of posttraumatic stress and primitive coping. It may be that aspects of Briere's model mediate other aspects. For example, for adult survivors of child abuse, attachment patterns and cognitive style have been found to have a mediating effect on the expression of trauma-related symptoms (e.g., depression and dissociation) and primitive coping (e.g., substance abuse and self-harming), especially with those reporting an insecure attachment pattern (Brown & Kolko, 1999; Feiring, Taksa, & Chen, 2002; Muller, Sicoli, & Lemieux, 2000, 2001; Roche, Runtz, & Hunter, 1999; Valle & Silovsky, 2002).

Insecure attachment has a lasting affect on the development of self and interpersonal relationships (Bowlby, 1988; Briere, 1996). According to Bowlby (1988), a sense of self unfolds in the context of one or more consistent, loving, and supportive caretaker(s). In this early environment, a child internalizes the perceptions and expectations of others and begins, via a secure attachment, defining his or her identity, differentiating from his or her caretaker, and developing a sense of self. Insecure attachment on the other hand can disrupt this unfolding development of a differentiated self. Child abuse and neglect have been associated with insecure attachment in both childhood and adulthood (Crittenden, 1985, 1992; Katsikas, 1995; Lyons-Ruth as cited in Levy & Orlans, 1998; Muller et al., 2000, 2001; Roche et al., 1999).

Bowlby's (1982) conception of "internal working models" may apply to adults as well as children; that is, the relational template established in childhood may influence the adult's interpersonal relationships (Bartholomew, 1990, 1993). Bartholomew (1990, 1993) conceptualized a way of operationalizing the internal working model by proposing a model-of-self and a model-of-other. She described these models as dichotomized between positive (i.e., the self as worthy of love and attention; the other as trustworthy, caring, and

available) and negative (i.e., the self as unworthy of love and attention; the other as rejecting, uncaring, and distant). Childhood trauma may affect both of these dimensions.

Adults who report a history of child abuse/neglect tend to endorse an insecure attachment style (Alexander, 1992; Putnam, 1989). In other words, one could say that the abused individual develops a negative model-of-self and of-other (Alexander, 1992; Elliot & Gabrielson-Cabush, 1990; McCann & Pearlman, 1990; Putnam, 1989). For example, disrupted representations of self/other may lead to difficulties in relating to oneself (i.e., differentiation), relating to others (i.e., trust/intimacy), and regulating affect (i.e., impulsivity) (Betz, 1993; Briere & Runtz, 1987, 1989, 1993; Browne & Finkelhor, 1986). These psychological processes in turn may manifest in trauma symptoms such as depression, anxiety, and dissociation (Briere & Runtz, 1987, 1989, 1993; Browne & Finkelhor, 1986; Muller et al., 2000, 2001; Reiker & Carmen, 1986; and Roche et al., 1999).

Findings for the influence of a negative model-of-other on the expression of symptoms in those reporting a history of childhood trauma has been mixed. Katsikas (1995) for example found a relationship between childhood abuse and a negative model-of-other. Roche et al. (1999) also found that a negative model-of-other was related to symptoms, however less so than a negative model-of-self; that is, its contribution as a predictor was small compared to model-of-self. In other studies, a negative model-of-other has been found to be unrelated to trauma-related symptoms (Muller et al., 2000, 2001). These studies imply that the disruption to the internal model-of-self has more consequences for the individual's future adjustment than does disruption to the model-of-other.

Briere (1996) proposed that early trauma distorts the individual's cognition. People not only make assumptions about themselves and about others but about the environment and future as well. Child abuse may distort these assumptions. Cognitive distortion associated with safety (i.e., preoccupation with danger), controllability (i.e., current perceptions of helplessness and hopelessness), and internal attribution (i.e., self-blaming and self-criticizing) have been found to be related to child abuse. Such cognitive distortions are linked to symptoms such as posttraumatic stress, depression, and anxiety (Hazzard, 1993; Mannarino & Cohen, 1996; Mannarino, Cohen, & Berman, 1994; Wyatt & Newcomb, 1990).

The research reviewed so far suggests these psychological processes, attachment and cognitive distortion, affect psychological adjustment in adults reporting a history of child abuse. It may be too that model-of-self and cognitive distortion affect each other (Roberts, Gotlib, & Kassell, 1996). In turn, a negative model-of-self can impede coping (Muller

et al., 2000). Model-of-self therefore may affect not only cognitions about self-worth but also psychological adjustment.

It might be that for adult victims of child trauma, cognitive distortion mediates the relationship between a negative model-of-self and psychological adjustment. Given the relationships found between child abuse and both insecure attachment and cognitive distortion, the aims of the current study were twofold: first, to investigate Roberts et al.'s (1996) theory that model-of-self and cognitive distortion are related constructs and second, to test the hypothesis that attachment patterns and cognitive distortion indirectly affect the relationship between childhood trauma and later psychological adjustment (i.e., expression of trauma-related symptoms).

Method

Participants

There were 219 participants (40 men and 179 women) with a mean age of 20.96 years ($SD = 5.35$). The participants were recruited from undergraduate psychology classes at an Australian university. Childhood abuse (either *none*, *low*, *moderate*, or *severe*) was reported for the following categories: emotional abuse (55.7%, 26.5%, 6.8%, and 11%, respectively), physical abuse (80.8%, 9.5%, 6.8%, and 2.7%, respectively), sexual abuse (87.7%, 5.5%, 4.1%, and 2.7%, respectively), physical neglect (80.4%, 10.0%, 6.4%, and 3.2%, respectively), and emotional neglect (63.0%, 23.0%, 7.3%, and 5.9%, respectively). Reports of trauma symptoms in the previous 6 months were *once or twice* (29%), *sometimes* (4%), and *frequently* (0%). In terms of attachment, participants were classified as *secure* (53%) and *insecure* (pre-occupied/fearful/dismissing) (47%). Although these descriptive results indicate fairly low levels of abuse in this sample, the most prevalent type of abuse/neglect reported was emotional.

Design

This was a survey design in which the variables of adult attachment, childhood trauma, cognitive distortions, and psychological adjustment were operationalized by the measures described in the following. For the analysis, overall latent constructs were formed from the 5 Childhood Trauma Questionnaire (CTQ) scales for a childhood trauma construct, the Cognitive Distortions Scale (CDS) for a cognitive distortions construct, and from the 10 scales of the Trauma Symptom Inventory (TSI) for a trauma symptoms construct.

Measures

Adult attachment. The Relationship Scales Questionnaire (RSQ; Griffin & Bartholomew, 1994) has 30 items that yields two underlying attachment dimensions, model-of-self and model-of-other. Griffin and Bartholomew (1994) reported convergent and discriminate validity of these two dimensions and moderate to high test-retest reliability (from .81 to .84 for model-of-self and from .72 to .85 for model-of-other).

Childhood trauma. The Childhood Trauma Questionnaire (Bernstein & Fink, 1994) is a 28-item self-report questionnaire that assesses retrospective accounts of child maltreatment. The five subscales include physical abuse, emotional abuse, emotional neglect, sexual abuse, and physical neglect. Bernstein and Fink (1994) reported moderately high internal consistency (Cronbach's alpha ranging from .66 to .92) and test-retest reliability (ranging from .79 to .86).

Cognitive distortions. The 40-item Cognitive Distortions Scale (Briere, 2000) assesses five factors: self-criticism, self-blame, helplessness, hopelessness, and preoccupation with danger. Briere (1992) reported moderate to high internal consistency (Cronbach's alpha ranging from .89 to .97).

Psychological adjustment. Psychological adjustment was measured using the 100-item Trauma Symptom Inventory (Briere, 1995), which assesses posttraumatic symptomatology on 10 clinical subscales: anxious arousal, anger/irritability, depression, defensive avoidance, dissociation, dysfunctional sexual behavior, intrusive experiences, impaired self-reference, sexual concerns, and tension-reduction behaviors. Briere (1995) reported moderate to high internal consistency (Cronbach alphas .84, .87, and .84, in standardization, clinical, and university samples, respectively) and predictive validity.

Procedure

Undergraduate psychology students were invited to participate in the study. After giving informed consent, participants completed the pack of five questionnaires. In the event that the participant had any query or concern, he or she could contact the second author. In addition to the questionnaires, they were asked to provide information about the primary caregiver from age 0 to 5, about infant separation (*none, less than 6 months, or more than 6 months*), and about experiences with their caregiver, that is, whether when growing up there was a person around with whom they felt safe.

Results

Psychometric Analysis

There were no significant patterns or levels of missing data. To reduce skewness, logarithmic transformations were performed on all primary scales.

Statistical Analysis

Results were collated and analyzed using a formal structural latent modeling approach (Amos, 1999). Structural equations modeling (SEM) involves two steps: (a) confirming the measurement model (i.e., mapping how the observed variables load onto the latent factors) and (b) estimating the structural model (i.e., delineating the relationship between latent variables and evaluating the fit of the model to the data). For Step 1, all factor loadings were statistically significant at the .01 level, indicating that the measured variables had reasonable validity (see Table 1).

As shown in Table 1, in general, the primary scales loaded well onto their secondary scales. For example, the Helplessness, Hopelessness, Pre-occupation with Danger, Self-Blame, and Self-Criticism primary scales loaded strongly onto the secondary scale of CDS. The Squared Multiple Correlations (SMCs) primary for each variable in the CDS ranged from .52 to .77, for the CTQ scale they ranged from .16 to .71, and for the TSI they ranged from .48 to .77.

The model in Figure 1 is shown with the standardized direct parameters and SMC values. Tables then list the total estimates and model fit statistics. There were three latent factors (the three ellipses showing childhood trauma, cognitive distortion, and trauma symptoms) and 22 measured indicator variables (the 22 rectangles) in the model. The arrows represent the expected direct influence of childhood trauma and the expected indirect influence of attachment and cognitive distortion on symptoms. Note the path from model-of-self via cognitive distortion to symptoms. Total effects and model-of-fit statistics are shown in Tables 2 and 3.

As shown in Table 2, a strong relationship was found between childhood trauma and trauma-related symptoms (total effect = .60). Figure 1 shows the direct effect of childhood trauma on symptoms (direct effect = .22). The total indirect effects (.38) comprised four paths. The first path showed no effect of model-of-other on symptoms (indirect effect = .01). The second path showed no effect of model-of-self on symptoms (indirect effect = .00). The third path showed that cognitive distortion had an indirect effect in

Table 1
Parameter Estimates for the Secondary Scales

Scale	Item	Estimate
Cognitive Distortions Scale	HELP	.77
	HOPE	.70
	PWD	.87
	SB	.88
	SC	.79
Childhood Trauma Questionnaire	PN	.76
	EA	.82
	EN	.82
	PA	.47
	SA	.39
Trauma Symptom Inventory	AA	.89
	AI	.79
	DA	.70
	DEP	.87
	DIS	.84
	DSB	.62
	IE	.71
	ISR	.88
	SC	.68
	TRB	.72

Note: PRE = Pre-occupied, FEAR = Fearful, DIS = Dismissing, SECURE = Secure, HELP = Helplessness, HOPE = Hopelessness, PWD = Pre-occupation with Danger, SB = Self-Blame, SC = Self-criticism, PN = Physical Neglect, EA = Emotional Abuse, EN = Emotional Neglect, PA = Physical Abuse, SA = Sexual Abuse, AI = Anger/Irritability, AA = Anxious Arousal, DA = Defensive Avoidance, D = Depression, DIS = Dissociation, DSB = Deliberate Self-harm, IE = Intrusive Experiences, ISR = Impaired Self Reference, SC = Sexual Concerns, TRB = Tension Reduction Behaviors

mediating the relationship between childhood trauma and trauma symptoms in adults (indirect effect = .23). The fourth path showed the indirect influence of model-of-self via cognitive distortion on symptoms (indirect effect = .13). The indirect effects of these four paths (indirect effect = .38) were more influential in predicting trauma-related symptoms than childhood trauma alone.

Results from the structural mediation model showed that among the mediating effects, cognitive distortion alone was the strongest predictor of trauma-related symptoms (indirect effect = .23). This mediating influence was independent of any other factor. In an earlier path analysis,

Table 2
Summary of the Total Effects for the Latent Factors and Observed Variable in the Structural Mediation Model

	Childhood Trauma	Model-of-Self	Cognitive Distortion	Trauma Symptoms
Model-of-self	-.33			
Cognitive distortion	.49	-.53		
Trauma symptoms	.60	-.41	.73	

Note: All total effects in the table were significant at the .01 level.

Table 3
Goodness-of-Fit Statistics for the Mediation Model

	Structural Model
χ^2	408.14 ($df = 179$)
Goodness-of-Fit Index	0.85
Tucker-Lewis Index	0.92
Root mean square error of approximation	0.07

model-of-self was related to symptoms ($-.40$), however once cognitive distortion was added to the model, this relationship decreased to $.01$. Figure 1 shows how the influence of model-of-self on symptoms was dependent on cognitive distortion. In other words, cognitive distortion overrides the influence model-of-self had on symptoms in earlier analyses (not shown here). The indirect effect was associated with the moderate negative relationship found between model-of-self and cognitive distortion (direct effect = $-.53$) (see Figure 1).

Selected goodness-of-fit statistics related to the hypothesised mediation model are presented in Table 3. As shown in Table 3, the chi-square goodness-of-fit measure was nonsignificant, $\chi^2(179, N = 219) = 408.14$, $p > .05$, indicating that the reproduced covariance matrix and the original covariance matrix did not differ (i.e., the data fit the hypothesized model). The other selected fit indices, Goodness-of-Fit Index = $.85$, Tucker-Lewis Index = $.92$, and root mean square error of approximation = $.07$, also supported the model.

Discussion

The first hypothesis that model-of-self and cognitive distortion are related constructs was supported by the model. As expected, model-of-self was moderately related to cognitive distortion, and in turn, cognitive distortion was strongly related to trauma symptoms. The second hypothesis that attachment and cognitive distortion would mediate the relationship between childhood trauma and trauma symptoms was partially supported. Although childhood trauma influenced the attachment dimensions, model-of-self and model-of-other, these dimensions on their own had no effect on trauma symptoms. Model-of-self was related to cognitive distortion but not to symptoms. In the mediation model, the strongest path was the one from childhood trauma to trauma symptoms via cognitive distortion.

Consistent with the findings of Roberts et al. (1996), the first hypothesis showed that childhood trauma negatively influences an individual's internal representation of self. According to Bretherton (1995), internal representations of the self are complex schemata consisting of affective, defensive, and cognitive components. In other words, an internal representation of self has a cognitive dimension.

The influence of cognition in the structural model implies that thought processes are the strongest predictor of trauma-related symptoms in adult survivors of child abuse. Moreover, a negative model-of-self is linked to the individual's assumptions about self, other, and the environment. This means that the effect childhood trauma has on model-of-self (e.g., feeling unworthy of receiving love and attention) is likely to be maintained by a cognitive style that relies on distorted perceptions of self, other, and the environment.

The finding for the present study that model-of-self was related to cognitive distortion supports Bowlby's (1982, 1988) concept that an internal working model has a strong cognitive component. This may help to explain that long after childhood trauma victims regain environmental control over their lives, they continue to suffer from perceptions of powerlessness, helplessness, ineffectualness, and vulnerability to poor psychological adjustment (Valle & Silovsky, 2002). As Bowlby argued, the internalized representation of self affects resilience and later adult psychological adjustment.

The finding in the current study for the second hypothesis, that model-of-self was unrelated to symptoms, is inconsistent with other studies that have found a relationship between an attachment pattern endorsing a negative model-of-self and posttraumatic stress symptoms (Muller et al., 2000; Roche et al., 1999). Instead, the structural model found that cognitive distortion mediated the relationship between childhood trauma and symptoms.

This finding is consistent with other studies reporting a relationship between symptoms in adult victims of childhood trauma and cognitions, such as a preoccupation with danger (Mannarino & Cohen, 1996), a perception of helplessness/hopelessness (Hazzard, 1993), and an internal attribution of self-blame and self-criticism (Wyatt & Newcomb, 1990).

This study may be limited by the use of a university student sample, which was skewed toward a younger, mostly female population. Trauma may also be experienced differently depending on gender, and this study had only 40 male participants. However, the use of this university sample may also be its strength. Access to university students allowed for a relatively large sample size for a study of this type. In addition, even in this sample, where abuse victims are likely to have relatively normal psychological functioning compared to a clinical sample, results were significant.

A further limitation to this study may have been the measurement used to assess child abuse and neglect, the CTQ. The CTQ is limited in details it reveals about other abuse factors that have been found to be related to the psychological adjustment of survivors, for example, the severity of the abuse, the victim's relationship to the perpetrator, and the community's response to disclosure.

The results of this study have implications for clinical work with adult victims of childhood trauma. If an internal representation of self influences cognition and cognition mediates the expression of symptoms, therapy may be able to address these related processes to improve psychological adjustment.

The aspects of model-of-self and of cognitive distortion that are conscious may be addressed by cognitive therapies. These therapies provide opportunity to reevaluate inaccurate perceptions and beliefs about self. If, as Bowlby (1973/1998) described, the representational model is also partly unconscious and in his view "no more than a version of Freud's hypothesis of a dynamic unconscious" (p. 239), then the therapy may need to take into account the transference. Addressing the transference may allow the individual an opportunity to internalize a revised model-of-self.

In conclusion, this study sought to contribute to research into the effect of childhood trauma on later development. It found that childhood trauma impacts on what Bowlby (1973/1998) termed the *internal representations*, which are the working models of attachment figures and of self. Although cognitive distortion was itself influenced by the internal model-of-self, there was no relationship found between these internal working models and symptoms. For those adults who reported experiencing childhood trauma, cognitive distortion was the only variable that predicted trauma symptoms later in life. The implication of these results for therapy was raised.

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