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Shorter communication

Thought control strategies as mediators of trauma symptoms in young women with histories of child sexual abuse

Angela Scarpa, Laura C. Wilson*, Anthony O. Wells, Michelle A. Patriquin, Akiho Tanaka

Virginia Tech, Psychology, 109 Williams Hall, College of Sciences, Blacksburg, VA 24061-0436, United States

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ABSTRACT

The current retrospective study examined thought control strategies, or cognitive techniques individuals use to deal with unpleasant thoughts following stressful events, as potential mediators of adjustment in young women with histories of child sexual abuse (CSA). In a sample of 76 undergraduate women who self-reported on abuse experiences, thought control strategies, and current trauma symptoms, several key findings emerged: (i) Greater severity of the CSA event was associated with greater reported use of worry and punishment strategies and less use of social control strategies; (ii) Increased use of worry and punishment strategies following the CSA event was associated with greater levels of trauma symptoms, while increased use of social control strategies following the CSA event was associated with lower levels of trauma symptoms; and (iii) Worry, punishment, and social control strategies served as mediators between CSA severity and trauma symptoms. The results suggest that thought control strategies, specifically increased worry and punishment, and decreased social control, play a vital role in understanding adjustment after CSA. Future research should examine the roles of these cognitive control strategies as possible avenues of intervention following CSA.

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A recent national study conducted by the U.S. Department of Health and Human Services Administration for Children, Youth and Families (2008) estimated that 8.8% of children nationwide were victims of sexual abuse during 2006. Studies investigating the short-term and long-term effects of child sexual abuse (CSA) have demonstrated considerable psychological, behavioral, and interpersonal difficulties in survivors (Bietchman, Zucker, Hood, DaCosta, & Akman, 1991; Browne & Finkelhor, 1986; Neumann, Houskamp, Pollock, & Briere, 1996). More specifically, research suggests that sexually abused children often suffer from anxiety, depression, somatic complaints, nightmares, low self-esteem, distrust of others, and post-traumatic stress disorder (PTSD) symptoms (Koverola, Pound, Heger, & Lytle, 1993; Merry & Andrews, 1994). Furthermore, such difficulties have been demonstrated in both male and female survivors, as well as college student, community and national samples (Bietchman et al., 1991; Browne & Finkelhor, 1986; Trickett & Putnam, 1998).

Conversely, recent research suggests numerous factors, such as abuse characteristics and coping strategies, may be associated with resiliency and explain variability in the adjustment of survivors following CSA (Chaffin, Wherry, & Dykman, 1997). A study examining adjustment in 240 sexual abuse survivors under 18 years old found

that 49% of the participants did not evidence signs of emotional distress or PTSD symptomatology following the abuse event (Caffaro-Rouget, Lang, & van Santen, 1989). Overall, meta-analyses (i.e., Jumper, 1995; Neumann et al., 1996; Rind & Tromovitch, 1997; Rind, Tromovitch, & Bauserman, 1998) suggest that although survivors of CSA often report psychological distress, the effect sizes are small, ranging from .10 to .15. Therefore, though CSA is empirically associated with maladjustment, evidence suggests that abuse events do not result in universally large effects on victims and additional factors likely contribute to future adjustment. Although substantial research has examined mediating factors such as coping strategies and social support, in predicting such variable outcomes in sexually abused children, little research has been devoted to understanding the effects of specific cognitive techniques, or thought control strategies, in this population.

The metacognitive model of PTSD and the role of thought control strategies

For the current study, we use Wells' Metacognitive Model (2000) of PTSD to conceptualize subsequent adjustment following CSA. Based on this model, intrusions, arousal and attentional orienting are typical symptoms following such a stressful event. In fact, these responses are vehicles for subsequent emotional processing that allow the individual to develop a plan for future threats. Although this

* Corresponding author. Tel.: +1 540 231 6581.

E-mail address: lawilso3@vt.edu (L.C. Wilson).

process is typically carried out unhindered, it requires flexibility in the individual's cognitive abilities and is influenced by the individual's coping strategies. As such, unhealthy patterns of adjustment emerge due to the individual's metacognitive beliefs. For example, the belief that worrying about a threat will improve one's ability to avoid harm will lead an individual to become hypersensitive to potential threats, and will ultimately be problematic.

Wells and Davies (1994) empirically demonstrated five such cognitive coping techniques, called thought control strategies, which individuals use to deal with unpleasant thoughts resulting from negative events. These strategies are (i) distraction (e.g., purposely redirecting one's attention to another thought), (ii) reappraisal (e.g., assessing the meaning of the thought), (iii) social control (e.g., revealing the thought to another person), (iv) worry (e.g., dwelling on a negative thought), and (v) self-punishment (e.g., feeling angry with oneself for thinking about a negative event). Past research suggests that worry and punishment strategies are positively associated with psychopathology, such as depression and PTSD symptoms following negative life events (Reynolds & Wells, 1999; Roussis & Wells, 2008). Conversely, Reynolds and Wells (1999) found an inverse relationship between both reappraisal and distraction, and depression. In addition, Wells and Davies (1994) suggest that the use of social control strategies may lead to a reduction in PTSD symptomatology and result in better adjustment following a traumatic event.

The current study

The examination of thought control strategies may be helpful for clinicians and researchers when working with CSA survivors because of the frequency of painful thoughts and emotions (e.g., shame) following sexual abuse (Finkelhor & Browne, 1985). Though past research suggests that the use of thought control strategies following stressful life events predicts variability in future adjustment (Reynolds & Wells, 1999; Roussis & Wells, 2008), researchers have thus far failed to apply this line of research to differential effects of such strategies in CSA survivors.

The aim of the present study, therefore, is to examine thought control strategies as an explanatory mechanism for the variability in adjustment following CSA. To examine the mediating role of thought control strategies in this retrospective study of young adult female CSA survivors, mediation analysis procedures outlined by Baron and Kenny (1986) will be used. Overall, the primary objective of the current study is to test a mediation model in which it is predicted that thought control strategies will mediate the association between the severity of the sexual abuse events and PTSD symptomatology in non-clinical female college-age survivors of CSA. That is, the severity of CSA will be related to the use of thought control strategies that, in turn, will be associated with increased PTSD symptomatology in this sample. This specific population (e.g., college students) was chosen because although they are often overlooked due to the belief that they are higher functioning than other CSA survivors, these individuals typically are still quite distressed (Young, Harford, Kinder, & Savell, 2007). Overall, based on past research (e.g., Reynolds & Wells, 1999; Wells & Davies, 1994), we predict that worry and punishment strategies will be positively associated with PTSD symptomatology, while distraction, reappraisal and social control will be negatively associated with PTSD symptomatology.

Method

Participants

One thousand, one hundred ninety-two undergraduate women were screened through an experimental management system for

online research at a large public university. The final sample included 76 women (76.4% Caucasian, 10.5% Asian, 7.9% African-American, 2.6% Hispanic, and 2.6% Other) between the ages of 18–22 years old ($M = 19.1$ years, $SD = 1.2$) that reported experiencing CSA before the age of 14, agreed to participate, and had complete data (i.e., thought control strategies, PTSD symptoms). The current study was part of a larger study examining psychophysiological, cognitive, and social characteristics associated with sexual victimization and focused only on women because of the greater base rate of sexual abuse in females (Briere & Elliot, 2003). A power analysis indicated that approximately 38 participants are necessary to find a large effect using an alpha level of .05 with four independent variables, and 84 participants are necessary to find a medium effect (Cohen, 1992). Therefore, the current sample of 76 participants should be sufficient to detect a moderately large significant effect.

Assessment measures (see Table 1 for descriptive information)

Child abuse survey-modified (Esposito & Clum, 2002)

This 7-item instrument was adapted from the Child Maltreatment Survey (Yang & Clum, 1994), a measure of child abuse and neglect. Participants reported the frequency of CSA experienced before the age of 14, where CSA was defined as a sexual act involving bodily contact by someone who was at least five years older than the child. Participants rated each experience on a scale ranging from 0 to 4 (i.e., never true, rarely true, sometimes true, often true, very often true). For this study, only the first six items pertaining to CSA were examined, and the severity was coded by the highest item endorsed as rarely, sometimes, often, or very often true (e.g., 1 = kissed and hugged in a sexual way, 2 = body parts touched in a sexual way, 3 = sex organs touched in a sexual way, 4 = oral sex, 5 = vaginal intercourse, 6 = anal intercourse). In terms of the composition of the sample, 12.5% reported being kissed or hugged in a sexual way, 42.1% being touched in a sexual way, 27.0% having their sex organs touched in a sexual way, 11.8% having oral sex, 3.9% vaginal intercourse, and 2.7% experiencing anal intercourse.

Thought Control Questionnaire (TCQ; Wells & Davies, 1994)

This 30-item self-report measure assesses the frequency with which participants implement distraction, worry, punishment, reappraisal, and social control strategies to cope with unpleasant and unwanted thoughts. In the current study, the instrument asked the women to indicate how often they used each technique to control cognitions associated with the CSA on a Likert scale ranging from 1 to 4 (i.e., never, sometimes, often, almost always). Scores were calculated by separately summing the six items for each scale: distraction (e.g., I occupied myself with work instead), worry (e.g., I focused on different negative thoughts), punishment (e.g., I was angry at myself for having the thought), reappraisal (e.g., I challenged the thought's validity), and social control (e.g., I didn't talk about the thought to anyone; reversed scored). TCQ scores for each scale, therefore, could range from 6 to 24, with higher scores indicating greater use of the strategy. Previous research has exhibited moderately high internal consistency (Coefficient alphas between .64 and .83) for the five thought control subscales (Wells & Davies, 1994). For the current study, Cronbach's coefficient alpha ranged from .72 to .85 for the subscales.

Impact of Event Scale-Revised (IES-R; Weiss & Marmar, 1997)

This 22-item self-report questionnaire measures PTSD symptomatology resulting from specific life events. For purposes of this study, the women were asked to rate how distressing each IES item was immediately following the CSA on a scale ranging from 0 to 4 (i.e., not at all, a little bit, moderately, quite a bit, extremely). The

three subscales within the total score consist of avoidance (8 items; e.g., “I stayed away from reminders about it”), intrusions (8 items; e.g., “Other things kept making me think about it”), and hyperarousal (6 items; e.g., “I was jumpy and easily startled”). The IES is scored by averaging the corresponding items for each subscale and then summing the three subscale scores. The IES total score could thus range from 0 to 12, with higher scores indicating greater PTSD symptomatology. The IES total has exhibited high internal consistency (.96), as well as the avoidance (.87), intrusions (.94), and hyperarousal subscales (.91; Creamer & Failla, 2003). In the current sample, the Cronbach alpha coefficients were high (total = .96, avoidance = .93, intrusions = .94, hyperarousal = .90). It is important to note that the mean scores obtained in the current sample are slightly lower than those obtained from research conducted with other trauma populations, such as motor vehicle accident survivors (avoidance = 1.44, intrusions = 1.57, hyperarousal = 1.81; Beck et al., 2008) and survivors of severe acute respiratory syndrome (avoidance = .93, intrusions = 1.11, hyperarousal = 1.04; Wu, Chan, & Ma, 2005).

Procedure

The current study was part of a larger study involving measures which are not included in this paper. The women completed an hour-long online survey about their CSA experiences and subsequent psychosocial adjustment. Institutional Review Board approval was obtained as well as informed consent from each participant, who were compensated with extra credit points allotted toward their psychology courses.

Results

Pearson product moment correlations

Pearson product moment correlations among all variables of interest (i.e., CSA severity, IES subscales and total, and TCQ subscales) are presented in Table 2. There was a significant positive correlation between CSA severity and IES total, $r(74) = .34$, $p < .01$, indicating that greater severity of CSA was associated with greater PTSD symptomatology. The IES total was significantly positively correlated with four of the five thought control subscales (i.e., distraction, worry, punishment, and reappraisal) and significantly negatively correlated with social control. Therefore, an increase in reported use of distraction ($r(70) = .39$, $p < .01$), worry ($r(73) = .65$, $p < .01$), punishment ($r(73) = .60$, $p < .01$), and reappraisal ($r(71) = .53$, $p < .01$) were associated with greater PTSD symptomatology, and an increase in the reported use of social control was related to less PTSD symptomatology ($r(72) = -.48$, $p < .01$).

Table 1

Descriptive statistics: means, standard deviations, range, and cronbach's alpha for all variables of interest ($N = 76$).

Variable	Mean	SD	Range	Cronbach's alpha
CSA Severity	2.53	1.23	1–6	–
IES: Total	3.35	2.91	0–11	.96
IES: Avoidance	1.57	1.19	0–4	.93
IES: Intrusions	.97	.99	0–4	.94
IES: Hyperarousal	.91	.98	0–4	.90
TCQ: Total	53.12	13.69	4–79	.90
TCQ: Distraction	13.75	4.73	6–23	.85
TCQ: Worry	9.45	3.31	6–18	.85
TCQ: Punishment	8.57	2.72	6–17	.72
TCQ: Reappraisal	9.99	3.11	6–18	.72
TCQ: Social Control	10.24	3.34	6–18	.73

Note. CSA = Child sexual abuse; IES = Impact of Events Scale; TCQ = Thought Control Questionnaire.

There were significant positive correlations between CSA severity and IES subscales (i.e., avoidance, intrusions, and hyperarousal). The IES avoidance and intrusion subscales were significantly positively correlated with four out of five TCQ subscales (i.e., distraction, worry, punishment, reappraisal) and significantly negatively correlated with social control. The IES hyperarousal scale was not correlated with the distraction thought control strategy, but was significantly positively correlated with worry, punishment, and reappraisal, and significantly negatively correlated with social control.

CSA severity was positively associated with worry ($r(76) = .23$, $p < .05$) and punishment ($r(76) = .32$, $p < .01$) and negatively associated with social control ($r(76) = -.37$, $p < .01$). As a result, greater CSA severity was associated with increased use of worry and punishment thought control strategies and decreased use of social control.

Mediation analyses

Mediation analyses (Baron & Kenny, 1986) were conducted to test the hypothesis that thought control strategies would mediate the relationship between CSA severity and IES total (See Fig. 1). The mediation model was examined by first establishing a link between severity of CSA and IES total (Path C₀). Second, a link between severity of CSA and mediating factors (i.e., thought control strategies; Path A) was established. Third, a link between mediating factors and IES total (Path B) was demonstrated. After accounting for Paths A and B, mediation was established by re-examining the link between severity of CSA and IES total (Path C₁). Any mediation pathways that were statistically significant were confirmed with the Sobel test of mediation (Sobel, 1982).

Severity of CSA was positively correlated with IES total ($r(76) = .34$, $p < .01$; Path C₀; see Table 2 and Fig. 1), such that greater severity of CSA was associated with greater IES total scores. Severity of CSA was also significantly correlated with three of the five thought control strategies (Path A; see Table 2 and Fig. 1), meaning greater severity of CSA was associated with greater use of worry and punishment and less reported use of social control. These three thought control strategies were significantly correlated with IES (Path B; Table 2 and Fig. 1); greater use of worry and punishment were associated with greater IES total score, and greater use of social control was associated with lower IES total scores. All IES subscales (i.e., avoidance, intrusions, and hyperarousal) reflected the same pattern as IES total. That is, greater CSA severity positively correlated with avoidance, intrusions, and hyperarousal IES subscales.

Since CSA severity and IES total were both correlated with worry, punishment, and social control, hierarchical regression analyses were conducted to examine the effects of these three thought control strategies on the relationship between CSA severity and IES total. Severity of CSA was entered in the first step of the mediation model and CSA severity and thought control strategies (i.e., worry, punishment, and social control) were entered in the second step (see Table 3 and Fig. 1). Worry, punishment, and social control thought control strategies were included in the hierarchical regression analyses to examine the unique contribution of each control strategy. Hierarchical regression analyses showed that before the thought control strategies were accounted for, CSA severity significantly predicted IES total ($\beta = .336$, $p < .01$; Path C₀). When the thought control strategies were accounted for, however, the relation between CSA severity and IES total was no longer significant ($\beta = .073$, $p = .40$; Path C₁), whereas the worry ($\beta = .408$, $p < .001$), punishment ($\beta = .298$, $p < .01$) and social control ($\beta = -.216$, $p < .05$) thought control strategies did significantly predict IES total (Path B; $\Delta R^2 = .42$, $p < .001$). Therefore,

Table 2Pearson product moment correlations among CSA severity, impact of events scale total and subscales, thought control questionnaire subscales ($N = 76$).

	CSA Severity	IES: Total	IES: Avoidance	IES: Intrusions	IES: Hyper-arousal	TCQ: Distraction	TCQ: Worry	TCQ: Punishment	TCQ: Reappraisal
IES: Total	.34**								
IES: Avoidance	.39**	.91**							
IES: Intrusions	.32**	.95**	.77**						
IES: Hyperarousal	.33**	.94**	.76**	.90**					
TCQ: Distraction	.02	.39**	.39**	.34**	.18				
TCQ: Worry	.23*	.65**	.61**	.60**	.57**	.47**			
TCQ: Punishment	.32**	.60**	.60**	.55**	.51**	.24*	.48**		
TCQ: Reappraisal	.17	.53**	.49**	.51**	.47**	.40**	.60**	.40**	
TCQ: Social Control	-.37**	-.48**	-.58**	-.37**	-.34**	-.48**	-.31**	-.37**	-.32**

Note. CSA = Child Sexual Abuse; IES = Impact of Events Scale; TCQ = Thought Control Questionnaire; ** Correlation is significant at the .01 level (2-tailed); * Correlation is significant at the .05 level (2-tailed).

three thought control strategies (i.e., worry, punishment, and social control) mediated the relationship between CSA severity and IES total. Mediation analyses were also conducted using the IES subscales (i.e., avoidance, intrusions, hyperarousal) and results essentially remained unchanged (i.e., worry, punishment, and social control all served as mediators), with the exception that social control mediated avoidance, but not intrusion or hyperarousal.

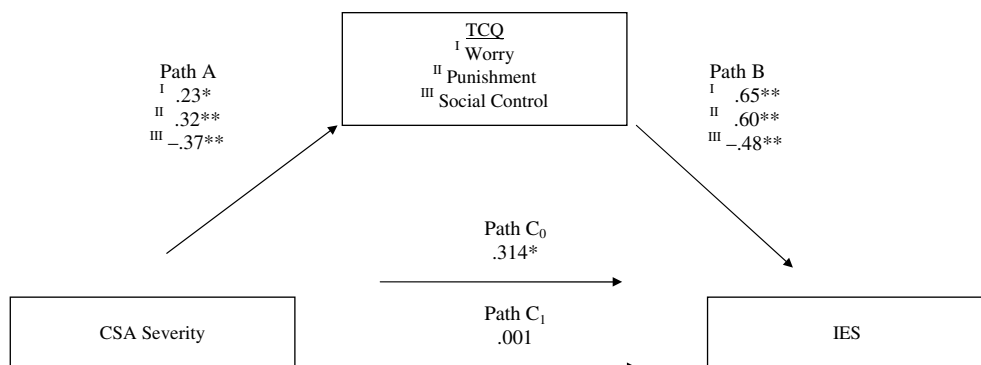
Discussion

As expected, the more severe forms of CSA exacerbated trauma symptoms, and this relationship was transmitted through social control, worry, and punishment thought control strategies as one set of underlying cognitive mechanisms. For example, CSA severity was associated with increased worry, which was also subsequently associated with increased trauma symptoms. Cognitive models of PTSD, such as Wells' Metacognitive Model (2000), assert that adverse coping strategies heighten emotional threat states and decrease cognitive flexibility required for normal emotional processing associated with trauma recovery.

Important for the present sample, the use of punishment to control negative thoughts extends previous research findings where CSA survivors inflict self-harm (Glassman, Weierich, Hooley, Deliberto, & Knock, 2007)—in this case by directing anger and criticism at the self for having unwanted thoughts, which may exacerbate abuse-related distress over time. Furthermore, social control would appear to be a beneficial strategy since it involves using one's social network, which buffers the effects of stress (Lauterbach, Koch, & Porter, 2007). In comparison to other non-interpersonal forms of violence, however, CSA is socially stigmatizing thereby fostering disclosure reluctance.

Even though, reappraisal and distraction thought control strategies also were significantly and positively related to trauma symptoms, they evidenced no relationship to CSA severity and therefore did not meet criteria for mediation. The positive relationship between distraction and reappraisal with trauma symptoms warrants further exploration and discussion as this is inconsistent with some previous findings (Reynolds & Wells, 1999). One possible explanation for the inconsistent findings is that both distraction and reappraisal strategies could reflect a belief that avoidant strategies are adaptive, which have in fact been shown to be associated with maladjustment following trauma (e.g., Herman-Stahl, Stemmler, & Peterson, 1995). Further research is needed to clarify the various roles of these thought control strategies.

Although this study contributes to the understanding of thought control strategies in populations experiencing specific negative life events, there are inherent limitations. Specifically, adult survivors may not accurately remember how they dealt with unwanted thoughts following CSA events. Likewise, this study did not account for the frequency of CSA events or variation of CSA offense characteristics (e.g., victim–perpetrator relationship) and how thought control strategies may have varied with these variables. For example, one may start using a particular thought control strategy if victimized once; however, if victimized more than once a previous strategy may appear ineffectual. In addition, one may use a different strategy for thoughts of CSA perpetrated by an attachment figure (e.g., father) versus a different caregiver (e.g., babysitter). Such nuances in abuse characteristics and associated thought control strategies warrant further research. Finally, this study used a non-clinical sample from a relatively high functioning population (i.e., college students), which may have served to lower IES symptom scores and consequent relationships to coping.



Note. * $p < .05$; ** $p < .01$; ^I Worry thought control mediation path; ^{II} Punishment thought control mediation path; ^{III} Social control thought control mediation path.

Fig. 1. The mediating effect of worry, punishment and social control Thought Control Questionnaire (TCQ) subscales between the severity of child sexual abuse (CSA) and the Impact of Events Scale (IES) in young women with histories of CSA.

Table 3

Hierarchical regression analysis: worry, punishment and social control thought control questionnaire subscales mediate the relation between child sexual abuse severity and impact of events scale total in female survivors of child sexual abuse ($N = 68$).

Variable	<i>B</i>	SE (<i>B</i>)	β
Step 1			
CSA Severity	.841	.279	.336*
Step 2			
CSA Severity	.183	.216	.073
TCQ: Worry	.357	.083	.408*
TCQ: Punishment	.323	.103	.298*
TCQ: Social Control	-.190	.078	-.216*

Note: CSA = Child Sexual Abuse; TCQ = Thought Control Questionnaire; $R^2 = .34$ for Step 1; $\Delta R^2 = .42$ for Step 2 ($p < .001$); * $p < .01$.

Findings should be replicated with clinical populations exhibiting more severe dysfunction.

Of note, the TCQ subscales had fairly strong correlations with the IES subscales and some might argue that both measures equivalently reflect the severity of PTSD symptomatology. For example, the TCQ worry subscale may appear similar to the IES re-experiencing subscale and failure to use social control may appear similar to IES avoidance. Careful inspection, however, reveals that the TCQ worry construct involves more than re-experiencing the event as it also encompasses an apprehension about things that could happen. Similarly, the use of social control involves a desire to divulge unpleasant thoughts to another person and is thus more specific than avoidance of event reminders. Also, this potential confound cannot be the sole explanation for the current findings because the TCQ factors also correlate with IES symptom domains other than their supposed equivalent (see Table 2). For example, TCQ worry is correlated with IES avoidance and hyperarousal as well as intrusions, suggesting that the coping construct reflects a process that occurs beyond specific related symptomatology.

Knowledge regarding thought control strategies with adverse effects can be incorporated into treatments for ameliorating and preventing trauma symptoms. Specifically, early interventionists working with child survivors and their families should learn to identify these strategies early to prevent their recurrent and ineffectual use, especially worry and punishment. In addition, sexually abused children should also be taught the value of social control and appropriate sources for help. In all, these strategies represent key mechanisms for therapeutic change.

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