Exposure to Violence, Posttraumatic Stress Symptoms, and Borderline Personality Pathology among Adolescents in Residential Psychiatric Treatment: The Influence of Emotion Dysregulation

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Abstract

Exposure to violence during adolescence is a highly prevalent phenomenon associated with a range of deleterious outcomes. Theoretical literature suggests that emotion dysregulation is one consequence of exposure to violence associated with the manifestation of posttraumatic stress symptoms (PTSS) and borderline personality (BP) pathology. Thus, the goal of the present study was to examine the mediating role of emotion dysregulation in the relation between exposure to violence and both PTSS and BP pathology in a sample of 144 adolescents (age 10- to 17-years; 51% male; 55% African American) admitted to a psychiatric residential treatment center. Exposure to violence was associated with greater emotion dysregulation, which, in turn, was associated with greater PTSS and BP pathology. Furthermore, emotion dysregulation mediated the associations between exposure to violence and both PTSS and BP pathology. Findings suggest the importance of assessing and treating emotion dysregulation among violence-exposed adolescents in psychiatric residential treatment.

Keywords

Exposure to violence; posttraumatic stress symptoms; borderline personality pathology; emotion dysregulation; residential treatment

Findings of epidemiological studies indicate that a substantial number of adolescents are exposed to violence (defined here as exposure to indirect [i.e., witnessed] or direct [i.e., experienced] physical or sexual violence across home, school, and neighborhood settings) [1, 2]. For example, results of a national survey of 4,503 children and adolescents found that many had experienced direct (e.g., physical [41.2%] and sexual assault [6%]) and/or indirect

(e.g., witnessing assault in the community [17.5%] or home [8.2%]) exposure to violence within the past year [1]. A large body of literature has documented the serious consequences of exposure to violence during adolescence, suggesting that the effects of violence exposure on both mental and physical health may extend across the life span [3, 4]. In particular, research indicates that exposure to violence during adolescence is associated with anxiety, depression, suicidal ideation, poor academic achievement, aggression, substance abuse, interpersonal problems, and juvenile delinquency [5–8]. Moreover, although understudied in adolescent samples, theoretical literature and research in adults indicate that exposure to violence during adolescence is associated with both posttraumatic stress symptoms (PTSS) [9, 10] and borderline personality (BP) pathology [11–13]. Given the clinical and public health significance of both PTSS and BP pathology [14, 15], as well as evidence that the course of PTSS and BP pathology is stable from adolescence to adulthood [16, 17], research examining factors that may account for the heightened levels of PTSS and BP pathology among adolescents exposed to violence is warranted.

Difficulties in emotion regulation (i.e., emotion dysregulation) are important to consider in this regard. As defined here, emotion dysregulation is a multi-faceted construct involving: (a) a lack of awareness, understanding, and acceptance of emotions; (b) the inability to control behaviors when experiencing emotional distress; (c) lack of access to adaptive strategies for modulating the duration and/or intensity of aversive emotional experiences; and (d) an unwillingness to experience emotional distress as part of pursuing meaningful activities in life [18, 19]. Extant literature suggests that exposure to violence may undermine the development of adaptive emotion regulation capacities [11, 20, 21], which are considered integral to normative development and functioning across multiple domains [22–24]. For example, exposure to violence may overwhelm the regulatory capacities of adolescents [25, 26], making it difficult to modulate intense emotional distress and arousal [27]. Likewise, adolescents exposed to violence may rely on maladaptive emotion regulation strategies that reduce emotional distress in the short-term but have paradoxical effects in the long-term (exacerbating emotion perceived as aversive and increasing motivations to use maladaptive emotion regulation strategies in the future) [28]. Additionally, exposure to violence during adolescence may hinder a person's ability to identify and describe emotional states [29]. Consistent with this theoretical literature, empirical evidence provides support for a relationship between exposure to violence and emotion dysregulation among adolescents [30–32].

Importantly, emotion dysregulation is also considered a key mechanism in the development of both PTSS [33–35] and BP pathology [11, 36, 37]. For example, PTSS have been found to be positively associated with overall emotion dysregulation and many specific dimensions of emotion dysregulation above and beyond other relevant factors (e.g., negative affect and impulsivity) [35, 38, 39]. Likewise, research provides support for a robust association between BP pathology and multiple dimensions of emotion dysregulation [36, 40–42]. Of note, although previous research provides support for a significant positive association between emotion dysregulation and BP pathology among adolescents [43–45], no studies have examined whether adolescents with heightened PTSS exhibit greater levels of emotion dysregulation.

Notably, preliminary evidence also provides support for the underlying role of emotion dysregulation in the relationships between traumatic exposure (including exposure to violence) and both PTSS [46] and BP pathology [47, 48] in adult populations. For example, Weiss, Tull, Lavender, and Gratz [46] found that difficulties controlling impulsive behaviors when distressed (one dimension of emotion dysregulation as defined here) mediated the relationships between childhood physical and emotional abuse and adult PTSS within a sample of adult substance dependent inpatients. Similarly, other studies [47–48] have highlighted the underlying role of specific emotion regulation difficulties in BP pathology. Specifically, Gaher, Hofman, Simons, and Hunsaker [47] found that deficits in identifying and describing emotions accounted for the association between exposure to potentially traumatic events and BP pathology in college students, whereas van Dijke, Ford, van Sorn, Frank, and van der Hart [48] found that difficulties modulating the intensity and/or duration of emotional arousal partially mediated the relation between childhood traumatic experiences by a primary caregiver and BP pathology in a sample of adult psychiatric inpatients. There is a dearth of research examining these etiological relationships in adolescents, however, despite evidence that this is an important period for the development of adaptive emotion regulation capacities [22–24]. Furthermore, although specific dimensions of emotion dysregulation have been found to account for the associations between exposure to violence and both PTSS and BP pathology in adult populations, less is known about the relevance of overall emotion dysregulation to these processes.

Thus, the goal of the present study was to extend extant literature by examining the mediating role of emotion dysregulation in the relation between exposure to violence and both PTSS and BP pathology in a sample of adolescents (defined here as 10 to 17 years, consistent with the age ranges identified by the American Psychological Association and World Health Organization) [49, 50]. In examining these relations, one population that may be especially important to study is adolescents in psychiatric residential treatment. Specifically, adolescents in residential treatment have been found to exhibit (a) high rates of exposure to violence [51, 52]; (b) elevated levels of emotion dysregulation [53–55]; and (c) high levels of PTSS [51, 56, 57] and BP pathology [54, 55, 58]. Consistent with past research [30, 38, 44], we hypothesized that emotion dysregulation would be significantly positively associated with severity of exposure to violence, PTSS, and BP pathology in adolescents. Furthermore, given theoretical and empirical literature highlighting the role of emotion dysregulation in the pathogenesis of both PTSS and BP pathology [11, 34, 35, 41], as well as evidence suggesting that dimensions of emotion dysregulation account for greater PTSS and BP pathology following exposure to traumatic events [46, 47], we hypothesized that emotion dysregulation would mediate the relation between exposure to violence and both PTSS and BP pathology. We also explored the role of gender as a potential covariate given evidence of greater PTSS [59] and BP pathology [60, 61] among females (versus males).

Method

Participants

Participants were 144 adolescents (50.7% male) aged 10–17 ($M = 14.3$; $SD = 1.5$) admitted to a psychiatric residential treatment center in central Mississippi. In terms of racial/ethnic background, approximately half of the participants (54.9%) self-identified as African-American, 36.1% as White, and 9.0% as another racial/ethnic background. Most participants were in middle school (48.9%) or high school (46.8%), although 4.3% of participants were in grade school (i.e., grades 4–5).

Procedures

All procedures were reviewed and approved by the university Institutional Review Board and the Facility Review Board. Parental consent was obtained at admission, and adolescent assent was acquired at the time of the assessment. Adolescents completed measures in a small group setting consisting of 5 or fewer participants. Questionnaires were read aloud to participants upon request.

Measures

The *Life Events Scale* (LES) [62] is a 32-item self-report measure designed to screen for exposure to a wide range of violent events. Specifically, the LES assesses direct and indirect exposure to violence (e.g., threat of physical harm, physical assault with and without a weapon, and unwanted sexual acts) across home, school, and neighborhood settings. Using a 6-point Likert-type scale (0 = *never*, 5 = *almost every day*), participants rate the frequency with which they experienced or witnessed each event. Consistent with Singer, Anglin, Yu Song, and Lunghofer [62], sums were calculated that reflect the frequency of direct exposure to violence, with higher scores indicating greater exposure to violence. Internal consistency in the present sample was excellent ($\alpha = .92$).

The *Difficulties in Emotion Regulation Scale* (DERS) [18] is a 36-item self-report measure that assesses individuals' typical levels of emotion dysregulation across six domains: nonacceptance of negative emotions, difficulties engaging in goal-directed behaviors when distressed, difficulties controlling impulsive behaviors when distressed, limited access to emotion regulation strategies perceived as effective, lack of emotional awareness, and lack of emotional clarity. Participants rate each item using a 5-point Likert-type scale (1 = *almost never*, 5 = *almost always*). The DERS has been found to demonstrate good reliability and construct and convergent validity in both adult [18, 19] and adolescent (i.e., 10–18 years old) [55, 63–65] samples. Additionally, the DERS and its subscales have been found to be significantly associated with objective measures of emotion dysregulation (i.e., behavioral and/or physiological) in both youth and adults [41, 66, 67]. Internal consistency in the current sample was good ($\alpha = .88$).

The *Child PTSS Symptom Scale* (CPSS) [68] is a 17-item self-report measure that assesses the severity of posttraumatic stress in terms of re-experiencing, avoidance/emotional numbing, and hyperarousal symptoms. Using a 4-point Likert-type scale (0 = *not at all or only at one time*, 3 = *five or more times a week/almost always*), participants rate the extent to

which each symptom has bothered them in the past month. Given evidence that PTSS are best represented as a dimensional construct [69–71], participants' responses on the CPSS were summed to provide a total score for analyses that follow. Internal consistency in the current sample was excellent ($\alpha = .91$).

The *Borderline Personality Features Scale for Children* (BPFSC) [72] is a 24-item self-report measure that is based on an adaptation of the BOR (Borderline) Scale of the Personality Assessment Inventory [73] for use with youth. Participants rate each item using a 5-point Likert-type scale (0 = *not at all true*, 4 = *always true*). The BPFSC-C has been found to have adequate internal consistency ($\alpha > .76$) and convergent validity within an ethnically-diverse sample of youth [72]. In the current study, internal consistency was good ($\alpha = .85$).

Results

Descriptive statistics and zero-order correlations among study variables are presented in Table 1. With regard to associations between demographic characteristics and the primary variables of interest, results from point-biserial correlations revealed higher levels of PTSS and BP pathology among girls versus boys and lower levels of violence exposure among White youth versus youth of other racial/ethnic backgrounds (see Table 1). Thus, gender and race were included as covariates. Rates of each of the domains of exposure to violence in the present sample are shown in Table 2.

The conceptual model (Figure 1) was estimated using *MPlus* Version 3.13 [74] with maximum likelihood estimation (MLE). Hypotheses related to indirect effects were tested using bias-corrected bootstrapping. Findings indicated that the model provided a good fit to the data ($\chi^2 [33, n = 144] = 58.83, p = .004$; CFI = .96; RMSEA Est. = .07; SRMR = .04), explaining 56% of the variance in PTSS, 61% of the variance in BP pathology, and 14% of the variance in emotion dysregulation. With regard to specific parameters (see Figure 2), youth who reported more exposure to violence also reported greater difficulties regulating their emotions ($\beta = .35, p < .001$). Emotion dysregulation, in turn, predicted greater PTSS ($\beta = .43, p < .001$) and BP pathology ($\beta = .60, p < .001$). To examine the role of emotion dysregulation in the relations between exposure to violence and both PTSS and BP pathology, the indirect effects were also examined. Findings revealed a significant indirect effect of violence exposure to PTSS through emotion dysregulation (indirect effect = .15, $p < .001$). Although the direct effect of violence exposure on PTSS remained significant in this analysis, it reduced in magnitude (β s from .49 to .36). Likewise, there was a significant indirect effect of violence exposure to BP pathology through emotion dysregulation (indirect effect = .21, $p < .001$). Although the direct effect of violence exposure on BP pathology remained significant in this analysis, it reduced in magnitude (β s from .41 to .23).

Discussion

Although extant literature provides support for heightened exposure to violence [51, 52] and related psychological difficulties, including PTSS [51, 56] and BP pathology [54, 55], among adolescents treated in inpatient settings, no existing research has focused on examining the relationship between all of these constructs simultaneously. Thus, this study

sought to extend extant literature by examining the mediating role of emotion dysregulation in the relation between exposure to violence and both PTSS and BP pathology. Consistent with hypotheses, significant associations were observed between all of the variables of interest. Furthermore, and consistent with past research [46, 47], exposure to violence was indirectly related to both PTSS and BP pathology through overall emotion dysregulation.

Given evidence of a significant relation between emotion dysregulation and both PTSS and BP pathology among adolescents in residential treatment, further investigation of treatments focused on reducing emotion dysregulation within this population is warranted. For example, although originally developed for chronically suicidal women with borderline personality disorder, recent literature provides support for the utility of Dialectical Behavior Therapy (DBT) [11] for individuals presenting with an array of psychological difficulties linked to emotion dysregulation, including co-occurring substance dependence and borderline personality disorder [75, 76], binge eating [77, 78], depression [79, 80], and co-occurring posttraumatic stress and borderline personality disorders [81]. Furthermore, preliminary evidence supports the utility of DBT among adolescents as well, with adaptations of DBT modeled after Miller, Rathus, DuBose, Dexter-Mazza, and Goldklang [82] resulting in reductions in both BP pathology [83, 84] and other psychiatric symptoms thought to stem from emotion dysregulation (including depression, dissociation, and externalizing symptoms) [85–87]. Given findings of the relevance of emotion dysregulation to both PTSS and BP pathology among adolescents in residential treatment, future research should examine the utility of DBT or other treatments that specifically target emotion dysregulation (Emotion Regulation Group Therapy) [88, 89] within this population as well.

Finally, several noteworthy findings regarding the role of gender in violence exposure, PTSS, and BP pathology were obtained. First, although levels of violence exposure did not differ as a function of gender, female participants reported significantly higher PTSS and BP pathology than male participants. This finding is consistent with past research highlighting comparable (or slightly higher) levels of traumatic exposure [59, 90, 91] but lower rates of PTSS [59, 90, 91] and BP pathology [61, 92] among men versus women. Importantly, gender differences in the types of traumatic events experienced by men and women have been found to account for the different levels of PTSS and BP pathology among men and women following traumatic exposure. For example, Breslau [91] found that assaultive violence was both more prevalent among women (36%) versus men (6%) and related to greater risk for developing PTSD compared with other trauma types. Likewise, Zanarini, Frankenburg [92] reported higher rates of physical and sexual abuse among women (versus men) with BP pathology. These aforementioned findings suggest that the gender differences in PTSS and BP pathology in the present study may be due, in part, to differences in the types of trauma experienced by adolescent males and females. Future studies would benefit from exploring the moderating role of trauma type in the relations among violence exposure, emotion dysregulation, PTSS, and BP pathology among male and female adolescents in residential psychiatric treatment.

Although findings of the present study add to the literature on the relations between exposure to violence and both PTSS and BP pathology in adolescents, several limitations must be taken into account. First, the cross-sectional and correlational nature of the data

limits our ability to determine directionality of the statistically significant relationship between variables of interest. For example, it remains unknown if emotion dysregulation precedes PTSS and BP pathology, or emerges as a consequence of PTSS and BP pathology. Prospective studies are needed to clarify the temporal emergence of these constructs and the nature of their relationship over time. A second limitation is the exclusive reliance on a self-report measure of emotion dysregulation, responses to which may be influenced by an individual's willingness and/or ability to report accurately on emotional responses. Although the measure of emotion dysregulation used here has been found to be significantly associated with objective measures of emotion dysregulation [41, 66, 67], future studies would benefit from the multi-modal assessment of emotion dysregulation that includes behavioral tasks.

Furthermore, although results of the present study suggest that exposure to violence may be indirectly related to both PTSS and BP pathology through overall emotion dysregulation, the direct effect of exposure to violence on these symptoms remained significant, suggesting that other factors may play a role in the development and/or maintenance of PTSS and BP pathology among violence-exposed adolescents. Future research exploring other relevant factors that may relate to heightened PTSS and BP pathology within this population is needed (e.g., impulsivity, dissociation) [38, 93–95]. Although our indirect effect was small and we were only able to show partial mediation, the findings contribute to a burgeoning area worthy of future study. Future studies that incorporate more complex SEM designs and account for other variables may find a more robust effect that yields fully mediated outcomes. Lastly, although our use of a highly functionally impaired clinical sample of adolescents may be considered a strength of this study, findings may not generalize to other adolescent populations, including adolescents receiving outpatient care and non-treatment seeking adolescents with elevated PTSS and/or BP pathology.

Summary

Theoretical literature suggests that emotion dysregulation is one consequence of exposure to violence associated with the manifestation of PTSS and BP pathology. Thus, the goal of the present study was to examine the role of emotion dysregulation in the relation between exposure to violence and both PTSS and BP pathology among one population at heightened risk for exposure to violence, PTSS, and BP pathology: adolescents in psychiatric residential treatment. The results of the present study improve our understanding of the role of emotion dysregulation in PTSS and BP pathology in this population, revealing that overall emotion dysregulation partially mediated the relation between exposure to violence and both PTSS and BP pathology. As such, these findings highlight a potential target for interventions aimed at reducing PTSS and BP pathology within this population, suggesting the utility of teaching violence-exposed adolescents with elevated PTSS and/or BP pathology skills for regulating their emotions. Further, results of the present study suggest that adolescents with heightened exposure to violence may be at particular risk for developing PTSS and/or BP pathology, highlighting the importance of early identification and intervention within this population.

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Figure 1.
Conceptual Model

Figure 2.

Structural Model

Note. $*p < .05$. $**p < .01$, $***p < .001$. IND = indirect effects. $\chi^2 [33, n = 144] = 58.83$, $p = .004$; CFI = .96; RMSEA Est. = .07 (CI .04 – .10); SRMR = .04

Table 1

Correlations Among Variables in the Study

Measure	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1) Gender ^a							
2) Age	-.09						
3) Race ^b	.01	.19*					
4) Violence Exposure	-.07	.03	.24**				
5) Emotion Dysregulation	-.16	-.04	-.07	.32***			
6) PTSS	-.36***	-.03	-.09	.44***	.56***		
7) BP Pathology	-.31***	.02	-.11	.38***	.65***	.62***	
Mean	.51	14.26	.64	32.34	94.34	16.44	43.40
SD	.50	1.50	.48	25.95	23.04	11.85	15.95
Range	0 – 1	10 – 17	0 – 1	0 – 126	38 – 158	0 – 46	4 – 92

Note. N = 144. PTSS = Posttraumatic Stress Symptoms. BP = Borderline Personality Pathology.

^a 0 = Female, 1 = Male.

^b 0 = White, 1 = Other.

^{a,b} point-biserial correlations

 $p < .001$.

**
 $p < .01$.

*
 $p < .05$.

Table 2

Rates of Endorsement for Each of the Domains of Exposure to Violence

	% endorsed
Recent Exposure to Violence	
Physical Abuse/Threat	
Victimized at Home	49.3
Witnessed at Home	47.2
Victimized at School	50.0
Witnessed at School	76.4
Victimized in Neighborhood	34.7
Witnessed in Neighborhood	70.8
Shooting/Knife Attack	48.6
Sexual Assault	32.6
Past Exposure to Violence	
Physical Abuse/Threat ^a	
Victimized	60.4
Witnessed	71.5
Shooting/Knife Attack	41.7
Sexual Assault	33.3

Note. N = 144.