

“HARM AS HARM”

Gang Membership, Perpetration Trauma, and Posttraumatic Stress Symptoms Among Youth in the Juvenile Justice System

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The construct of perpetration-induced trauma (PT) proposes that inflicting harm on others may constitute a traumatic event, a phenomenon which might be relevant to youth in gangs. This study investigated PT, trauma exposure, posttraumatic stress symptoms, and gang membership in a sample of 660 youth (484 boys, 176 girls) recruited from a detention center. When compared with their non-gang-member peers, youth in gangs endorsed higher levels of exposure to violence and PT, as well as higher symptoms of dissociation and emotional numbing. Girls who endorsed gang membership were those most likely to meet full or partial criteria for a posttraumatic stress disorder diagnosis. Results of regression analyses showed that PT predicted unique variance in posttraumatic stress above and beyond other variables and results of tests for bootstrapped indirect effects were consistent with the hypothesis that PT acts as a mediator of the association between gang membership and posttraumatic stress.

Keywords: perpetration trauma; trauma exposure; posttraumatic stress; gangs; delinquency; gender

A significant body of research has emerged attesting to the fact that trauma exposure and posttraumatic stress symptoms are highly prevalent among youth in the juvenile justice system (e.g., Abram et al., 2004; Bennett et al., 2014; Cauffman, Feldman, Waterman, & Steiner, 1998; Ford, Hartman, Hawke, & Chapman, 2008), with rates far exceeding those seen in community samples (Wood, Foy, Layne, Pynoos, & James, 2002). Prospective longitudinal research confirms that exposure to trauma predicts youths' involvement in delinquent behavior (for reviews, see Kerig & Becker, 2010, 2015), and that symptoms of posttraumatic stress may help to account for these effects (Allwood, Bell, & Horan, 2011;

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Bennett et al., 2014; Kerig, Vanderzee, Becker, & Ward, 2012). For this reason, trauma has been identified as a national priority for research directed toward understanding and ameliorating delinquency (Listenbee et al., 2012). However, evidence also suggests that the associations between delinquency and trauma are reciprocal: Although trauma increases the risk for delinquency, involvement in antisocial behavior also in turn increases the risk for traumatization through exposing youth to violence (Begle et al., 2011). In particular, although childhood trauma typically is construed as a consequence of victimization, perpetration of violence against others also may constitute a traumatic event (Kerig, Wainryb, Twali, & Chaplo, 2013; Wainryb, 2011). McNair's (2002) construct of perpetration-induced trauma (PT) suggests that those who commit acts of violence—particularly those who are compelled to do so, such as soldiers in a time of war—might suffer posttraumatic reactions in the aftermath.

One cohort of justice-involved youth for whom the construct of PT may be particularly relevant is that of gang members. There are a wide variety of intersecting risk factors that have found to contribute to gang membership, including factors at the individual level (e.g., adverse childhood experiences), micro level (e.g., group processes), and macro level (e.g., neighborhood characteristics); consequently, no one variable can account for such a complex phenomenon (Decker, Melde, & Pyrooz, 2013). Among these risk factors, increasing recent attention has been drawn to the potential role of trauma in gang membership (Kerig, Wainryb, et al., 2013). The lives of gang members are rife with violence (Decker & van Winkle, 1996) and research confirms that youth in gangs report disproportionate levels of exposure to violence when compared with community youth and non-gang members (Barnes, Boutwell, & Fox, 2012; Katz, Webb, Fox, & Shaffer, 2011; Pyrooz, Moule, & Decker, 2014; Taylor, Peterson, Esbensen, & Freng, 2007). In one pioneering study, Bocanegra and Stolbach (2012) found that youth gang members reported not only high levels of exposure to violence but also experiences that met diagnostic criteria for classification as traumatic events. Exposure to such traumatic forms of violence is associated with negative mental health outcomes among gang-involved youth (Coid et al., 2013; Harper, Davidson, & Hosek, 2008; Madan, Mrug, & Windle, 2011), including posttraumatic stress (Kelly, Anderson, Hall, Peden, & Cerel, 2012). For example, in a recent review of mental health screenings conducted on a large sample of detained youth, Harris and colleagues (2013) found that gang membership increased the likelihood that youth would meet criteria for a diagnosis of posttraumatic stress disorder (PTSD) almost twofold.

However, research on traumatic experiences among youth gang members has not considered the potential relevance of PT. Like child soldiers in international contexts (Kerig, Wainryb, et al., 2013; Klasen, Reissmann, Voss, & Okello, 2014; Wainryb, 2011), youth in gangs often are compelled to perpetrate violence against others as part of their initiation rites, turf wars, or ongoing gang-related activities (Alleyne & Wood, 2010; Klein & Maxson, 2010; Taylor et al., 2007). Anecdotal reports suggest that participating in these forms of violence can lead to negative psychological consequences for gang members, a phenomenon which Father Gregory Boyle (2011) terms "harm as harm" (p. 81). Whereas studies of child soldiers and war-exposed adolescents in international contexts confirm that posttraumatic distress is associated with the perpetration of violence against others (Betancourt et al., 2013; Kira et al., 2013; Klasen et al., 2014), research has not yet investigated perpetration trauma and posttraumatic stress among youth gang members in the United States.

In addition to posttraumatic symptoms more broadly, recent research on the links between trauma and delinquency also suggests the importance of attending to specific posttraumatic reactions, including numbing and dissociation. Traumatized youth in the juvenile justice system demonstrate elevated rates of posttraumatic dissociation (Bennett, Kerig, Chaplo, & Modrowski, 2015; Carrion & Steiner, 2000) and emotional numbing (Bennett et al., 2014), and both these specific trauma symptoms are associated with an increased likelihood of delinquency (Allwood et al., 2011; Kerig, Bennett, Thompson, & Becker, 2012; Plattner et al., 2003). Our understanding of posttraumatic reactions among youth involved in severely antisocial behaviors, such as gang violence, may be enhanced by attending to a wider range of trauma symptoms, including dissociation and emotional numbing.

Prior research also suggests that there may be gender differences in the ways that gang membership is related to trauma. Large-scale studies find that between 26% and 46% of adolescent gang members are female (Peterson, 2012) and, although the roles that girls play in gangs generally are characterized by lower levels of violence than those of boys, girls in gangs do report participating in the full range of gang-related activities, including gang wars, physical attacks, and shootings (Esbensen, Deschenes, & Winfree, 1999). Therefore, the construct of PT may be relevant to girls as well as boys; moreover, it is possible that girls are even more vulnerable to its effects given that girls and women are at greater risk than boys and men for developing posttraumatic stress symptoms following violence exposure in general (Tolan & Foa, 2006). Vulnerability to trauma exposure is exacerbated by prior interpersonal victimization (Pimlott-Kubiak & Cortina, 2003), and girls are more likely than their male peers to enter gangs with a history of childhood victimization, particularly in the form of sexual abuse (Miller & Decker, 2001; Moore & Hagedorn, 2001; Petersen & Howell, 2013). Girls also are more likely than boys to experience ongoing sexual victimization within gangs, whether in the form of being “sexed in” as an initiation rite or condition of remaining in the group (Miller, 1998), being trafficked for the purposes of commercial sexual exploitation (Dorais & Corriveau, 2009), or experiencing intimate partner violence within the gang (Ulloa, Dyson, & Wynes, 2012). Thus, girls might be more vulnerable than boys to negative effects associated with exposure to gang-related violence, including perpetration. However, most studies of trauma among gang members have focused on all-male samples and therefore, further research is needed to determine whether there are differences related to gender in the associations among gang involvement, posttraumatic stress symptoms, and perpetration.

In sum, to address these gaps in the literature, the aims of the present study were to investigate three questions:

Research Question 1: Do youth who are gang members exhibit higher levels of trauma exposure, PT, and posttraumatic stress symptoms than their non-gang-member peers?

Research Question 2: Does PT help to account for the association between gang membership and posttraumatic stress symptoms?

Research Question 3: Are the above effects differentiated by youth gender?

METHOD

PARTICIPANTS

Participants included 660 youth (484 boys, 176 girls) recruited from a short-term juvenile detention center located in the Western United States in which youth are held either

pending adjudication or while serving brief sentences post-adjudication. Youth ranged in age from 11 to 18 years ($M = 16.11$ years, $SD = 1.31$ years). Consistent with the demographics of the larger population of justice-involved youth in this geographic region, 56.6% identified as White/Caucasian, 23.2% as Hispanic/Latino, 5.5% as biracial/multiracial, 4.6% as Black/African American, 4.6% as Pacific Islander/Native Hawaiian, 3.2% as Native American/Alaskan Native, and 1.1% as Asian American.

MEASURES

Gang Membership

Youth were asked three Likert-type questions to assess their current and past gang membership, including whether they currently or had recently identified themselves as being a member of a street gang (1 = *never*, 5 = *currently*), how many gang fights they had participated in, in their lifetime (1 = *none*, 5 = *20 or more*), and how active they had been in gang activities recently (1 = *not at all*, 5 = *very much*).

Trauma Exposure and Posttraumatic Stress Symptoms

The UCLA Posttraumatic Stress Disorder Reaction Index—Adolescent Version (PTSD-RI; Pynoos, Rodriguez, Steinberg, Stuber, & Frederick, 1998) is a widely used screening measure which has been demonstrated to have good convergent validity with other diagnostic measures, high internal consistency, and high test–retest reliability. The first set of questions asks youth whether or not they have ever in their lifetimes experienced each of 17 specific “very scary, violent, or dangerous” events (e.g., physical abuse, sexual abuse, traumatic loss, witnessing violence, accidents, medical trauma, and natural disasters). Youth in the sample reported experiencing an average of 7.47 different traumatic events ($SD = 4.29$) and the average length of time elapsed since these events was 33.19 months ($SD = 37.30$ months, range = 3 - 60 months).

The second set of questions on the PTSD-RI asks youth to rate the extent to which they have experienced within the past month any symptoms associated with the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.; *DSM-IV-TR*; American Psychiatric Association [APA], 2000) diagnosis of PTSD, as well as associated features, resulting in a total of 32 items. Responses to the questions are presented in a Likert-type scale format ranging from 0 (*none of the time*) to 4 (*most of the time*), and are summed to create a total posttraumatic symptoms score (Total PTSS). The possible scores for the Total PTSS scale range from 0 to 128, with a score of 38 evidencing specificity and sensitivity as a clinical cutoff (Steinberg, Brymer, Decker, & Pynoos, 2004). The scale demonstrated good reliability in the present sample, with Cronbach’s alpha = .90.

Youths’ responses to the PTSD-RI symptom questions also are used to establish whether or not they likely meet criteria for a diagnosis of PTSD, following the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.; *DSM-IV*; APA, 1994) criteria. These criteria require the endorsement of a traumatic event (Criterion A), as well as a minimum number of symptoms to be endorsed in all three symptom clusters: Reexperiencing (Criterion B, minimum of one symptom required), Avoidance (Criterion C, minimum of three symptoms required), and Arousal (Criterion D, minimum of two symptoms required). A rating on each item of 3 or 4 (*much of the time* or *most of the time*) is considered indicative of symptom

presence. Full PTSD is defined as an endorsement of Criterion A as well as the required number of symptoms for Criteria B, C, and D, and Partial PTSD is defined as an endorsement of Criterion A as well the required number of symptoms for any two of the three PTSD symptom clusters. Given the frequency with which traumatized youth meet only partial criteria for PTSD while exhibiting symptoms significant enough to interfere with functioning (Cohen & Scheeringa, 2009), both full and partial PTSD were assessed.

Perpetration Trauma

To create an index of PT, a question was added to the PTSD-RI list of trauma exposure items asking whether the respondent had ever experienced in his or her lifetime any traumatic event that involved the youth “doing or being forced to do something very scary, dangerous or violent to another person.” Youth answered either “yes” or “no” to this question.

Dissociation

The Adolescent Dissociative Experiences Scale (A-DES-II; Armstrong, Putnam, Carlson, Libero, & Smith, 1997) is a well-validated 30-item self-report measure designed to assess four dimensions of dissociation: amnesia, absorption and imaginative involvement, depersonalization and derealization, and passive influence. Youth rate each item on an 11-point scale ranging from 0 (*never*) to 10 (*always*), and item scores are averaged to create a total score, which was used in present analyses, $\alpha = .94$.

Emotional Numbing

The Emotional Numbing and Reactivity Scale (ENRS; Orsillo, Theodore-Oklota, Luterek, & Plumb, 2007) is a self-report measure that assesses difficulty accessing and identifying feelings, and has been found to be reliable and valid in previous studies of adolescents (Allwood et al., 2011; Kerig, Bennett, et al., 2012). The General Numbing subscale (eight items) was used in the present sample. Item responses were rated on a 5-point Likert-type scale ranging from 1 (*not at all typical of me*) to 5 (*entirely typical of me*) and were summed to create a total score, $\alpha = .71$.

PROCEDURE

All study procedures were approved by the Institutional Review Boards (IRBs) of the University of Utah and the Utah Department of Human Services. All eligible participants were invited to participate, with the only exclusionary criteria being if parents or youth did not comprehend English well enough to understand the consent forms or questionnaires. At visitations to the detention center, legal guardians were approached and requested to provide signed informed consent after which youth were invited to provide signed assent to participate in the study. To eliminate any perceptions of coercion, no incentives were offered for participation. Due to low literacy skills often found in detained samples and the sensitive nature of the data being collected, measures were administered in individual interviews conducted by research assistants in a private room within the detention center. Interviews were conducted in two sessions, each lasting approximately 75 min.

TABLE 1: Demographic Information

	Total Sample	Gang Members		Non-Gang Members	
		Girls	Boys	Girls	Boys
Gender					
%		26.70	73.30	26.00	74.00
Age					
<i>M (SD)</i>	16.13 (1.30)	16.01 (1.08)	16.18 (1.33)	16.11 (1.32)	16.18 (1.33)
Race					
% White/Caucasian	54.60	38.60	36.90	61.60	70.50
% Latino/Latina	25.20	34.10	41.60	16.20	13.50
% biracial/multiracial	5.60	11.40	4.00	6.10	5.30
% Black/African American	4.90	0.00	4.70	7.10	5.30
% Pacific Islander/Native Hawaiian	3.90	6.80	8.70	2.00	1.60
% Native American	3.30	9.10	2.70	3.00	2.50
% Asian American	1.10	0.00	1.30	2.00	0.80
% Other	1.40	0.00	0.0	2.00	1.20

RESULTS

GROUP DIFFERENCES BASED ON GENDER AND GANG MEMBERSHIP

Gender and Gang Membership

Demographic information regarding the sample, reported separately by gang membership and gender, is reported in Table 1. To examine group differences between boys and girls who did and did not endorse gang membership, a dichotomous variable was created based on youths' endorsement of any current or past gang membership. Overall, 36.2% of the youth in this sample endorsed either current or previous gang membership and chi-square tests showed there was no significant difference between boys and girls in the likelihood of gang membership, 37.9% versus 31.3%, respectively, $\chi^2(1, 536) = 2.32, p = .13$, odds ratio (OR) = 0.73, confidence interval (CI) = [0.48, 1.1].

Trauma Exposure

Table 2 displays the proportion of youth endorsing each traumatic event on the PTSD-RI, reported separately by gender and gang membership. Chi-square tests indicated that there were some overall gender differences in youths' reports of exposure to trauma, with girls more likely than boys to report having experienced emotional abuse, $\chi^2(1, 642) = 57.41, p < .001$, OR = 3.94, CI = [2.74, 5.69]; and sexual abuse, $\chi^2(1, 642) = 116.56, p < .001$, OR = 9.81, CI = [6.18, 15.56]. In contrast, boys were more likely than girls to endorse having been a victim of community violence, $\chi^2(1, 644) = 12.21, p < .001$, OR = 0.53, CI = [0.37, 0.76]; and having experienced physical abuse, $\chi^2(1, 644) = 35.57, p < .01$, OR = 2.93, CI = [2.04, 4.19].

Youths' reports of trauma exposure also revealed main effects for gang membership, with gang member youth significantly more likely than their peers to report experiencing community violence, $\chi^2(1, 536) = 60.9, p < .001$, OR = 0.18, CI = [0.11, 0.28]; and witnessing community violence, $\chi^2(1, 536) = 47.54, p < .001$, OR = 0.21, CI = [0.13, 0.34]. Similar patterns of results were found for reports of living in a "war zone," $\chi^2(1, 536) = 31.03, p < .001$, OR = 0.25, CI = [0.15, 0.42], and seeing a dead body, $\chi^2(1, 534) = 13.87$,

TABLE 2: Descriptive Statistics

	Total Sample	Gang Members		Non-Gang Members	
		Girls	Boys	Girls	Boys
Percentages					
Full/partial PTSD	36.70	60.50	37.00	44.90	30.30
Trauma exposure					
Physical abuse	36.50	56.30	36.90	45.70	32.20
Sexual abuse	16.80	58.10	8.70	38.40	7.90
Emotional abuse	38.50	75.00	26.40	60.60	32.20
Domestic violence	38.20	37.50	43.20	45.70	29.70
Death of loved one	52.10	66.70	63.10	52.50	46.30
Community violence—Victim	66.80	77.80	88.60	41.40	57.80
Community violence—Witness	68.40	86.70	85.80	53.50	59.00
Seen dead body	28.10	45.50	35.10	19.20	23.40
Medical trauma	35.00	37.80	33.60	34.40	34.40
Natural disaster	17.20	18.80	17.10	18.60	14.90
Accident	28.00	28.90	34.90	23.20	26.60
War	14.10	28.90	23.50	9.10	7.00
Other	21.90	18.20	22.40	20.20	23.00
Perpetration trauma	24.60	45.90	42.50	13.00	16.30
<i>M (SD)</i>					
Total trauma exposure	6.86 (4.27)	10.25 (4.38)	7.86 (3.55)	7.54 (4.42)	5.97 (4.03)
Total posttraumatic stress symptoms	25.06 (13.97)	34.20 (14.63)	25.32 (12.74)	27.87 (14.57)	22.57 (14.12)
Dissociation	1.97 (1.64)	2.74 (1.89)	2.18 (1.79)	1.79 (1.47)	1.87 (1.67)
Emotional numbing	9.71 (5.46)	11.80 (6.07)	10.59 (5.47)	8.11 (5.28)	9.17 (5.09)

Note. PTSD = posttraumatic stress disorder.

$p < .001$, OR = 0.48, CI = [0.33, 0.71], which were more often reported by gang members than their peers. One interaction effect emerged, indicating that girls in gangs were more likely than girls who were not gang members to endorse having had an unwanted sexual experience, $\chi^2(1, 142) = 4.74$, $p = .03$, OR = 0.45, CI = [0.22, 0.93], whereas this pattern did not emerge for boys.

Perpetration Trauma

As also reported in Table 2, a total of 24.6% of the youth in the sample endorsed PT, with no significant difference between boys and girls, 24.8% versus 24.1%, respectively, $\chi^2(1, 556) = .03$, $p = .87$, OR = 0.96, CI = [0.62, 1.5]. However, gang members were significantly more likely to endorse PT than their peers who were not in gangs, 43.3% versus 15.4%, $\chi^2(1, 490) = 46.14$, $p < .001$, OR = 0.24, CI = [0.15, 0.37].

Posttraumatic Stress Symptoms

Analyses of youths' reports of posttraumatic stress symptoms indicated that youth in gangs were not statistically significantly more likely than their non-gang-member peers

TABLE 3: ANOVA Results: Differences in Posttraumatic Stress Symptoms by Gender, Gang Membership, and PT

	Gender		<i>F</i>	<i>p</i>	η^2
	Girls <i>M (SD)</i>	Boys <i>M (SD)</i>			
Total PTSS	30.01 (14.76)	23.28 (13.26)	13.30	.00	.03
Dissociation	2.05 (1.60)	1.95 (1.66)	.10	.75	.00
Emotional numbing	9.59 (5.67)	9.75 (5.38)	.04	.85	.00
	Gang Involvement		<i>F</i>	<i>p</i>	η^2
	Gang <i>M (SD)</i>	Non-Gang <i>M (SD)</i>			
Total PTSS	27.37 (13.69)	24.12 (14.43)	3.55	.06	.01
Dissociation	2.33 (1.83)	1.85 (1.61)	4.14	.04	.01
Emotional numbing	10.89 (5.62)	8.86 (5.16)	4.37	.04	.01
	Perpetration Trauma		<i>F</i>	<i>p</i>	η^2
	PT <i>M (SD)</i>	No PT <i>M (SD)</i>			
Total PTSS	29.18 (4.26)	23.90 (13.73)	5.50	.02	.01
Dissociation	2.35 (1.65)	1.85 (1.61)	2.00	.16	.00
Emotional numbing	11.51 (6.23)	8.95 (4.89)	13.45	.00	.03

Note. PTSS = posttraumatic stress symptoms; PT = perpetration trauma.

to meet *DSM-IV-TR* criteria for a diagnosis of full or partial PTSD, 42.30% versus 35.30%, respectively, $\chi^2(1, 523) = 2.51, p < .10, OR = 0.74, CI = [0.52, 1.07]$. However, chi-square tests indicated an interaction with gender, in that girls in gangs were more likely to meet full PTSD criteria than girls who were non-gang members, 38.6% versus 20.4%, $\chi^2(1, 142) = 5.24, p = .02, OR = 0.41, CI = [0.19, 0.89]$, a pattern that did not emerge for boys, $\chi^2(1, 387) = 0.60, p = 0.44, OR = 0.79, CI = [0.44, 1.44]$. There were no other main effects or interactions.

For the remaining continuous variables measured, a MANOVA was conducted to examine differences in posttraumatic symptoms related to gender, gang membership, PT, and the interaction of these variables. Dependent variables included Total PTSS, dissociation, and emotional numbing. Youth age and ethnicity were entered as covariates. Multivariate tests indicated significant main effects associated with gender, Wilks's $\lambda(3, 461) = .936, p < .001$, and PT, Wilks's $\lambda(3, 461) = .987, p = .03$. Effects associated with gang membership were not significant, Wilks's $\lambda(3, 461) = .985, p = .07$, and there were no significant interaction effects. As displayed in Table 3, the results of follow-up univariate tests indicated that there was a main effect of gender for Total PTSS, with girls displaying higher rates of total symptoms in comparison with boys. In addition, main effects for gang membership emerged indicating that, in comparison with their peers, youth in gangs endorsed significantly higher rates of posttraumatic symptoms of dissociation and emotional numbing than their peers. Finally, results indicated that there was a main effect of PT, with youth who endorsed PT reporting the highest levels of Total PTSS and emotional numbing.

PERPETRATION AS A PREDICTOR OF POSTTRAUMATIC STRESS SYMPTOMS

To test the hypothesis that PT predicts variance in posttraumatic stress symptoms above and beyond that associated with other forms of trauma exposure and gang membership, hierarchical multiple regressions were performed for the dependent measures of Total PTSS, dissociation, and emotional numbing. Age, ethnicity, and gender were entered in the first step as covariates, followed by total trauma exposure in the second step, gang membership in the third step, perpetration in the fourth step, and all two-way, three-way, and four-way interaction terms on the final step. As the results displayed in Table 4 indicate, gang involvement and PT were significant predictors of all outcomes, even after accounting for the effects associated with other forms of trauma exposure, and the inclusion of PT contributed significantly to the amount of variance explained in posttraumatic stress symptoms, dissociation, and emotional numbing. None of the interactions were statistically significant predictors of these outcomes.

PERPETRATION TRAUMA AS A MEDIATOR OF THE ASSOCIATION BETWEEN GANG INVOLVEMENT AND POSTTRAUMATIC STRESS SYMPTOMS

Finally, to test the hypothesis that PT helps to account for the association between gang involvement and posttraumatic stress symptoms, tests for mediation were performed using Mplus Version 7.11 (Muthén & Muthén, 1998-2011). Given that the PT variable was dichotomous, this model was estimated using weighted least-squares means and variance adjusted (WLSMV) because other estimators, including the maximum likelihood (ML) estimator, tend to result in incorrect standard errors (*SEs*) and attenuate the relationships between observed variables (Brown, 2006). For these analyses, a latent variable for posttraumatic stress symptoms was comprised of the individual items of the PTSD-RI. Fit indices indicated that the model was an adequate fit to the data, $\chi^2(13) = 54.57$, $p < .01$, root mean square error of approximation (RMSEA) = .08, Comparative Fit Index (CFI) = .95, Tucker Lewis Index (TLI) = .92, Weighted Root Mean Square Residual (WRMR) = .77.

As displayed in Figure 1, bootstrapped indirect effects indicated results consistent with mediation of the association between gang involvement and posttraumatic stress symptoms by PT, $B = 0.10$, $SE = 0.04$, $p < .01$. Pathways were significant between gang involvement and PT, $B = 0.14$, $SE = 0.02$, $p < .001$ and between PT and posttraumatic stress symptoms, $B = 0.71$, $SE = 0.29$, $p = .01$. However, the pathway between gang involvement and posttraumatic stress symptoms did not reach significance, $B = 0.06$, $SE = 0.07$, $p = .36$. We also examined whether this model was moderated by gender by using a multi-group model constraining the path coefficients individually across groups. Non-significant chi-square difference tests comparing the constrained and non-constrained models indicated that none of the pathways were moderated by gender.

DISCUSSION

The primary aims of the present study were to investigate the associations among gang membership, gender, trauma exposure, PT, and posttraumatic stress symptoms in a sample of juvenile justice-involved youth. First, we tested the hypothesis that youth who endorsed gang membership would exhibit higher levels of trauma exposure, PT, and PTSS than their peers. Results indicated that youth gang members exhibited higher rates of trauma exposure

TABLE 4: Results of Regression Analyses Investigating Demographic Variables, TE, Gang Membership, and Perpetration Trauma as Predictors of Posttraumatic Stress Symptoms, Dissociation, and Emotional Numbing

Model	Step	Posttraumatic Stress Symptoms		Dissociation		Emotional Numbing	
		ΔR^2	<i>B</i>	ΔR^2	<i>B</i>	ΔR^2	<i>B</i>
Model 1	1						
	Age	.02*	0.84	.03**	1.19*	.01	-0.29
	Ethnicity		1.03*		0.13		0.29
Model 2	1						
	Age	.05***	0.92*	.02*	1.21***	.00	-0.29
	Ethnicity		0.91		0.09		0.29
	2						
	Gender		-6.71***		-2.36*		0.20
Model 3	1						
	Age	.02**	0.97*	.01	1.22**	.01	-0.28
	Ethnicity		0.68		-0.02		0.29
	2						
	Gender		6.46***		-2.49*		0.25
	3						
	TE		12.95**		1.78*		2.57*
Model 4	1						
	Age	.02**	0.97*	.02**	1.11**	.03***	-0.28
	Ethnicity		0.68		0.03		0.17
	2						
	Gender		-6.72***		-2.52*		0.10
	3						
	TE		12.29**		5.43**		2.17*
	4						
	Gang		3.33**		1.78*		1.92***
Model 5	1						
	Age	.02**	0.83	.02**	1.08**	.02*	-0.31
	Ethnicity		0.74		0.03		0.19
	2						
	Gender		-6.77***		-2.50*		0.09
	3						
	TE		11.28**		5.45**		1.92*
	4						
	Gang		2.20*		1.68		1.93***
	5						
	PT		4.16**		3.31**		1.10*

Note. All possible interaction effects were added in the last step of each regression equation and none contributed significantly to the prediction of any of the dependent variables; these coefficients are omitted from the table for the sake of parsimony but full results are available from the authors upon request. For the final model predicting PTSS, Total $R^2 = .10$, $p < .01$; for the final model predicting Dissociation, Total $R^2 = .07$, $p < .01$; for the final model predicting Emotional numbing, Total $R^2 = .06$, $p < .05$. TE = trauma exposure; Gang = gang membership; PT = perpetration trauma.

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

overall and PT in particular. In comparison with youth who were not gang members, youth in gangs demonstrated a non-significant trend toward greater likelihood of meeting *DSM-IV* criteria for a diagnosis of full or partial PTSD and exhibited significantly higher levels of

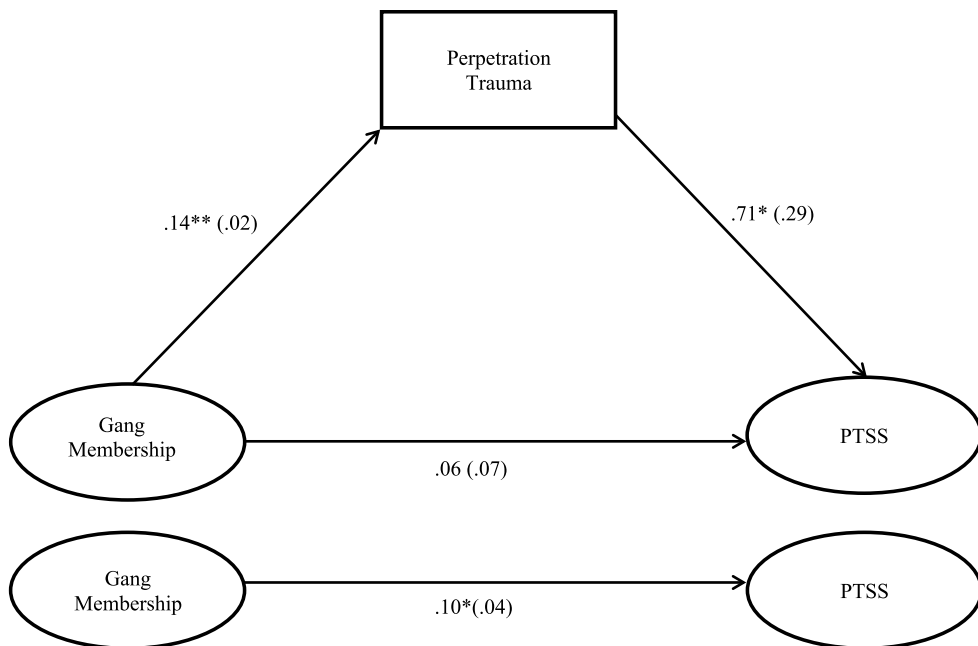


Figure 1: Mediation of the Association Between Gang Membership and Posttraumatic Stress Symptoms by Perpetration Trauma

Note. $n = 660$. Analyses controlled for age and ethnicity. Unstandardized B coefficients are displayed with standard errors in parentheses. PTSS = posttraumatic stress symptoms.

* $p < .05$. ** $p < .01$.

posttraumatic emotional numbing and dissociation. Furthermore, regression analyses demonstrated that PT predicted variance in posttraumatic stress symptoms above and beyond other forms of trauma exposure, gang membership, and gender. The results also were consistent with mediation of the association between gang membership and posttraumatic stress symptoms by PT, and this mediational pattern did not differ for boys and girls.

The current study contributes in a number of ways to the emerging literature on trauma and posttraumatic stress symptoms among youth in gangs. This is the first known study to examine perpetration trauma among youth who are gang members, which is a valuable expansion from previous theory and research that has focused on PT in other populations, such as military personnel and international child soldiers (Kerig, Wainryb, et al., 2013). Consideration of perpetration as a potentially traumatic event for youth with a history of gang activity has clinically relevant implications, given that these youths' mental health needs related to trauma exposure may be overlooked (Bailey, Smith, Huey, McDaniel, & Babeva, 2014). It is notable that PT was associated with emotional numbing, building upon previous research implicating posttraumatic numbing as a specific risk factor for delinquency among traumatized youth (Allwood et al., 2011; Bennett & Kerig, 2014; Bennett et al., 2014; Kerig, Bennett, et al., 2012). The overregulation of emotions via numbing may represent a maladaptive strategy for coping with trauma, and therefore trauma-focused interventions that help youth to develop adaptive affect regulation strategies may be of value (Ford, Steinberg, Hawke, Levine, & Zhang, 2012). It also is of interest that PT

predicted unique variance in dissociation, another posttraumatic symptom that also has been found to be prevalent among justice-involved youth (Bennett et al., 2015; Carrion & Steiner, 2000) and one that is receiving increasing attention due its inclusion in the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; *DSM-5*; APA, 2013) criteria for PTSD (Lanius et al., 2014). Theories propose that dissociation may even play a role in initiating and perpetuating the kinds of risky behaviors that are associated with juvenile delinquency (Plattner et al., 2003), and further research that examines the contribution of perpetration-linked trauma to this association is warranted.

The prevalence of PTSS among the youth gang members in the present study, and the association between perpetration trauma and posttraumatic reactions, also runs counter to the assumption that chronic exposure to the high levels of violence pervasive in gang life is associated with the normalization of violence and desensitization to its effects (Decker & van Winkle, 1996; Gaylord-Harden, Dickson, & Pierre, 2015). Consistent with other studies, the present results suggest that trauma exposure is associated with posttraumatic distress among urban youth exposed to violence (McCart et al., 2007). The present study contributes new knowledge to our understanding of this phenomenon by linking PTSS specifically to the experience of perpetration trauma, a risk particularly associated with membership in gangs. The findings reported here regarding posttraumatic symptoms of emotional numbing and dissociation also suggest that it might be important to further examine the question of desensitization with a trauma-informed lens. Traumatized youth whose symptoms take the forms of numbing and dissociation may appear to others to be desensitized and indifferent, while in fact they are experiencing posttraumatic distress reactions that are a prime target for treatment (Ford, Chapman, Mack, & Pearson, 2006; Kerig, Bennett, et al., 2012).

Another aim of this study was to investigate gender effects. Consistent with previous research on juvenile justice-involved youth (Kerig & Becker, 2012), girls generally endorsed higher levels of exposure to certain traumatic stressors, such as sexual abuse, and reported higher levels of posttraumatic symptoms generally. The present study adds to this body of research the finding that girls in gangs evidenced the highest levels of exposure to sexual abuse and the greatest likelihood of meeting *DSM-IV* criteria for a diagnosis of PTSD. Although these cross-sectional data do not allow for interpretations regarding the direction of effects, and it might be the case that girls with elevated trauma symptoms are attracted to joining gangs subsequent to these experiences, these results appear consistent with the hypothesis that girls might be more vulnerable to the negative consequences of some forms of gang violence. Gender did not act as a moderator of the patterns of relationships among gang membership, PT, and posttraumatic stress in the present study, results inconsistent with the hypothesized greater sensitivity of girls to these effects. Nonetheless, there is burgeoning interest in understanding and intervening with the unique factors that are associated with girls' delinquency (Zahn et al., 2010), particularly among youth gang members (Peterson, 2012), and strong links have been established between trauma and girls' involvement in both delinquency in general (Kerig & Schindler, 2013) and gangs in particular (Kerig, Wainryb, et al., 2013). Therefore, the results of this initial study warrant replication and gender likely will continue to be an important topic for future research on the intersections of trauma, perpetration, and gang membership.

Another issue ripe for future research is whether these patterns are moderated by the presence of callous-unemotional (CU) traits. Recent research examining the trajectories of youth gang members suggests that CU traits may be predictive of gang affiliation. For

example, in a longitudinal sample of urban, gang-involved boys, Dmitrieva, Gibson, Steinberg, Piquero, and Fagan (2014) found that CU traits were predictive of youths assuming leadership roles in gangs. Given the association of CU traits with lack of remorse, it is possible that callous traits among youth in gang leadership positions would be associated with lower levels of posttraumatic stress in the aftermath of perpetration. Suggestive of this possibility, research involving soldiers conscripted into international paramilitary groups demonstrates that being coerced or ordered to perform acts of violence is related to post-traumatic stress, whereas self-initiative “appetitive” participation in such activities is not associated with a traumatized response (Hecker et al., 2013).

Another promising direction for future research on gang-related perpetration trauma will be to incorporate into this research the broader construct of moral injury (Litz et al., 2009), which is defined as the experience of events that violate one’s own deeply held moral beliefs. Moral injury expands beyond PT to include not only the performance of overt acts of perpetration but also the witnessing of such events or the failure to act so as to prevent harm to others. Litz and colleagues (2009) also suggested that moral injury, although predictive of PTSD, may be associated with a wider range of negative consequences, including changes in ethical attitudes and behaviors, guilt, shame, alienation, reduced trust in others, aggression, and self-harm (Drescher et al., 2011). Notably, each of these psychological reactions has been theorized to contribute to the development of delinquency among youth exposed to trauma (Kerig & Becker, 2010). However, until recently, the study of moral injury has been limited to military samples in the context of warfare. The results of the present research suggests that this concept may be relevant to a wider range of individuals, including youth, and that the study of moral injury among those involved in gangs may help to elucidate how victimization and perpetration interact in the context of serious antisocial behavior and its psychological affect-effects.

In this regard, a further important direction for further research will be to examine the construct of PT in the context of broader patterns of perpetration and victimization. As has been found in a number of investigations, youth gang members disproportionately are involved in both victimization and perpetration against others (Krohn & Thornberry, 2008; Pyrooz et al., 2014) and the likelihood of victimization increases as a function of youths’ tenure in the gang (Taylor et al., 2007). Consideration of the role of PT in the victimization–perpetration relation could help to shed additional light on this phenomenon. For example, the definition of PT as a form of “harm as harm” (Boyle, 2011) suggests that, at least for those youth who are compelled to perpetrate acts of violence that violate their personal moral code, PT is a form of simultaneous victimization and perpetration. Future research will benefit from expanding the assessment battery administered in the current study to include more comprehensive measures of victimization beyond the narrowly defined *DSM-IV* traumatic events included here, as well by including more broad-based measures of violence perpetration beyond perpetration-linked trauma alone.

There are a number of limitations of the current study. Although statistically significant, the overall proportion of variance explained in the dependent variables was modest, suggesting that there are other important factors that should be considered in future research regarding trauma and gang membership. The present sample was limited to youth being held in a short-term detention center and thus may not be representative of the larger population of gang-involved or justice-involved youth. In particular, this detention center did not include those youth in the most “deep end” of the juvenile justice

system (Cauffman, 2008), given that those with records of repeated, heinous offenses typically are held in long-term secure confinement facilities or are transferred to the adult system. The data gathered were cross-sectional, single-measure, and collected via self-report, and future research would be enhanced by inclusion of multiple reporters and data collected at multiple points in time. Although the patterns of results examined in the present study were statistically consistent with a mediational model, longitudinal research is needed to demonstrate whether in fact PT accounts for the association between gang membership and posttraumatic stress symptoms over time. A single question regarding PT was created for this study and future research would benefit from the development of a more rigorously validated measure of this construct. This item also did not distinguish between acts involving agency versus coercion; research on the construct of moral injury indicates that both these types of perpetration can be associated with negative psychological consequences (Litz et al., 2009). However, there also may be important differences between them that these data were not able to capture. Further information regarding youths' previous arrest histories, length of time in detention, and self-reported delinquency would be valuable additions that were not assessed. In addition, youth in the present study were asked only about membership in gangs, whereas there may be important distinctions to be made related to the extent, depth, and length of gang embeddedness, which more elaborated measures (e.g., Wood et al., 2002) would assess. As suggested above, gang membership also may be differentiated by the specific roles that youth play in gangs, whether as leaders or as followers (Dmitrieva et al., 2014), and so future research might benefit from inclusion of measures that inquire about these roles. The reliance on youth self-reports of gang membership also comprises a limitation to the current study. Although self-nomination has been validated as a method of establishing gang membership, different findings might result from future research utilizing institutional or other data to establish gang membership, status, and embeddedness (Decker, Pyrooz, Sweeten, & Moule, 2014; Esbensen, Winfree, He, & Taylor, 2001).

In summary, this study adds to the growing literature on the links between trauma and juvenile delinquency by focusing particularly on youth gang members, and shedding new light on the role of perpetration-related trauma. Our results suggest that youth in gangs whose traumatic experiences involved the perpetration of violence are at particular risk for a range of posttraumatic reactions, including dissociation and emotional numbing. These results also suggest that perpetration trauma may help to explain the relation between gang membership and posttraumatic stress symptoms. Youth gang members may not only be affected by the violence perpetrated against them, but also by the violence they perpetrate against others (Boyle, 2011). The development of trauma-informed interventions for current and former gang members is only emerging (Bailey et al., 2014) and recognition of the posttraumatic consequences of perpetration trauma might be a valuable adjunct to the work of intervention agents, policy makers, and researchers involved in the diversion and rehabilitation of youth in gangs.

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