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## The Combined and Unique Roles of PTSD and Polyvictimization in Predicting Delinquency Among Adolescents

Joana Reyes

*University of Nebraska - Lincoln*

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THE COMBINED AND UNIQUE ROLES OF PTSD AND POLYVICTIMIZATION IN  
PREDICTING DELINQUENCY AMONG ADOLESCENTS

An Undergraduate Honors Thesis  
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by

Joana Reyes, BA

Psychology & Child, Youth, and Family Studies  
College of Arts and Science & Education and Human Sciences

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Faculty Members:

Arthur “Trey” Andrews III, PhD, Department of Psychology

Lorey Wheeler, PhD, Department of CYFS

### **Abstract**

As a supplement to previous research understanding the relationship of polyvictimization to delinquent behaviors, these analyze question the mediating role of PTSS between the two factors. A cascade model was used to understand the factors relationship, in which they influence each other independently and as a group. Therefore, it has been found that polyvictimization leads to an increase in the likelihood of delinquent behavior, PTSS was also expected to play a role in this cascade model. Analyzes found that PTSS does influence delinquency, yet not in each Wave of data.

**Key Words:** Polyvictimization, Post-Traumatic Stress Disorder (PTSD), Delinquency

## **The Combined and Unique Roles of PTSD and Polyvictimization in Predicting Delinquency among Adolescents**

Multiple factors contribute to delinquent behavior among adolescents. Violence victimization represents one of the most consistent predictors of delinquent behavior (Hay, Evans, 2006). Further, inequalities in violence victimization accounts for significant proportions of racial/ethnic disparities in delinquent behavior (Andrews, Lopez, Snyder, Saunders, Kilpatrick, 2014). At the same time, violence victimization forecasts internalizing symptoms, including posttraumatic stress symptoms (PTSS; Zinzow, Ruggiero, Resnick, Hanson, Smith, Saunders, Kilpatrick, 2009), which may also serve as mechanisms that increase delinquency (e.g., via hyperarousal or perceived threat). In other words, PTSS may serve as mediators between polyvictimization and delinquent behavior. However, scant research has examined PTSS as predictors of delinquent behavior or as a potential mediator of the effect of polyvictimization. I will directly test these relations, which hold significant implications for treatment and prevention. Using data from the National Survey of Adolescents-Replication (NSA-R), I prospectively tested whether polyvictimization predicted PTSS and delinquent behavior and whether PTSS predicted delinquent behavior.

Delinquency involves destructive and violent behavior perpetrated by adolescents or children. Examples include theft, trespassing, violent acts, etc. (Baglivio, Wolff, Epps, Nelson, 2017). The risk factors for delinquent behavior are manifold and include individual-level poverty, neighborhood-level concentrated poverty, peer delinquent behavior and observing adult criminal behavior (Assink, van der Put, Hoeve, de Vries, Stams, Oort, 2015). These repeated offenses likely contribute to violence and traumatic victimization, thus when individuals experience multiple types of these situations defines polyvictimization. Importantly, each of

these factors increase risk for experiencing multiple forms violence victimization. Experiencing multiple forms of violence or other traumatic events is often referred to as polyvictimization, which has robust relations with both PTSS and delinquent behavior outcomes.

The effects of polyvictimization and PTSS on delinquent behavior have wide-ranging societal implications. As one example, racial/ethnic disparities in delinquent behavior have figured prominently in both the scientific literature and popular press (Crutchfield, Skinner, Haggerty, McGlynn, Catalano, 2009). Prior work indicates that polyvictimization may account for a substantial portion of these disparities (Andrews, López, Snyder, Saunders, Kilpatrick, 2018). Specifically, Latinx and non-Latinx Black youth experience more polyvictimization than non-Latinx white youth and appears to account for a significant portion of the disparities in delinquent behavior across these same groups (Cudmore, Cuevas, Sabina, 2017). Further, delinquent behavior places youth at greater risk for future violence victimization. Together, these effects appear to result in a “cascade” in which the bidirectional relations between polyvictimization and delinquency exacerbate inequalities in each domain across adolescence. Similar to a malignant tumor, the inequality of polyvictimization grows, it impacts other revolving systems and thus subsequently grows more rapidly. This malignant cascade creates effects that are more widespread and difficult to reverse ultimately. Similar results may hold for other racial/ethnic groups (e.g., indigenous youth), but scant national research includes these youth.

Internalizing symptoms, and PTSS specifically, may also form part of the polyvictimization and delinquent behavior cascade. Polyvictimization has well-established effects on PTSS. Though less often examined, PTSS may contain many facets that increase risk for delinquent behavior. Empirical work on PTSS indicate that it comprises five independent

components (community context, family risk, behavioral maladjustment, cognitive vulnerabilities, and interpersonal problems) (Milan, Zona, Acker, Turcios-Cotto, 2012). Theoretically, the domains that predict delinquency tend to have symptoms that increase arousal, produce vigilance towards threats, and relate to difficulties in emotional regulation. In this light, many delinquent behaviors may represent extensions of difficulties in emotion control and rational responses to perceived threats. As outlined by Phan and Gaylord-Harden, violence perpetration and other delinquent behavior may be best understood as strategies for avoiding victimization in contexts with high degrees of violence exposure (2020). Their work emphasizes hypervigilance as a result of frequent violence exposure, and how adolescents react as adaptive avoidance (Phan, Gaylord-Harden, 2020). This mindset involves both hyperarousal and hypervigilance, as well as a response of who ultimately strikes first.

### **Purpose & Hypotheses**

Adolescents who have experienced substantial violence victimization may engage in delinquency as a means of adaptive violence prevention. PTSS may exacerbate this pattern such that hyperarousal and hypervigilance more frequently lead to violence avoidance via delinquent behavior. Understood as an avoidant coping strategy, engaging in higher degrees of delinquent behavior may also maintain elevated PTSS. Below are the specific hypotheses that were tested.

H1 Greater polyvictimization will be prospectively associated with a greater increase in PTSS in adolescents.

H2 Polyvictimization and PTSS will be prospectively associated with a greater likelihood of engaging in delinquent behavior.

### **Methods**

Data was drawn from the National Survey of Adolescents-Replication (NSA-R) which began in 2005 involving adolescents ages 12-17. Trained research assistants conducted computer-assisted telephone interviews and used national household probability sampling with random-digit dialing. To ensure representation of racial/ethnic groups, oversampling occurred in urban areas. The duration of these interviews occurred over three Waves, which were roughly one year apart (an individual who was 13 years of age at Wave 1 would be 14 at Wave 2, for example). A total of 3,614 participants (adolescents and their caregivers) participated in the study. Interviews assessed household characteristics, traumatic event exposure, mental health symptoms, and demographics. Wave 2 had 68.5% retention while Wave 3 had 45.7% retention, with some attribution being unable to reach participants for another interview, leading to 3,312 individuals interviewed total. Race, PTSS, and violence exposure were all associated with attrition ( $p$ -values  $< 0.05$ ). Participants were compensated with \$10 after each interview.

Participants included in the current analyses were the 3,312 adolescents who self-identified as either Hispanic/Latino ( $n=409$ , 12.3%), non-Hispanic Black ( $n=557$ , 16.8%), or non-Hispanic White ( $n=2,346$ , 70.8%). Participants of these racial/ethnic groups were selected in preparation for future analyses on racial/ethnic disparities.

### **Violence Exposure and Polyvictimization**

Standardized and structured interviews included assessed the following domains: physical assault, sexual assault, physical abuse, sexual abuse, and witnessed violence in the home, school, or community. Within these categories, they were broken down into 22 sub-categories with yes/no items. Wave 1 questions involved lifetime exposure while Wave 2 and 3 asked about past-year experiences. This permitted an examination of any prior exposure influencing new violence victimization. These event types were then summed.

### **Posttraumatic Stress Symptoms**

This measure for PTSS used a structure interview of DS-IV-TR disorder criteria for posttraumatic stress disorder. In this trial, the PTSD module evidenced significant concurrent validity ( $\kappa = 0.71$ ) with the structured Clinical Interview for DSM-III, a clinical gold standard for PTSD assessment at the time. In order to capture wider variability in PTSD compared to discrete diagnostic categories, continuous symptoms counts were used. The number of symptoms participants endorsed over the past six-months were then totaled.

### **Delinquent Behavior**

Delinquent behavior was assessed using the Self-Report Delinquency Scale (SRD). The SRD assesses domains of physical assault, selling drugs, burglary or robbery, motor vehicle theft, using force to obtain money or things from others, attacking someone with a weapon, and attacking someone with intent to seriously hurt or injure. Similar to the measure of violence victimization, Wave 1 assessed lifetime history of delinquent behavior while Waves 2 and 3 assessed on past-year behavior.

### **Analytic Strategy**

To test study hypotheses, an autoregressive and cross-lagged path model was constructed with polyvictimization, PTSS, and delinquent behavior variables from each wave (see Figure 1). For autoregressive paths, earlier wave variables are examined as predictors of subsequent wave variables (e.g., Wave 1 PTSS predicts Wave 2 PTSS, and Wave 2 PTSS predicts Wave 3 PTSS). Cross-lagged paths were similar, except that predictors are also examined longitudinally between symptoms and predictive paths occur in both directions (e.g., Wave 1 delinquency predicts Wave 2 new violence exposure and Wave 1 polyvictimization predicts Wave 2 delinquency). The model differed from typical cross-lagged and autoregressive models in that violence exposure

was examined as a within-wave predictor of PTSS and delinquency. This mirrors other cross-lagged studies of PTSS and violence exposure (Milan, Zona, Acker, Turcios-Cotto, 2012).

Figure 1 shows the model configuration for the cross-lagged and autoregressive model. The following recommendations by Hu and Bentler were used to assess model fit:  $CFI \geq .95$  and  $RMSEA \leq .06$ . The measure of WRMR  $< 1.50$  was also used as an indicator of acceptable model fit. Previous analyses focused on delinquent behaviors impact to PTSS have been removed, as results were not replicated for bidirectional interactions.

## Results

### Predictors of Delinquent Behavior

Lifetime polyvictimization was positively associated with lifetime delinquent behavior at Wave 1 (aOR = 1.54,  $b = .43$ , SE = .03,  $p < .001$ ), such that greater polyvictimization was associated with a higher likelihood of engaging in delinquent behavior. New instances of polyvictimization were also cross-sectionally associated with delinquent behavior at Wave 2 and 3, but not prospectively. That is, new polyvictimization at Wave 2 was associated with great odds of engaging in past-year delinquent behavior at Wave 2 (aOR = 1.75,  $b = .56$ , SE = .07,  $p < .001$ ) and new polyvictimization at Wave 3 was associated with greater odds of engaging in past-year delinquent behavior at Wave 3 (aOR = 1.82,  $b = .60$ , SE = .12,  $p < .001$ ). Polyvictimization at Wave 1 was not associated with delinquent behavior at Wave 2 (aOR = 1.06,  $b = .05$ , SE = .04,  $p > .16$ ) and polyvictimization at Wave 2 was not associated with delinquent behavior at Wave 3 (aOR = 1.16,  $b = .15$ , SE = .12,  $p > .17$ ). Age, gender, and race/ethnicity also predicted delinquent behavior at baseline, such that boys, older adolescents, and Latinx non-Latinx Black youth were more likely to have engaged in delinquent behavior compared with girls, younger adolescents, and non-Latinx White youth, respectively ( $p$ -values  $< .05$ ).

## Predictors PTSS

Greater levels of lifetime polyvictimization were associated with higher levels of PTSS at Wave 1 ( $b = .55$ ,  $SE = .02$ ,  $p < .001$ ). This remains true for the association of new polyvictimization predicting higher levels of new PTSS at Wave 2 ( $b = 1.10$ ,  $SE = .07$ ,  $p < .001$ ) and Wave 3 ( $b = .92$ ,  $SE = .11$ ,  $p < .001$ ). Equally, baseline PTSS predicted past-year PTSS at Waves 2 ( $b = .45$ ,  $SE = .02$ ,  $p < .001$ ) and 3 ( $b = .46$ ,  $SE = .02$ ,  $p < .001$ ).

## Discussion

The current study adds to prior work on the connections between PTSS, delinquency and polyvictimization by elaborating the direct relations between PTSS and delinquent behavior. My results replicated the bidirectional relation of polyvictimization to delinquent behavior and PTSS and the subsequent accelerating cascade resulting in polyvictimization inequalities. Additionally, I elaborated this cascade to incorporate the connection between PTSS and delinquency. Specifically, greater PTSS appeared to result in an increased likelihood of engaging in delinquent behavior. Similarly, engaging in delinquent behavior appeared to increase the number of PTSS reported. The results supported most hypothesis, proving validity to the cascade model.

First, hypothesis one (greater polyvictimization will be prospectively associated with a greater increase in PTSS in adolescents) was supported. This replicates prior findings both cross-sectionally and longitudinally, indicating violence exposure across multiple domains increases PTSS. Similarly, hypothesis 2 (polyvictimization and PTSS will be prospectively associated with a greater likelihood of engaging in delinquent behavior) also was supported. Replicating prior studies, polyvictimization forecasted a greater likelihood of engaging in delinquent behavior. Extending on this literature, PTSS also forecasts a greater likelihood of engaging in delinquent behavior, but this effect was only evident between Waves 1 and 2. Taken together, as these two

factors increase an individual appears more likely to engage in delinquent behaviors. Therefore, it is not merely that polyvictimization alone creates a significant change in delinquent behaviors, but PTSS as well. As highlighted in recent work in this area, prior delinquent behaviors may function as a means of protection due to higher arousal in violence in multiple environments (Phan, So, Thomas, Gaylord-Harden, 2020).

These findings help support an important connection between polyvictimization and delinquency through PTSS. This mechanism helps to understand how polyvictimization indirectly effects an individual through internalizing symptoms, thus increasing risk for delinquent behaviors. This shows that an individual who has been exposed to violent situations will have an increase in PTSS. This increase in internalizing symptoms predicts higher delinquent behaviors, not solely polyvictimization. Polyvictimization also appears to have a more direct influence that is not attributable to PTSS. Combined, this can help us to understand the mechanisms involved with higher delinquent behaviors. The connection towards higher polyvictimization can be seen through higher PTSS and delinquency separately. This provides some explanation for the reasoning towards an adolescent's behavior. These two factors can help us to understand situations in which polyvictimization and PTSS may be more prevalent, and how it may impact an individual. Combined with prior data, these results indicate PTSS and polyvictimization create a cascade effect toward delinquent behavior.

Between polyvictimization and PTSS, the two factors influence one another, thus leading to increases in both when sparked. As an individual faces multiple faucets of violence, these traumatic experiences can result in traumatic response symptoms (PTSS). Yet, neither of the two factors alleviate one another and instead cause increases. Higher polyvictimization will lead to higher PTSS rather than lowering it. Due to their relationship, it provides reasoning for the

cascade effect. Polyvictimization and PTSS increase together, and consequently influence delinquent behavior.

### **Future Directions and Limitations**

Given prior results, further research in this field should analyze racial/ethnic differences in this cascade of violence exposure accelerating increases in delinquent behaviors through multiple mechanisms. This research should examine how polyvictimization disparities impact people of color and result in subsequent inequalities in outcomes like PTSS and delinquent behavior. Such research should emphasize the role of context for adolescents, including those that frequently expose adolescents to violence. These unequal contexts directly stem from structural racism through factors like residential segregation that produce violence exposure inequalities and limit mobility to escape such contexts. This includes moving from deficit-focused models with only individual-level explanations and instead examine how these behaviors may serve as functional adaptations in unequal contexts.

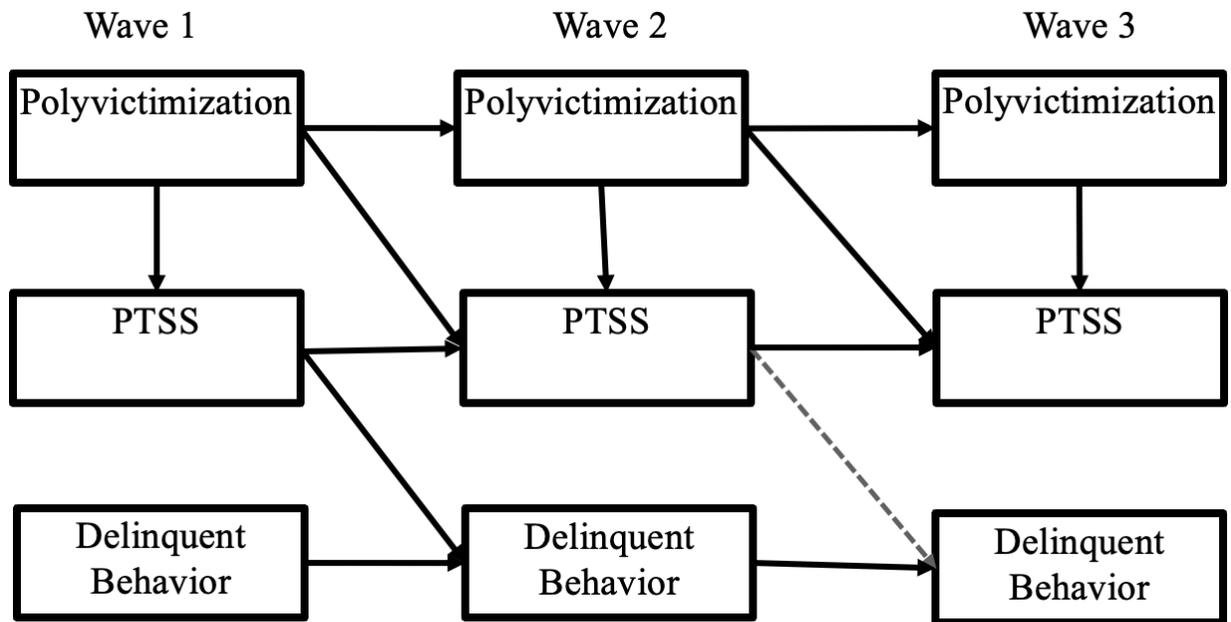
While the current study presents important findings and has implications for future research, its limitations should also be considered. While polyvictimization is conceptualized here as an indicator of contextual factors, the study did not directly assess contextual-level factors (e.g., neighborhood poverty). The study also did not directly measure the emotional and cognitive regulation mechanisms that may influence delinquent behavior and instead it measured PTSS as a proxy for these variables. The study was also constrained to only two years, which provides little detail about the emergence of these relations in earlier childhood or how these effects carry into adulthood. Having more waves of follow up data collection may also clarify findings here (e.g., PTSS only predicted delinquent behavior between Waves 1 and 2). Measures were also all self-report by adolescents.

It should incorporate the ways in structural racism has created unequal contexts through various mechanisms of residential segregation and related inequalities in social and economic mobility.

### **Conclusion**

In conclusion, there are many factors that can influence delinquency, yet my research expanded on the understanding of polyvictimization through the factor of PTSS. Both polyvictimization and PTSS influence one another, and thus impact delinquent behaviors alone and individually. The two factors work separately *and* together as a unit, which was less developed in prior research. My research helps explore a cascade model to comprehend the mechanisms for delinquent behavior. Understanding the importance of PTSS in the equation of polyvictimization increasing delinquency can be vital for communities that are affected by the delinquent behaviors of adolescents. By comprehending the mechanisms in place that occur after frequent violent exposure can help understand the emotional dysregulation (through PTSS) adolescents experience.

Figure 1. Structural Model of the Relations between Polyvictimization, PTSS, and Delinquency



Note: Control covariates were included in the model but not depicted for simplicity, which were age, race/ethnicity, gender, and parent and adolescent perceptions of their neighborhoods. Bold-Significant paths ( $p < .05$ ), Dashed lines-Non-significant paths ( $p > .05$ ).

Table 1. Demographic and Descriptive Information

	Total Sample N or mean (SD or %)	Non-hispanic black N or mean (SD or %)	Hispanic N or mean (SD or %)	Non-hispanic white N or mean (SD or %)
Gender				
Male	1,648 (49.8%)	268 (48.1%)	200 (48.9%)	1,180 (40.3%)
Female	1,664 (50.2%)	289 (51.9%)	207 (51.1%)	1,166 (49.7%)
Income category				
Poverty	418 (12.6%)	168 (30.2%)	73 (17.8%)	177 (7.5%)
Age	14.67 (1.66)	14.60 (1.65)	14.63 (1.63)	14.70 (1.67)
Head of household education				
No formal schooling	3 (0.1%)	0 (0.0%)	0 (0.0%)	3 (0.1%)
1 <sup>st</sup> through 7 <sup>th</sup> grade	18 (0.5%)	2 (0.4%)	11 (2.7%)	5 (0.2%)
Completed 8 <sup>th</sup> grade	22 (0.7%)	3 (0.5%)	6 (1.5%)	13 (0.6%)
Some high school	186 (5.6%)	52 (9.3%)	36 (8.8%)	98 (4.2%)
High school graduate	870 (26.3%)	196 (35.2%)	113 (27.6%)	561 (23.9%)
Some college	952 (28.7%)	176 (31.6%)	132 (32.3%)	644 (27.5%)
4-year college graduate	698 (21.1%)	78 (14.0%)	66 (16.1%)	644 (27.5%)
Some graduate school	84 (2.5%)	5 (0.9%)	12 (2.9%)	67 (2.9%)
Graduate degree	467 (14.1%)	43 (7.7%)	30 (7.3%)	394 (16.8%)
Any wave 1 viol. Exp.	1,638 (49.5%)	347 (62.3%)	224 (54.8%)	1,067 (45.5%)
New wave 2 viol. Exp.	543 (24.5%)	116 (35.3%)	78 (30.4%)	349 (20.2%)
New wave 3 viol. Exp.	266 (17.5%)	55 (28.9%)	32 (21.9%)	199 (15.1%)
Polyvictimization				
Wave 1	1.40 (4.08)	1.83 (4.51)	1.71 (5.14)	1.25 (3.71)
Wave 2	0.42 (0.82)	0.66 (1.11)	0.58 (1.15)	0.36 (0.70)
Wave 3	0.29 (0.55)	0.52 (0.93)	0.42 (0.83)	0.29 (0.44)
PTSS				
Wave 1	1.64 (8.52)	1.81 (9.59)	1.91 (8.84)	1.55 (8.19)
Wave 2	2.00 (12.37)	2.61 (17.78)	2.36 (12.63)	1.83 (11.18)
Wave 3	1.71 (11.91)	2.03 (13.65)	2.09 (10.29)	1.62 (10.86)
Delinquency				
Wave 1	722 (21.8%)	194 (34.8%)	114 (27.9%)	414 (17.6%)
Wave 2	239 (10.4%)	53 (16.1%)	29 (11.3%)	157 (9.1%)
Wave 3	149 (9.9%)	30 (15.8%)	18 (12.5%)	101 (8.6%)

Table 2. Summary of Predictors of PTSS and Delinquency

	PTSS			Delinquency		
	Wave 1 $\beta$ ( $p$ )	Wave 2 $\beta$ ( $p$ )	Wave 3 $\beta$ ( $p$ )	Wave 1 aOR ( $p$ )	Wave 2 aOR ( $p$ )	Wave 3 aOR ( $p$ )
Age	.82 ( $p =$ 0.004)	.02 ( $p =$ 0.521)	.02 ( $p =$ 0.674)	1.25 ( $p <$ 0.001)	.93 ( $p =$ 0.119)	1.01 ( $p =$ 0.859)
Gender (female vs. male)	.74 ( $p <$ 0.001)	.68 ( $p <$ 0.001)	.27 ( $p =$ 0.065)	.32 ( $p <$ 0.001)	.57 ( $p <$ 0.001)	.45 ( $p <$ 0.001)
Poverty (high vs. low income)	-.16 ( $p =$ 0.300)	.38 ( $p =$ 0.084)	-.28 ( $p =$ 0.325)	.86 ( $p =$ 0.294)	1.50 ( $p =$ 0.183)	.74 ( $p =$ 0.355)
Parent Perceived Safety	-.278 ( $p <$ 0.001)	-.12 ( $p =$ 0.076)	-.14 ( $p =$ 0.067)	.87 ( $p =$ 0.017)	1.02 ( $p =$ 0.868)	.87 ( $p =$ 0.173)
Parent Education	.12 ( $p <$ 0.001)	-.025 ( $p =$ 0.553)	.02 ( $p =$ 0.692)	.88 ( $p <$ 0.001)	.91 ( $p =$ 0.090)	.92 ( $p =$ 0.227)
Adolescent perceived safety	-.15 ( $p =$ 0.007)	-.03 ( $p =$ 0.619)	-.07 ( $p =$ 0.419)	.87 ( $p =$ 0.004)	1.08 ( $p =$ 0.385)	.91 ( $p =$ 0.375)
Parent relationship status (Married vs. not)	-.42 ( $p <$ 0.001)	.26 ( $p =$ 0.088)	-.26 ( $p =$ 0.163)	.66 ( $p <$ 0.001)	.80 ( $p =$ 0.170)	.64 ( $p =$ 0.016)
W1 Polyv.	-.43 ( $p <$ 0.001)	.08 ( $p =$ 0.020)		1.54 ( $p <$ 0.001)	1.06 ( $p =$ 0.171)	
W1 PTSS		.45 ( $p <$ 0.001)			1.08 ( $p =$ 0.002)	
W2 Polyv		1.10 ( $p <$ 0.001)	-.33 ( $p <$ 0.001)		1.75 ( $p <$ 0.001)	1.16 ( $p =$ 0.202)
W2 PTSS			.46 ( $p <$ 0.001)			1.03 ( $p =$ 0.293)
W3 Polyv			0.92 ( $p <$ 0.001)			1.82 ( $p <$ 0.001)

Note: \*non-Hispanic White adolescents were examined as the referent group.

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