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Angela Chung

Virginia Commonwealth University

Lauren Guerra

Virginia Commonwealth University

Jerry L. Mize II

Virginia Commonwealth University

Lena Jaggi

Virginia Commonwealth University

Wendy Kliewer

Virginia Commonwealth University

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Post Traumatic Stress and Externalizing Behaviors in At Risk Urban Adolescents: A Prospective Study

Angela Chung*, Lauren Guerra*, Jerry Mize*

Lena Jaggi, Wendy Kliewer, Ph.D.

*equal contributions were made to this project

INTRODUCTION

Adolescents in urban areas are at a higher risk for experiencing direct victimization as well as witnessing violence directed towards others, which increases the amount of post-traumatic stress (PTS) they face (Joseph, S., Mynard, H., & Mayall, M. 2000). Experiencing Post Traumatic Stress Symptoms has been associated with a number of negative externalizing behaviors, such as increased delinquency, drug use and aggressive behavior in adolescents (Dierkhising, Ko, Woods-Jaeger, Briggs, Lee, & Pynoos, 2013). This association is especially relevant, as adolescence is a stage in life when youth are beginning to experiment and form life-long habits to manage daily stressors. However, previous research has been limited regarding gender differences in PTS as males and females often have different ways of coping with traumatic events (Stevens, Murphy, & McKnight, 2003). One study did find statistical significance in gender as a predictor towards alcohol and drug use for male youth (Becker, Kerig, Lim, & Ezechukwu 2012). Thus, gender will be evaluated in this study.

Specific Aim & Hypothesis:

Enhance the understanding of this gap in research by investigating the connection between PTS and externalizing behaviors in the form of delinquency, drug use, and aggression with gender as a moderator in a sample of predominantly urban African American adolescents. It is hypothesized that PTS will serve as a predictor for the three externalizing behaviors being investigated, but gender is not expected to moderate the analysis.

METHODS

- Participants:
 - African American, Low SES families from neighborhoods in Richmond Virginia
 - Grades 5 or 8 at Wave 1
 - Between Ages 9 and 16 at Wave 1 ($M=12.13$, $SD=1.62$)
 - 166 males (46.4%), 192 females (53.6%)
- Procedure:
 - 4 year longitudinal study design.
 - Current study uses data from Waves 1 and 2
- Measures:
 - Trauma Symptom Checklist: a self-report measure of posttraumatic stress and related psychological symptomatology in children ages 8-16 years who have experienced traumatic events (e.g., physical or sexual abuse, major loss, natural disaster, or witnessed violence).
 - Problem Behavior Frequency Scale: self-report measure that consists of seven subscales that assess the frequency of problem behaviors including aggression, victimization, drug use, and delinquency

Psychometric Info for Problem Behavior Frequency Scale							
	N	Min	Max	Mean	SD	Skew	Kurtosis
Physical Aggression							
W1	356	0	25	3.6419	4.30094	1.818	3.902
W2	316	0	26	3.278	4.13711	1.958	4.55
Delinquency							
W1	350	0	15	1.4114	2.45701	2.727	8.523
W2	318	0	30	1.6545	3.07449	4.053	25.914
Substance Use							
W1	356	0	29	0.6472	2.46211	7.205	65.134
W2	318	0	19	0.8233	2.44626	4.763	27.254
Psychometric Info for Trauma Symptom Checklist							
Post-traumatic Stress Symptoms							
W1	355	0	28	7.5662	5.89842	0.855	0.356
W2	317	0	23.33	5.3971	5.1416	1.284	1.273

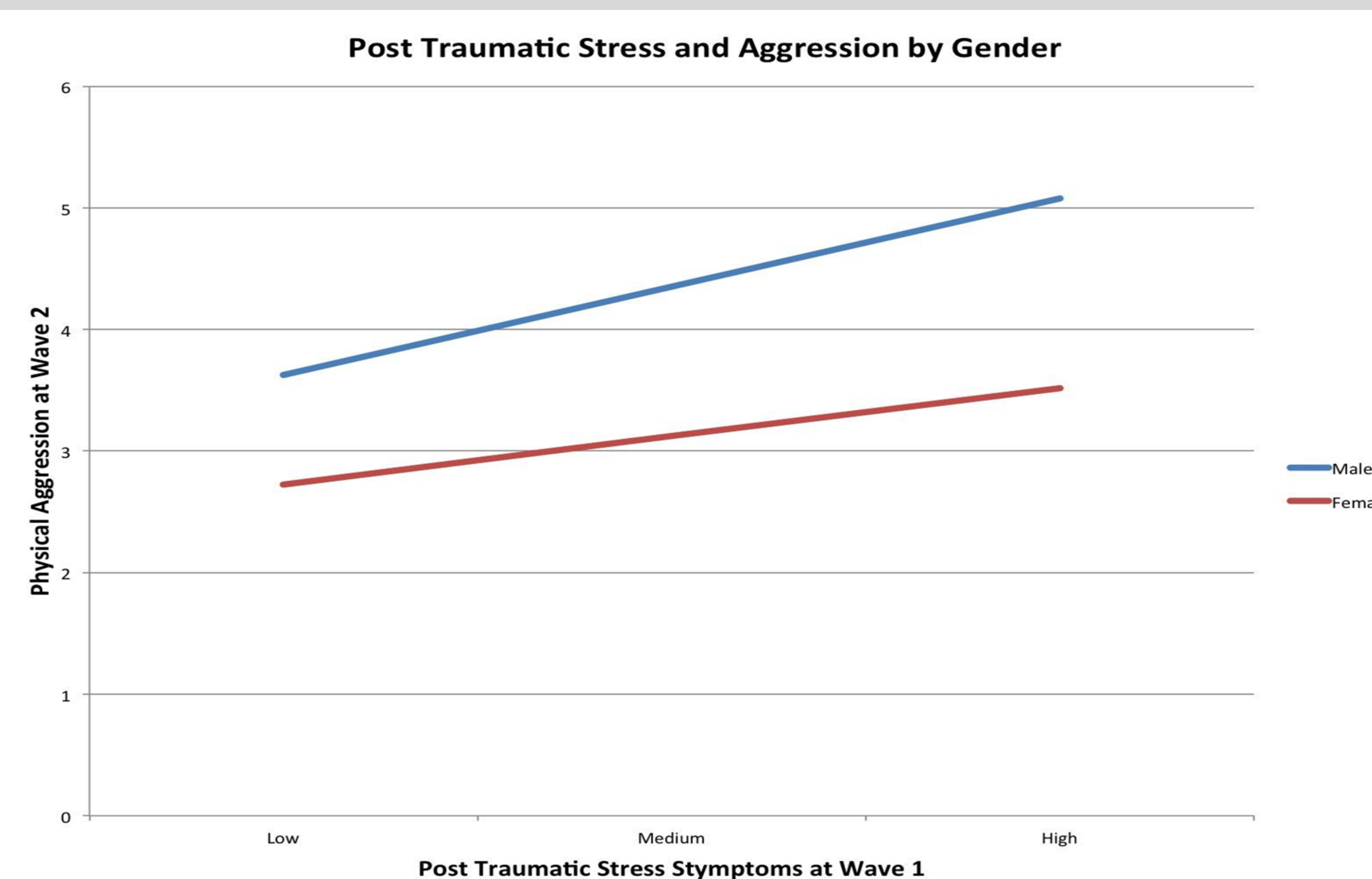
RESULTS

Six multiple linear regression analyses were conducted to evaluate if PTS predicts externalizing behaviors (e.g. drug use, delinquency, and physical aggression) as defined by the Problem Behavior Frequency Scale (PBFS). The analyses also investigated the influence of gender as a moderator on the relationship between PTS and externalizing behavior. PTS and Gender were centered and used to create a product term. Analyses were run both with and without the product term. The overall model for predicting drug use from PTS was not significant ($F(2, 313) = 1.709$, $p > .05$; $R^2 = .008$). The same can be said for Delinquency ($F(2, 313) = .320$, $p > .05$; $R^2 = .002$) PTS was not associated with drug use, or delinquency. In both models, none of the predictors were significant.

Table 1. Multiple Regression Analyses examining associations between Post Traumatic Stress at Wave 1 and Drug Use, Delinquency, and Aggression at Wave 2 ($N = 178$)

Outcome (Wave 2)	Predictor	β	$SE \beta$	B	p
Drug Use	PTS	0.005	0.031	0.012	0.873
	Gender	0.140	0.278	0.029	0.614
	PTS x Gender	0.022	0.047	0.035	0.640
	R^2	0.003			
Delinquency	PTS	0.036	0.039	0.070	0.352
	Gender	0.334	0.347	0.054	0.335
	PTS x Gender	0.005	0.059	0.007	0.926
	R^2	0.008			
Aggression	PTS	0.096	0.052	0.138	0.064
	Gender	0.968	0.459	0.117	0.036
	PTS x Gender	0.080	0.078	0.076	0.303
	R^2	0.051			

The overall model predicting physical aggression based on PTS was significant $F(2, 311) = 7.849$, $p > .05$; $R^2 = .048$). The association between PTS and physical aggression was significant $\beta = .131$, $t(311) = 3.402$, $p = .001$, as was the association between gender and physical aggression $\beta = .973$, $t(311) = 2.118$, $p = .035$. In the moderation analyses, the product term reduced the significance of the model.



DISCUSSION

This study has found that PTS was associated with more aggressive behavior one year later for both boys and girls, suggesting an increased risk of aggressive behavior following the experience of traumatic stress for all adolescents in the sample. Contrary to our expectations and previous literature, delinquency and drug use were not associated with PTS for either gender. Our results might have differed from past, especially cross-sectional research, because increases in delinquent behavior and drug use as a consequence of PTS might be short-term. It could additionally be that the fluctuation in those behaviors over the span of a year is stronger than any associations with PTS as experienced a year earlier. Adolescence is a time when youth are undergoing fundamental physical, emotional and cognitive changes as well as an overall increase in risky behaviors. The normative desire to establish identity can lead to experimentation with drugs and other problem behavior like minor delinquency. Limited availability of monetary resources in our low-SES, high-risk sample could have affected the amount of drug use, which was overall low in this sample.

Although there are limitations, this study implies that there are differences in relationships between PTS and different externalizing behaviors: In accordance with previous literature, we hypothesized that PTS was associated with higher drug use because adolescents might try to self-medicate the negative consequences of PTS, such as nightmares or flashbacks (Faulkner, Goldstein, & Wekerle, 2014). Additionally, previous research suggested a link between PTS and delinquent behaviors because individuals suffering increased emotional numbness might engage in more thrill-inducing behaviors (Kerig, Bennett, Thompson, & Becker, 2012). However, in this sample of adolescents suffering from high levels of community violence exposure, it seems that the consequences of PTS are concentrated on physical aggressive behavior. The reason for the link between PTS and aggression may be because the lack of competence in coping strategies and thus, they act out aggressively (Marsee, 2008). This suggests that traumatic events have a more substantial effect on externalizing behaviors in adolescents. Along with hormones increasing life's normal stresses, the brains of adolescents are highly sensitive to dopamine, specifically the parts that regulate the pleasure centers, which could in turn lead to greater delinquent behaviors to maximize pleasure. More research should be done to evaluate possible interventions for the association between PTS and aggression in low SES areas.

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ACKNOWLEDGEMENTS

- National Institute on Drug Abuse Grants K01 DA015442 01A1 and R21 DA 020086-02
- Dr. Albert Farrel and the Clark-Hill Institute for Positive Youth Development
- Anne Greene, Interview Team, & Graduate, Post-Bac, & Undergraduate students who contributed to Project COPE

Contact Information

Angela Chung, chung2@vcu.edu; Lauren Guerra, guerrale@vcu.edu; Jerry Mize, jmize@vcu.edu; Lena Jaggi, jaggi@vcu.edu; Wendy Kliewer, Ph.D., wkliewer@vcu.edu