

Gender Differences in the Effects of Community Violence on Mental Health Outcomes in a Sample of Low-Income Youth Receiving Psychiatric Care

Shabnam Javdani · Jaleel Abdul-Adil ·
Liza Suarez · Sara R. Nichols · A. David Farmer

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Abstract Previous research suggests that community violence impacts mental health outcomes, but much of this research has not (a) distinguished between different types of community violence, (b) examined gender differences, and (c) focused on youth living in urban poverty. The current study addresses these questions. Participants were 306 youth (23 % girls) and one parent/guardian receiving outpatient psychiatric services for disruptive behavior disorders in a large urban city. Youth and parents reported on youth's experience of different types of community violence (being a direct victim, hearing reports, and witnessing violence), and whether violence was directed toward a stranger or familiar. Outcomes included youth externalizing, internalizing, and posttraumatic stress symptoms assessed via parent and youth reports. Being a direct victim of violence accords risk for all mental health outcomes similarly for both boys and girls. However, gender differences emerged with respect to indirect violence, such that girls who hear reports of violence against people they know are at increased risk for all assessed mental health outcomes, and girls who witness violence against familiars are

at increased risk for externalizing mental health symptoms in particular. There are gender differences in violence-related mental health etiology, with implications for intervention assessment and design.

Keywords Adolescence/youth · Internalizing and externalizing mental health · Community violence · PTSD/trauma · Gender · Urban poverty

Introduction

Community violence represents an issue of significant public health concern. Indeed, according to the Centers for Disease Control and Prevention, homicide is the leading cause of death for African Americans during young adulthood and the injuries and death sustained by women worldwide due to non-war related violence exceeds deaths as a result of malaria, cancer, and traffic accidents, combined (CDC 2012). Exposure to community violence is a particularly devastating concern for youth. In the United States, youth experience violence in the community at rates over 30 times greater than those of other industrialized countries (National Center for Children Exposed to Violence, NCCEV; Boney-McCoy and Finkelhor 1995; Hill and Jones 1997; Richters and Martinez 1993), with lifetime exposure to one or more traumatic events estimated to be between 25 and 63 % among children and adolescents (Breslau et al. 2004; Costello et al. 2005). These trends carry high social and economic costs, with an estimated cost of over two billion dollars annually for medical treatment alone (NCCEV 2003).

Youth who are exposed to community violence are disproportionately impacted by a host of mental health problems, including traumatic stress and disruptive

S. Javdani (✉)
Department of Applied Psychology, New York University,
246 Greene St., Room 706W, New York, NY 10003, USA
e-mail: shabnam.javdani@nyu.edu

J. Abdul-Adil · L. Suarez
Institute for Juvenile Research, University of Illinois Chicago,
Chicago, IL, USA

S. R. Nichols
Northwestern University Feinberg School of Medicine, Chicago,
IL, USA

A. D. Farmer
Northeastern Illinois University, Chicago, IL, USA

behavior disorders (e.g., Schwartz and Gorman 2003). Exposure to community violence has been linked to post-traumatic stress disorder (PTSD), traumatic stress, juvenile delinquency, conduct disorder, and oppositional defiance disorder among boys and girls (e.g., Richters et al. 1993). Despite this evidence, little research to date has focused on mental health samples of youth living in urban poverty, distinguished between different types of community violence, or examined gender differences in the association between exposure to community violence and mental health outcomes.

Youth Living in Urban Poverty

Urban poverty is associated with a series of neighborhood-level risk factors that can increase the likelihood of trauma exposure in youth. Though community violence represents only a subset of the broad range of trauma youth can experience, its high prevalence in urban contexts and its impact on youth mental health has led to increasing recent examination (e.g., Odgers and Reppucci 2002; Chauhan and Repucci 2009). Community violence can serve as a mediating process between neighborhood disadvantage more broadly and mental health outcomes (Chauhan and Repucci 2009), such that youth living in a context of urban poverty are at greater risk of exposure to community violence and, in turn, development of mental illness (Youngstrom et al. 2003). For instance, empirical data consistently support the link between exposure to violence and a decline in global functioning, and both internalizing and externalizing psychopathology (e.g., McDonald and Richmond 2008; Youngstrom et al. 2003), particularly for youth from families with lower socioeconomic status (e.g., Chauhan et al. 2010). Most commonly, however, community violence is operationalized at the individual level (e.g., interpersonal violence such as child abuse), with less attention paid to examining ecological factors such as witnessing violence of a stranger in or around one's school. More ecological investigations are needed both to delineate the role of community violence in the etiology of mental health, and to assist intervention service planning. Moreover, the family system that operates within the context of urban poverty is also an important dimension of experience to consider, particularly given consistent research demonstrating the importance of family context on youth mental health (Repetti et al. 2002), disruptive behavior problems (Javdani et al. 2011), and exposure to community violence (Spano et al. 2012).

Distinguishing Between Types of Community Violence

At the community level, there are several distinct but related categories of violence that can differentially impact

youth mental health. These types of violence can be categorized according to two dimensions: the extent to which (a) youth experience violence directly versus indirectly, and (b) indirect violence is perpetrated against a familiar or a stranger (e.g., see CDC, Youth Risk Behavior Surveillance Survey).

Perhaps the most consistent finding to date relates to the detrimental impact of directly experiencing violence and the development of youth mental health—a link that has been shown both cross-sectionally and prospectively (Fowler et al. 2009). Direct forms of violence at the community level can include being a victim of violence perpetrated by an individual or group of individuals (e.g., getting “jumped”), as well as voluntary engagement in direct violence, such as through physical fighting. Studies have linked direct violence to mental health outcomes, with a particular emphasis on PTSD symptoms and externalizing disorders in adolescence (Fowler et al. 2009). However, many studies suffer from single informant assessment of violence, which can be impacted by under-reporting (e.g., due to social desirability bias if youth are the reporters) or insufficient information (e.g., given that parents are worse reporters of externalizing-related behaviors; McDonald and Richmond 2008). In the present study, we examine the impact of direct versus indirect violence in a psychiatric sample in which the predictors and mental health outcomes are informed by both parents and youth.

We distinguish direct from indirect violence, which we define as exposure to violence through witnessing or hearing reports of violence (e.g., Lambert et al. 2010). Indirect violence is investigated much less often, but is particularly important to examine in low socioeconomic status (SES) contexts given the chronically distressed context of urban poverty. For instance, epidemiological studies have shown that over half of boys and girls living in urban poverty report witnessing violence and over two-thirds report hearing about violence from friends and family (McDonald and Richmond 2008). These numbers can more than double in disadvantaged neighborhoods in which violence is not only more frequent, but also more likely to affect families through incarceration and/or injury and death (Leventhal and Brooks-Gunn 2000). Indirect violence can impact youth mental health through the effects of vicarious trauma. Distinguishable from “secondary trauma”, which refers to the development of trauma symptoms in service providers (e.g., burnout or compassion fatigue), vicarious trauma refers to changes in a person's inner experience and cognitive schemas and affects one's sense of trust, safety, and interpersonal relationships in a way that can manifest as symptoms of posttraumatic stress disorder (Jenkins and Baird 2005). Thus, seeing or hearing reports of violence may affect youth's cognitions and emotions in a way that can contribute to the development of mental health symptomatology. Few

studies have examined vicarious trauma in low SES youth, but some empirical data do support the association between vicarious trauma and mental illness (Fowler et al. 2009).

In particular, a meta-analysis of 114 studies suggests that witnessing versus hearing about violence has a greater effect on externalizing psychopathology, whereas witnessing and hearing about violence equally impacts internalizing symptoms and PTSD (Fowler et al. 2009). However, current literature often does not compare indirect and direct violence in the context of the same study, and does not necessarily distinguish between different types of indirect violence, which may differentially impact youth mental health. Data suggest that the target of the indirect violence may matter; namely, whether the target is a familiar or a stranger. At a theoretical level, violence against familiars and strangers may work to shift youth's cognitive schemas in maladaptive ways, with the former being tied to greater interpersonal and relational effects, and the latter to a broader sense of safety and trust. However, there is little empirical work in this area, and few studies have included youth living in urban poverty—a context in which violence against strangers is more pervasive and severe (Leventhal and Brooks-Gunn 2000). In the current study, we aim to inform the specificity of risk by examining indirect violence against strangers and familiars, and distinguishing between witnessing and hearing reports of violence.

Examining Gender

Though boys and girls in the general population differ with respect to the prevalence of certain types of victimization and mental health symptoms they experience (e.g., boys are more likely to experience direct violence and externalizing symptoms; Titus et al. 2003), these differences are less pronounced in psychiatric samples (Foster et al. 2004). Beyond main effect differences, however, little research has examined gender as a moderator of the relationship between community violence and mental health, largely because a disproportionate number of studies have single gender samples (Fowler et al. 2009). Indeed, Fowler et al. (2009) were not able to examine gender as a moderator in their meta-analysis because of the paucity of empirical studies including both boys and girls. An emerging body of work has examined gender differences in the effects of community violence on mental health. Though they report some inconsistent findings, the few studies that have examined gender differences have demonstrated their importance.

For example, anxiety and depression symptoms have been more strongly related to community violence exposure for girls than for boys, whereas being a victim of violence versus witnessing or hearing about violence was

associated with greater mental health challenges overall for boys (Foster et al. 2004). However, this study did not examine externalizing-related symptoms and did not distinguish between whether violence was committed against familiars or strangers. A prospective study examining a wider variety of mental health outcomes found that being a victim of violence affected internalizing, externalizing, and PTSD-related mental health symptoms for both boys and girls, but was more strongly associated with dissociative symptoms for girls (Zona and Milan 2011). This study in particular suggests some gender-specificity in the pathway from community violence to trauma-related symptoms; a pattern that has also gained support in studies with adult men and women (Shields et al. 2010). The latter study also distinguished between witnessing and experiencing violence and found that witnessing violence was a stronger risk factor for women. Indeed, they suggest that the relational and social contexts that may be affected by community violence are particularly strong risk factors for women (Shields et al. 2010), since women's involvement in violence is most likely to be in relation to someone they know (e.g., Snyder and Sickmund 2006).

Though none of the aforementioned studies differentiated between whether the vicarious community violence was against strangers or familiars, a recent study by Lambert et al. 2010 did so. In a sample of primarily African American adolescents, they found that witnessing community violence against familiars is more strongly associated with anxiety for boys, and aggressive behaviors for girls. The authors discussed that the greater anxiety reported for boys may be a result of boys' greater experience of threat because the victim of violence is more likely to be a young male (e.g., because the victim "looks" like them, they can more easily see themselves as a victim of violence in the future).

Girls' greater aggression in relation to witnessing violence may be promoted by a more complex pattern. Though little empirical data exists to demonstrate a stronger link between witnessing violence against familiars and externalizing behaviors in girls, other research on gender differences in mental health supports this pattern. Of greatest relevance is research on violence perpetration, which suggests that relationships with externalizing opposite-sex peers and partners is a stronger predictor of fighting and depression in girls versus boys (e.g., see Miller 2004; Javdani et al. 2011). These findings suggest that the violence that girls witness or hear about is likely violence against male partners or family members, a pattern also evidenced in qualitative studies (e.g., Acoca 1998). Further theories on interpersonal stress reactivity, such as the "cost of caring" hypothesis, suggest that girls may be more vulnerable to emotional distress when it is caused by negative life events happening to members of their social

networks (e.g., Rudolph 2002; Kessler 1990–1992). Thus, vicarious trauma resulting from witnessed community violence against familiars may be a greater risk factor for girls' mental health, and particularly their externalizing behaviors. In the current study, we examine the extent to which gender moderates the relationship between mental health and direct and vicarious community violence against strangers and familiars.

Present Study

The present study is aimed at addressing important gaps in the literature. Specifically, study aims are to (1) examine the relationships between direct (e.g., being a victim of violence) and indirect (e.g., witnessing violence) community violence on mental health symptoms associated with externalizing, internalizing, and PTSD symptoms in youth, (2) distinguish between whether the indirect violence was against a stranger or familiar, and (3) examine gender differences to better understand the extent to which certain types of community violence promote differential risk for mental health symptoms in boys versus girls. These research questions are assessed in a clinical sample of youth living in urban poverty. Multiple reporters, including youth and parents, inform data using established scales. Moreover, this study is positioned to inform an under-researched area with respect to gender differences, examine Disruptive Behavior Disorders (DBDs) more thoroughly in girls—a traditionally under-researched group—and provide information on the association between community violence and mental health in a sample at risk for DBDs.

Based on the extant literature, we hypothesize that (1a) direct violence will be related to all mental health outcomes for both boys and girls, and (1b) explain a greater proportion of variance compared to vicarious/indirect violence, but that (2a) exposure to indirect violence against familiars will be a greater risk factor for girls, particularly in promoting externalizing mental health challenges, (2b) whereas indirect violence against strangers may be a greater risk factor for boys.

Methods

Participants

Participants were 306 youth and one parent or guardian receiving specialized services focusing on disruptive behavior disorders at an outpatient mental health facility in Chicago, IL. Youth were between 6 and 17 years of age ($M = 10$ years 8 months; $SD = 3$ years), with about half above the age of 11 years (52 %) and half between 6 and 10 years (48 %). The majority identified as African

American (80.2 %) or Hispanic/Latino/a (9.5 %). Consistent with other studies of youth with disruptive behavior disorders and that of a higher risk sample (i.e., in which youth are at risk for juvenile justice involvement; Snyder and Sickmund 2006), about 78 % ($n = 237$) were boys while 23 % ($n = 67$) were girls. Similarly, consistent with the demographic served by the clinic, most families were living in poverty, with the majority reporting receipt of public aid (80 %), including free meal programs for one or more children (77 %). Almost half of caregivers were married or living with a partner (46 %) while 27 % were single, 19 % divorced or separated, and 7 % widowed. There were no significant gender differences on child race ($\chi^2 = 3.13$ (4), *ns*), caregiver marital status ($\chi^2 = 1.81$ (5), *ns*), receipt of public aid ($\chi^2 = 1.83$ (3), *ns*), or probability of being under versus over age 11 years ($\chi^2 = 3.6$ (1), *ns*). However, when age was examined continuously, a gender difference emerged ($t = 2.2$, $p < .05$) suggesting girls were likely to be slightly older ($M = 11.4$ years, $SD = 3.5$) than boys ($M = 10.5$ years, $SD = 2.9$). Thus, age was used as a covariate in all regression analyses.

Procedures

Families who reported to the outpatient, university-based, child clinic for disruptive behaviors at University of Illinois at Chicago Medical Center were invited to participate in the research study after their initial intake appointment. Every family was approached for participation to maximize the inclusiveness and range of the study sample, and all families agreed to participate and their data are included in subsequent analyses. Parent consent and the youth assent were obtained, and clinical measures were administered prior to initiation of treatment. Families were compensated at the rate of \$30 per family after completing these intake measures. This study was approved by the Institutional Review Board at the University of Illinois at Chicago.

Measures

Child Mental Health

Children's mental health was assessed using the caregiver-administered Child Behavior Checklist (CBCL), and the youth-administered Youth Self-Report (YSR; Achenbach and Rescorla 2001), each of which includes 112 substantive items used to estimate broadband problem subscales. These well-validated measures use a cross-informant format to ask both caregivers and youth to report on the frequency of youth's behavior consistent with common syndromes of child psychopathology, aggression, and behavior problems. Both measures show excellent internal consistency, test-retest reliability, and construct validity

across gender in previous research (Achenbach and Rescorla 2001). The Internalizing subscale includes anxiety and depression symptoms as well as somatic complaints (e.g., “I feel worthless or inferior”). The Externalizing subscale includes rule-breaking, lying, and aggression, consistent with conduct disorder and oppositional defiance disorder symptoms (e.g., “I lie or cheat”). For purposes of the current study, the Externalizing and Internalizing broadband subscales of the CBCL and YSR were utilized by creating a composite variable to include both youth and parent reports to reduce single reporter bias. The PTSD subscale was also calculated using both parent and child informants given the specific association between community violence and PTSD evidenced in the literature. This method of utilizing both parent and youth reports is in keeping with recommendations by the developers of the scales used (e.g., Achenbach et al. 2002) and previous research suggesting that both adolescents and their caregivers are indispensable reporters of mental health risk factors and symptoms (e.g., Berg-Nielsen et al. 2003; Verhulst and Ende 1992).

Community Violence Exposure

Youth community violence exposure was assessed using both parent and child versions of the Child Report of Exposure to Violence (CREV) (Cooley et al. 1995). The CREV has been validated with children and adolescents, and demonstrates good test–retest reliability, internal consistency, and construct validity. Further examinations of the CREV suggest it is appropriate for use with both male and female youth, and appropriate for racially diverse samples (Cooley et al. 1995). This measure uses a cross-informant approach to ask both caregivers and youth to report on the frequency of lifetime exposure to community violence experienced by the youth through three mechanisms: (1) violence that is reported or heard about; (2) violence that is directly witnessed; and (3) violence that involves direct victimization (e.g., the incident happened to the youth himself/herself). The types of violence assessed by this measure include being chased or threatened with bodily harm, beaten up, robbed or mugged, shot, stabbed, or killed, with questions asking whether “anyone ever told you about”, if you “have ever seen”, and if you “have ever been [exposed]” to the aforementioned violent situations. A total of 29 items are assessed for each scale (i.e., parent and youth reports), and response options probe the frequency of violence exposure on a 0 to 4 point scale (0 = “never”, 1 = “one time”, 2 = “a few times”, 3 = “many times”, 4 = “everyday”). Thus, higher scores across any subscale reflect greater frequency of exposure. The overall measure was used to construct 5 subscales: being a direct victim of violence, witnessing violence

against a stranger, witnessing violence against a familiar, hearing reports of violence against a stranger, and hearing reports of violence against a familiar. In the present study, the parent and youth-reported measures have excellent internal consistency (Cronbach’s alphas = .92 and .93, respectively, with subscale consistencies all above .70). Parent and child community violence reports were also composited to reduce single reporter bias.

Data Analytic Plan

To examine the impact of community violence on mental health outcomes, a series of three hierarchical multiple regression analyses were conducted. Outcomes were youth Externalizing symptoms, Internalizing symptoms, and PTSD symptoms. For the present study, we chose to analyze PTSD separately given its prominence in the literature on exposure to community violence (e.g., Fowler et al. 2009). In addition, we include the full Internalizing scale rather than parsing out PTSD from the Internalizing scale in order to promote more accurate comparison across studies (i.e., previous literature has consistently used the full Internalizing subscale of the CBCL and YSR), and because, though highly correlated, PTSD and Internalizing are characterized by 30 and 38 % of non-shared variance for girls and boys, respectively. In cases where data were missing, means were imputed to maximize sample size, consistent with current recommendations in the literature (Schaefer and Graham 2002; UCLA Statistical Consulting Group 2013). Missing data were imputed for 7.8 % of participants that had extensive missing data on substantive variables. Sample-based mean imputation methods are noted as superior to listwise and pairwise approaches in that they allow use of full data and higher statistical power (Roth 1994). There were no significant differences on descriptive and demographic information between participants with missing and non-missing data.

We examined the data for outliers and nonlinear distributions to ensure that the results were not an artifact of sampling. In addition, data were not excessively skewed or kurtotic (these values ranged from $-.46$ to $.97$). Across outcomes, age was entered as a covariate in Block 1. Explanatory variables included gender and community violence (5 subscales) and were entered in Block 2. Residualized interaction terms between each of the 5 subscales of community violence and gender were entered in Block 3 to examine the extent to which child gender moderates the relationship between community violence and mental health outcomes. A post hoc power analysis for all three outcomes revealed adequate power (between .93 and .99) for conducting the regression analyses with 11 predictors and using R^2 as a measure of effect size.

Results

Descriptive Statistics

Table 1 reports descriptive statistics for all key study variables, including the subscales used to create composites across reporters. There were no significant differences in average mental health symptoms between boys and girls with respect to broadband or subscale scores of the CBCL or YSR. Using a t-score cutoff of 62 (Achenbach and Rescorla 2001), girls' scores on either the CBCL or YSR placed them in the clinical range of symptomatology for Externalizing (87.2 %), Internalizing (53.2 %), and PTSD (72.3 %). A similar pattern was evidenced for boys on Externalizing (80.0 %), Internalizing (61.9 %), and PTSD (76.0 %).

Regarding community violence subscales, though boys and girls show similar frequencies of reported violence against strangers and witnessing violence against familiars, boys are more likely to be direct victims of violence according to parent reports only ($t = -2.6, p < .05$), while girls are more likely to hear reports of violence against familiars, according to parent reports only ($t = 2.1, p < .05$). Though gender differences were found for witnessing violence against strangers, findings are in opposite directions for youth and parent reports, suggesting that parents perceived boys to have witnessed greater stranger violence while youth perceived girls as having witnessed greater stranger violence.

Given research documenting differences in reporting on mental health and risk factors between parents and youth (e.g., Shaffer et al. 2000), we conducted supplementary analyses on reporter differences by gender. Regarding mental health outcomes, we find significant differences for both boys and girls on parent and youth reports of Internalizing, Externalizing, and PTSD symptoms (ts (610) between 5.20 and 14.85, $ps < .05$), with parents reporting greater relative Internalizing and PTSD symptoms and youth reporting greater Externalizing symptoms, consistent with previous literature (e.g., Youngstrom et al. 2000). Regarding community violence variables, there were no significant differences between parent and youth reports of being a direct victim of violence or reported violence by a stranger for boys or girls (ts (610) between .00 and 1.69, $ps > .10$), but there was a significant difference for witnessing, such that youth reported significantly greater exposure to witnessing violence against a familiar (ts (610) between 2.54 and 4.11, $ps < .05$). There were no additional significant differences between reporters on any community violence variables for girls (ts (610) between 1.35 and .28, $ps < .178$). However, for boys, youth (compared to parents) reported significantly greater levels of reported

Table 1 Descriptive statistics for key study variables for boys and girls (N = 306)

	Boys Mean (SD)	Girls Mean (SD)	Test of gender difference
<i>Mental health symptoms</i>			
Externalizing			
Parent-reported CBCL	69.8 (8.5)	70.9 (8.1)	$t = .74, ns$
ODD	69.2 (8.5)	69.7 (9.0)	$t = .37, ns$
CD	70.57 (9.7)	71.8 (8.9)	$t = .81, ns$
ADHD	66.8 (7.9)	68.9 (8.9)	$t = 1.6, ns$
Youth-reported YSR	58.2 (10.7)	61.3 (10.5)	$t = 1.5, ns$
ODD	59.1 (8.0)	60.9 (8.4)	$t = 1.1, ns$
CD	60.7 (8.8)	63.9 (8.9)	$t = 1.8, ns$
ADHD	58.6 (8.1)	59.0 (7.4)	$t = .25, ns$
Internalizing			
Parent-reported CBCL	63.2 (9.6)	62.1 (9.7)	$t = -.69, ns$
Affective	64.4 (9.4)	64.3 (8.2)	$t = -.03, ns$
Anxiety	60.3(8.1)	60.9 (8.8)	$t = .41, ns$
Somatic	58.7 (9.0)	57.8 (7.6)	$t = -.61, ns$
Youth-reported YSR	58.0 (10.9)	55.2 (12.7)	$t = -1.3, ns$
Affective	58.8 (8.1)	58.1 (8.4)	$t = -.45, ns$
Anxiety	56.3 (7.3)	54.8 (6.7)	$t = -1.1, ns$
Somatic	60.3 (9.1)	59.7 (11.1)	$t = -.31, ns$
PTSD			
Parent-reported CBCL	67.7 (8.8)	67.8 (10.2)	$t = .05, ns$
Youth-reported YSR	60.0 (8.9)	59.1 (10.1)	$t = -.52, ns$
<i>Community violence</i>			
Victim of Violence			
Parent Report	2.2 (2.1)	1.3 (1.5)	$*t = -2.6$
Youth Report	1.9 (2.3)	1.3 (1.5)	$t = -1.7, ns$
Reported Violence, Stranger			
Parent Report	11.5 (4.2)	11.3 (4.1)	$t = -.27, ns$
Youth Report	11.8 (4.7)	11.2 (4.5)	$t = -.91, ns$
Reported Violence, Familiar			
Parent Report	3.5 (3.3)	4.7 (4.2)	$*t = 2.1$
Youth Report	4.4 (4.5)	4.8 (4.6)	$t = .45, ns$
Witness Violence, Stranger			
Parent Report	1.6 (2.2)	2.2 (2.6)	$*t = 1.7$
Youth Report	3.1 (4.2)	2.5 (2.9)	$*t = -.95$
Witness Violence, Familiar			
Parent Report	1.9 (2.1)	2.2 (2.5)	$t = .70, ns$
Youth Report	2.9 (3.7)	2.8 (3.3)	$t = -.17, ns$

CBCL child behavior checklist, YSR youth self report, PTSD post-traumatic stress disorder, ODD oppositional defiance disorder, CD conduct disorder, ADHD attention deficit hyperactivity disorder

* $p < .05$

Table 2 Bivariate correlations among key study variables for boys and girls (N = 306)

	Girls	Boys							
		EXT	INT	PTSD	Victim	Report by Stranger	Report by Family	Witness by Stranger	Witness by Family
EXT		1	.42*	.66*	.28*	-.00	-.00	.10	.19*
INT		.53*	1	.79*	.22*	-.02	-.03	-.03	.03
PTSD		.71*	.89*	1	.21*	-.08	-.08	-.02	.04
Victim		.24	.11	.13	1	.25*	.36*	.30*	.33*
Report by stranger		.35*	.16	.19	.33*	1	.51*	.36*	.36*
Report by family		.47*	.44*	.49*	.37*	.67*	1	.71*	.73*
Witness by stranger		.29	.39*	.40*	.27*	.65*	.79*	1	.69*
Witness by family		.31*	.34*	.40*	.36*	.59*	.85*	.78*	1

EXT externalizing mental health composite, INT internalizing mental health composite, PTSD posttraumatic stress disorder

* $p < .05$

violence against familiars and witnessed violence against strangers (t_s (610) between 2.82 and 5.83, $p_s < .05$).

Table 2 reports bivariate correlations among variables used in hierarchical regression analyses for boys and girls separately. For both boys and girls, Externalizing, Internalizing, and PTSD are relatively strongly associated with one another. In addition, the five subtypes of community violence are interrelated for boys and girls, though boys' direct victimization and girls' indirect victimization (i.e., reports and witnessing) are more strongly related to mental health symptoms. These are presented for descriptive purposes only and gender differences are more fully examined in hierarchical regression analysis.

Multiple Regression Analysis

Externalizing Symptoms

Column A of Table 3 displays results of multiple regression analyses for Externalizing symptoms. Results suggest that for both boys and girls, being a victim of violence ($\beta = .19$, $p < .05$) is significantly associated with Externalizing symptoms. However, gender moderates the association between hearing about reports of violence against a familiar ($\beta = -.37$, $p < .05$) and witnessing violence against a familiar ($\beta = .21$, $p < .05$) and Externalizing symptoms, such that Externalizing symptoms are more strongly associated with hearing about reports of violence against a familiar ($r = .47$, $p < .05$) and witnessing violence against a familiar ($r = .31$, $p < .05$) for girls, as compared with boys ($r_s = .00$, ns and $.19$, $p < .05$, respectively). The difference in correlation between genders is significant for hearing about violence against a familiar (Fisher's $Z = 3.62$, $p < .05$), but not for witnessing violence against a familiar (Fisher's $Z = .91$, ns). This significant moderation effect was also probed using post hoc methods outlined by Holmbeck (2002). Specifically, mean-centered variables and conditional moderator

variables were calculated for continuous variables. Regression lines were plotted that included simple slopes and y-intercepts. Results of these supplementary analyses support the existence of relevant moderation effects.

Internalizing Symptoms

Column B of Table 3 displays results of multiple regression analyses for Internalizing symptoms. Results suggest that for both boys and girls, being a victim of violence ($\beta = .19$, $p < .05$) is significantly associated with Internalizing symptoms. However, gender moderates the association between hearing about reports of violence against a familiar and Internalizing symptoms ($\beta = -.26$, $p < .05$), such that Internalizing symptoms are more strongly associated with hearing about reports of violence against a familiar for girls ($r = .44$, $p < .05$), as compared with boys ($r = -.03$, ns). This difference in correlation between genders is significant (Fisher's $Z = 3.56$, $p < .05$). Supplementary post hoc probing was also conducted (as described above; Holmbeck 2002), with results supporting moderation.

Posttraumatic Stress Disorder Symptoms

Column C of Table 3 displays results of multiple regression analysis for posttraumatic stress disorder symptoms. Across boys and girls, being a victim of violence ($\beta = .15$, $p < .05$) is significantly associated with PTSD symptoms. However, gender moderates the association between hearing about reports of violence against a familiar and PTSD ($\beta = -.32$, $p < .05$), such that PTSD symptoms are more strongly associated with hearing about reports of violence against a familiar for girls ($r = .49$, $p < .05$) as compared with boys ($r = -.08$, ns). This difference in correlation between genders is significant (Fisher's $Z = 4.37$, $p < .05$). Because PTSD is included as part of the Internalizing broadband scale, further analyses were

Table 3 Multiple regression with gender, community violence, and their interaction associated with mental health outcomes (N = 306)

	(A) Externalizing			(B) Internalizing			(C) PTSD		
	β (SD), [95 % CI]	<i>p</i> value		β (SD), [95 % CI]	<i>p</i> value		β (SD), [95 % CI]	<i>p</i> value	
<i>Covariate</i>									
	($R^2 = 2.6\%$)			($R^2 = .6\%$)			($R^2 = .6\%$)		
Age	$F(1, 302) = 8.12, p = .005$ -.16 (.17), [-.83, -.15] ($\Delta R^2 = 8.2\%$)	.005		$F(1, 302) = 1.89, p = .171$.08 (.13), [-.08, .44] ($\Delta R^2 = 2.6\%$)	.171		$F(1, 302) = 1.68, p = .196$ -.07 (.08), [-.25, .05] ($\Delta R^2 = 3.8\%$)	.196	
<i>Simple Effects</i>									
Gender	$F(7, 296) = 5.14, p = .000$ -.08 (1.2), [-4.22, .63]	.145		$F(7, 296) = 1.42, p = .195$ -.05 (.98), [-2.68, 1.18]	.444		$F(7, 296) = 1.94, p = .063$ -.04 (.55), [-1.45, .73] .13* (.16), [.03, .65]	.516	
C/PREV Victim of Violence	.19* (.35), [.43, 1.81]	.002		.14* (.28), [.10, 1.20]	.021			.031	
C/PREV Reported Violence, Stranger	.02 (.18), [-.30, .34]	.813		-.06 (.14), [-.40, .15]	.360		-.07 (.08), [-.24, .07]	.301	
C/PREV Reported Violence, Familiar	.01 (.30), [-.57, .62]	.924		.04 (.24), [-.39, .55]	.739		.07 (.14), [-.18, .36]	.501	
C/PREV Witness Violence, Stranger	-.00 (.32), [-.63, .61]	.969		-.05 (.25), [-.62, .37]	.614		-.03 (.14), [-.33, .22]	.702	
C/PREV Witness Violence, Familiar	.15 (.38), [-.12, 1.36] ($\Delta R^2 = 4.8\%$)	.101		.06 (.30), [-.41, .76] ($\Delta R^2 = 4.1\%$)	.557		.10 (.99), [-.16, .50] ($\Delta R^2 = 5.1\%$)	.323	
<i>Gender Moderation</i>									
Gender × C/PREV Victim	$F(12, 291) = 4.50, p = .000$.05 (1.0), [-1.07, 2.70]	.396		$F(12, 291) = 1.93, p = .030$.08 (.77), [-.05, 2.51]	.191		$F(12, 291) = 2.55, p = .003$.08 (.43), [-.31, 1.38]	.215	
Gender × C/PREV Reported Stranger	-.06 (.46), [-1.30, .50]	.383		.10 (.37), [-.26, 1.18]	.208		.05 (.21), [-.26, .55]	.482	
Gender × C/PREV Reported Familiar	-.37* (.66), [-3.57, -.95]	.001		-.26* (.53), [-2.25, -.16]	.024		-.32*(.30), [-1.42, -.25]	.005	
Gender × C/PREV Witness Stranger	.09 (.85), [-.85, 2.46]	.335		-.09 (.68), [-1.92, .76]	.394		-.02 (.38), [-.81, .68]	.862	
Gender × C/PREV Witness Familiar	.21* (.93), [.03, 3.68]	.046		.09 (.74), [-.87, 2.05]	.425		.08 (.42), [-.52, 1.12]	.474	

CBCL child behavior checklist, YSR youth self report, PTSD posttraumatic stress disorder, C/PREV children's/parent's report of exposure to violence

* $p < .05$

conducted to examine whether findings for Internalizing were mediated by the PTSD subscale. Results suggested no evidence for mediation ($ps > .05$), and findings for PTSD did not change when controlling for other Internalizing symptoms. Supplementary post hoc probing was also conducted (as described above; Holmbeck 2002), with results supporting moderation.

We also conducted additional analyses to examine the extent to which results were influenced by youth versus parent reports. Specifically, we estimated the maximum score on the CBCL and YSR, examined parent-only reports of Community Violence, and examined youth-only reports of Community Violence. Results of these analyses reveal that all findings remain the same (including simple effects and gender moderations) regardless of the method of score estimation used, with one exception: with respect to using parent reports of Community Violence, gender no longer moderates the relationship between witnessed violence against familiars and Externalizing Symptoms ($p = .428$). We suspect this may be due to lower overall variability in parent reports on this subscale, and the fact that both boys and girls reported significantly higher mean scores as compared to their parents (Boys $t(610) = 4.12$, $p < .05$; Girls $t(610) = 2.54$, $p < .05$).

Summary

There are notable similarities and differences in results across the three mental health outcomes. First, being a direct victim of community violence accords risk for all three mental health outcomes for both boys and girls. However, gender differences were also evidenced. Specifically, risk for all three mental health outcomes is accorded for girls, but not boys, who hear reports of community violence against people they know, but not against strangers. An added risk for Externalizing is found for girls who witness violence against familiars. Thus, girls who experience community violence around people they know are at greater risk for Externalizing, Internalizing, and PTSD symptoms, whereas boys' greatest risk for mental health is accorded through being a direct victim of violence.

Discussion

The current study expands our understanding of the impact of different types of community violence on multiple mental health outcomes, and examines gender as a moderator of the relationship between community violence and mental health. The study is informed by multiple reporters and includes a relatively large low-income sample of youth receiving psychiatric care in an urban community. Overall,

study findings (a) replicate literature that underscores the mental health risk incurred by youth who directly experience community violence, and (b) extend literature by suggesting that risk for indirect violence, including hearing about and witnessing violence against familiars, is particularly pronounced for girls, and in relation to their externalizing symptoms. Implications regarding the role of gender and residing in urban contexts is discussed in light of research and intervention.

Experience of Direct and Indirect Violence

A primary finding of this study is that being a direct victim of violence accords risk for all mental health outcomes, including internalizing and externalizing disorders, similarly for both boys and girls; a finding that replicates previous studies (e.g., Fowler et al., 2009), but does so with a focus on youth living in urban poverty. Second, indirect or vicarious exposure to violence is not a significant risk factor for boys' mental health. However, girls who hear reports of violence against people they know are at increased risk for all mental health outcomes. This finding adds data to a somewhat inconsistent literature on indirect violence (e.g., Fowler et al. 2009), suggests that indirect violence against familiars is more detrimental than that against strangers, and supports the general notion that witnessing violence is a stronger risk factor than hearing about violence. Furthermore, these data contribute the novel finding that witnessing violence against familiars is a stronger predictor for girls' mental health symptom—namely that girls' externalizing symptoms in particular are positively related to witnessing violence against familiars, but not strangers; a finding that has not received sufficient empirical examination to date.

Explaining Gender Differences in Exposure to Indirect Violence

Family contexts and the roles that youth taken within them are an important aspect of youth development and may help explain gender differences in exposure to indirect violence. Indeed, “risky family contexts” that include lower relative parental monitoring are associated with both exposure to violence and mental health problems for boys and girls (see Javdani et al. 2011 for a review). Recent research shows that parental monitoring decreases as youth get older, and declines at greater rates for youth who have consistent exposure to violence over time, underscoring the impact of a chronic context of urban poverty (Spano et al. 2012). In addition, parental monitoring has differential impact on community violence exposure for adolescent boys and girls (Jacobson and Crockett 2000; Spano et al. 2012; Javdani et al. 2011), with recent longitudinal studies

corroborating previous findings that monitoring may be particularly impactful for boys' outcomes. Namely, Spano et al. 2012 found that boys and older youth engaging in violent behavior showed a 135 % decline in parental monitoring over time, suggesting a potentially deteriorating context of family supervision with greater exposures to violence, particularly for boys.

Given that girls are more likely to be monitored overall (Stattin and Kerr 2000), even as they enter later adolescence, other potential family factors should be considered to interpret results related to the impact of indirect violence against familiars. Girls are widely acknowledged to provide more care for others in their family and to begin to do so earlier than their male counterparts (Call et al. 1995; East 2010; Larson and Verma 1999; Zukow-Goldring 2002). Indeed, boys' family caretaking responsibilities decrease as they move into adolescence (East et al. 2009; Gager et al. 1999) while the opposite is true for girls. These roles are doubtless accounted for in part by gender-based selection effects as well as traditional gender role norms (Crouter et al. 2001; McHale et al. 1999). Researchers have also argued that these increasing differences in caretaking responsibilities over the course of childhood and adolescence may emerge from a desire to conform to gender norms, to meet parents' gendered expectations, an intensification of sex-role identification, niche selection, or even a greater biological predisposition to nurturance (Cancian and Oliner 2000; East 2010; Galambos 2004; Gilligan 1982; Kroska 2003; Markus and Nurius 1986; McHale et al. 1999). Thus, childhood and adolescence are a period of increasing gender differentiation in girls' and boys' roles as caretakers.

Gender role differentiation research can provide an explanatory framework for interpreting the finding that vicarious exposure to violence against *familiars* is a particularly important risk for externalizing disorders for girls, but not boys (Javdani 2013); a finding evidenced in both parent and youth reports. In light of this framework, it is not surprising that witnessing violence against familiars poses a traumatic threat for girls, who are likely to have stronger identification with caretaking roles. Perhaps exposure to this trauma poses a greater threat to girls' identity development, is a greater threat to their safety, and, in turn, activates a stronger fear response against which externalizing behaviors are engaged (e.g., East 2010; Gilligan 1982; Verona et al. 2009). Further, indirect exposure to violence against familiars may pose a greater mental health risk for girls, precisely because of the importance of caretaking roles, and be associated with greater relative comorbidity of internalizing and externalizing disorders for girls, as compared with boys (e.g., McCabe et al. 2002; Keenan and Shaw 2002). The resulting impact may be that girls are prone to both internalizing and externalizing symptoms in response to vicarious trauma, and, at earlier

ages, have fewer cognitive and behavioral skills to bring to bear on complex scenarios of community violence. The results of this study support this pattern. Further, literature on associations with opposite-sex partners suggests that girls may be at greater risk for externalizing symptoms if they have opposite sex peers and romantic partners who are at increased risk for direct and indirect community violence (see Javdani et al. 2011 for a review). It is possible that girls' reports of indirect violence against familiars are based upon seeing or hearing about violence against their romantic partners, which may be particularly distressing and give rise to a variety of risks (e.g., Miller 2004). Alternative explanations should also be considered, including that girls who affiliate with family and friends who engage in disruptive behaviors may themselves be more likely to engage in these behaviors (i.e., due to greater opportunities to do so; Chesney-Lind and Pasko 2004; Javdani et al. 2011). Thus, girls who experience community violence around people they know are at greater risk for Externalizing, Internalizing, and PTSD symptoms, while boys are not—a pattern potentially explained by girls' stronger identification with caretaking roles and greater resulting distress when those familiar to them are put in harms way (Wang et al. 2005).

Assessment and Treatment Implications

These findings have several assessment and treatment implications. Clinical assessments should adopt broader definitions of violence that include vicarious exposure, particularly for girls and youth living in urban poverty. Further, the perceived impact of the violence experienced or witnessed is a key predictor of mental health symptoms, underscoring the need to ask youth about direct and indirect violence and simultaneously incorporate parent reports of mental health, particularly in relation to externalizing symptoms. Additionally, it is important to identify the nature of the youth's relationship to the victim and possible feelings of loss as well as a desire for retaliation (Pynoos and Spencer 1986). The meaning ascribed to these events is likely to impact youth's sense of self, perceived safety, perceived self-worth, as well as the value placed on the life of others and themselves. Violence-exposed youth are more likely to equate "power" with safety and may use physical aggression and violence as a way to cope (Van Dorn and Williams 2003). For this reason, it is important for interventions to support the development of prosocial beliefs and practices regarding power and safety (McMahon et al. 2012). Violence exposed youth are often exposed to multiple traumas and experience a broad range of needs. Consensus treatment recommendations for youth affected by complex trauma include addressing their internal and external sense of safety, improving youth's ability to

self-regulate, processing traumatic experiences, and repairing interpersonal challenges (Cook et al. 2005). Family-based approaches are also instrumental in addressing behavioral and emotional problems in youth (e.g., Henggeler and Hoyt 2001), such as through increasing caretaker support and decreasing use of confrontational coping, both of which are associated with reductions in community violence-related internalizing symptoms for boys and girls (Rosario et al. 2008).

It is also important to incorporate treatment and assessment strategies with attention to the context of urban poverty, which has been well-documented to provide greater exposure to both direct and indirect violence for both boys and girls (Farrell and Bruce 1997; Leventhal and Brooks-Gunn 2000; Youngstrom et al. 2003). Indeed, studies suggest that exposure to violence in urban contexts may promote behavioral risk even if emotional distress is not reported by youth (Farrell and Bruce 1997). Furthermore, urban youth use a variety of coping strategies to navigate dangerous neighborhood contexts (Rasmussen et al. 2004). These findings speak to the conceptualization of the urban context of poverty as an opportunistic environment in which violence is relatively more normalized, and behaviors to cope (e.g., substance use) or reduce short-term risk (e.g., demonstrate having a reputation as a fighter) are not identified as potentially harmful for youth (Fergus and Zimmerman 2005). Thus, it may be particularly important to assess and target a variety of resilience-related strategies youth may use in these contexts, such as compensatory behaviors that allow youth to adapt to volatile environmental demands (Fergus and Zimmerman 2005; Eisenberg et al. 2002). An ecological approach to intervention is warranted both in terms of how youth are recruited into helping institutions (e.g., youth outreach), and in identifying the targets of treatment (e.g., peer groups, neighborhood-related projects, education and employment support; see Greene 1993). This is particularly critical given research suggesting that perceived safety is not associated with actual violence exposure in high crime urban areas (Rasmussen et al. 2004). Thus, focusing intervention efforts on promoting actual, and not *perceived* safety, is critical, such as through ecological interventions targeting changes in youth's environments, including youth advocacy (Davidson and Rapp 1976; Javdani and Allen 2014) and socio-political development (Watts et al. 2003).

Limitations

Limitations of this study include that the sample is high risk, and results should not be generalized beyond the context of urban poverty and may generalize primarily to youth who have been identified as having some externalizing problems. Youth also included a wide range of ages,

and in keeping with the assessment protocol of the YSR, no youth-reported data were available for youth under age 11. We also note that, though we examine Internalizing and PTSD as separate mental health outcomes in order to foster comparisons across studies, these scales are highly correlated and overlapping. However, the sample under study is highly representative of the most under-served youth who come to the attention of psychiatric facilities at early ages and for the majority of whom urban poverty is a daily reality. Thus, study findings can inform interventions for under-served youth at greatest risk for chronic mental health needs. In addition, there were relatively fewer girls than boys. However, gender representation in this study parallels that of high-risk youth samples, including juvenile justice involved youth (e.g., Snyder and Sickmund 2006). Supplementary analyses also revealed some significant differences on mental health and community violence exposure between youth and parent reporters. Examinations of reporter-related effects represent important avenues for future research, both theoretically and methodologically. In addition, though across- and within-group analyses demonstrated adequate power, we note that important power-related issues should be taken up in future research. For instance, no gender moderation was evidenced in the relationship between direct violence victimization and mental health outcomes even though bivariate correlations suggest significant associations between direct victimization and externalizing mental health for girls, but not boys. Future studies with higher sample sizes of girls are needed to directly probe this moderation. However, the gender moderation evidenced in the present study was consistent with our a priori hypothesis, and provides needed data on the understudied area of girls' disruptive behaviors. Additionally, though there were relatively more boys in the present study, this difference is not due to a lower response rate for girls and is characteristic of national samples of youth at risk for externalizing disorders (Snyder and Sickmund 2006), including youth receiving general outpatient psychiatric services for disruptive behavior problems (Wu et al. 1999). Finally, self-report data were used and are subject to potential social desirability bias, but multiple informants (parents and youth) reported on all predictor and outcome and variables using highly established scales.

Conclusion

This study addresses an important gap in research related to youth mental health and community violence exposure. In this examination, we distinguish between different types of community violence and investigate gender differences in the relationship between community violence and mental

health outcomes, contributing to the understudied area of the impact of community violence for girls. We find that being a direct victim of violence accords risk for all mental health outcomes similarly for both boys and girls, while girls' indirect violence experiences are related to increased risk for all assessed mental health outcomes. Results are interpreted with respect to literature on gender role differentiation and the context of urban poverty, with implications for intervention and assessment.

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