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Witnessing Community Violence in Residential Neighborhoods: A Mental Health Hazard for Urban Women

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ABSTRACT *We examined the prevalence and psychological correlates of witnessing community violence among women of low socioeconomic status living in urban neighborhoods in the northeastern United States. Three hundred eighty-six women receiving their health care at an urban community health center were sampled to assess their violence exposures. Women were asked to report the location and timing of their exposure to witnessing violent neighborhood events in which they were not participants. The Brief Symptoms Inventory was used to assess anxiety and depressive symptoms. Controlling for marital status, educational attainment, age, and intimate partner violence victimization, women who witnessed violent acts in their neighborhoods were twice as likely to experience depressive and anxiety symptoms compared to women who did not witness community violence. Central American-born women had particularly high exposures. We conclude that witnessing neighborhood violence is a pervasive experience in this urban cohort, and is associated with anxiety and depressive symptoms, even among women who are not direct participants in violence to which they are exposed. Community violence interventions must incorporate efforts to protect the mental health of adult women who witness events in their neighborhoods.*

KEYWORDS *Neighborhood violence, Women's health, Neighborhood effects on health*

INTRODUCTION

Community violence is a leading mental health hazard in urban neighborhoods with well-documented effects on psychological functioning and behavior among urban youth.[1,2] However, despite the pervasive nature of violence exposure in many urban neighborhoods in the United States (US), research on the broader mental health consequences of community violence among older age groups remains sparse. Surprisingly, few studies relate community violence exposures among adult urban women to mental health distress symptoms. In urban populations, depressive and anxiety symptoms, in particular, are prevalent causes of ambulatory care visits and

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leading causes of lost work days and poor functioning among adults.[3–5] In urban primary care samples, women of low socioeconomic status (SES), and women of color appear to be particularly vulnerable.[5–7] The correlates of anxiety and depressive symptoms among low SES urban women have yet to be fully characterized. Further, data on anxiety and depressive symptoms among adult Latinas who experience community violence in urban environments are particularly limited.

Community Violence Exposure and Mental Health in Urban Settings

Generally, urban living is hypothesized to engender mental health distress through social processes unique to urban contexts.[8] Concepts derived from both social disorganization theory and the stress process model provide a theoretical framework positing that community violence associated with urban living may tax the personal resources of residents and reduce the supports available to cope with emotional responses, resulting in poorer mental health outcomes.[8–11] Social disorganization theory suggests community violence in urban environments is produced by a loss of social integration and social control over the behavior of youth.[8,9] Indeed, much of what is known about community violence exposure in neighborhoods marked by low social integration is obtained from studies of children, adolescents, and young adults. In these environments, youth and young adults are known to have high exposure to violent events through perpetration of, victimization from, witnessing, and hearing about violence.[1,11–16] For example, data from the National Survey of Adolescents show a high prevalence of witnessing violence among urban compared to rural adolescents.[2]

Among urban youth, these exposures are conceptualized as chronic, pervasive stressors that occur during critical developmental periods when youth and young adults may have limited physical, cognitive, or emotional resources to protect themselves from internalizing stress responses, including anxiety, depression, or traumatic stress.[1,15,17] Limited social supports in neighborhoods with low social integration may further reduce resources available to help youth and young adults cope with these experiences. A stress process model would predict depression, posttraumatic stress disorder, or externalizing behavioral disturbances among youth exposed to community violence.[1,9,20] Indeed, the mental health consequences among urban youth and young adults exposed to community violence are well documented. Exposures to victimization, and witnessing violent events such as shootings, knife attacks, and robberies are associated with a range of mood disorders and distress, including anxiety and depression.[17–19,21] Even in "low-risk" young adult populations in university settings, Scarpa et al. have documented depression, trait anxiety, and posttraumatic stress symptoms associated with witnessing, and hearing about violent events (muggings, shootings, stabbings, seeing dead bodies) in which subjects were not directly involved, particularly among girls and young women.[22,23]

Violence Exposure and Mental Health Outcomes for Adult Women

Whether community violence has a similar impact among adult women is less well known. Few empiric data explore the core relationship between anxiety and depressive symptoms and community violence in adult women of low SES and who are from diverse backgrounds.

Applying the stress process model, adults may not be as vulnerable to psychological distress as youth exposed to community violence. Adult coping

resources may be expected to reduce women's susceptibility to anxiety and depressive symptoms when exposed to urban violence. Moreover, it is possible that Latina immigrants, in particular, may possess culturally based social ties that protect them from social disorganization.[24,25] Evidence of adult resilience to community violence is provided by Bogat et al., who explored the impact of living in communities marked by violence, and the impact of intimate partner violence experiences on women's mental health in a diverse low-income community sample (9% Latina).[26] Women with intimate partner violence exposure suffered anxiety, depression, and trauma symptoms, regardless of community violence exposure. However, no direct correlation between mental health distress and community violence was found.[26] The study, however, did not specifically measure the individual woman's exposure to community violence, and did not identify women who were victimized, witnesses, or who had heard about violent events. Thus, the analysis may not have been able to distinguish among individual women who were exposed and unexposed to violent events, although they lived in neighborhoods with high versus low levels of community violence.

Despite their adult coping resources, women of low SES may face additional hardships coping with community violence caused by cumulative adversities that may tax their personal emotional resources.[20] Further still, adult Latinas of low SES may be particularly vulnerable to having anxiety and depressive symptoms when exposed to community violence as they confront historical stresses associated with discrimination and minority status within the US, that may produce acculturation stress, with negative consequences for mental health outcomes.[25,27] Additionally, low SES Latinas in urban settings may be vulnerable because of a paucity of culturally appropriate primary care resources to support healthy coping.[28,29] Despite these potential vulnerabilities, evidence of an association between community violence exposure and depression is sparse among Latinas. Aisenberg reports a pilot study of 31 Latina mothers in southern California in which 32% witnessed a beating, 3% witnessed a knife attack, and 71% heard gunshots near their homes.[30] Aisenberg hypothesized that exposure to community violence among mothers results in depression and experiences of helplessness and frustration caused by the fear that they may be unable to protect their children.[30] No association between maternal exposure to community violence and depression was found; however, this may be due to inadequate power.

Witnessing Community Violence

Difficulty quantifying mental health effects of community violence exposure among adults may relate to a lack of specificity when describing the ways that women are exposed to community violence.

Recent scholarship has advanced the measurement of community violence exposure among children and adolescents.[31] Using their exposure to violence (ETV) measures, Kindlon et al. distinguished at least three routes of community violence exposure: "witnessing," "victimization," and "learning of" violent events.[31,32] The impact of *witnessing* community violence in residential neighborhoods among adults is of particular interest as this may represent a prevalent experience among women in urban settings. Data from the National Women's Study suggest adult urban women witness serious injury or death frequently (21% of urban sample), and those who experience traumatic events that are *directly* life threatening are at risk for posttraumatic stress disorder.[2,33] However, the specific impact of *witnessing*

community violence on anxiety and depressive symptoms, particularly in low SES and diverse populations, was not fully assessed.

Notably, understanding the route of community violence exposure associated with mental health outcomes has public health significance; an association between *witnessing* violence, and anxiety or depressive symptoms would suggest the need for broader interventions among women who are not direct victims of violent interactions to reduce the prevalence of anxiety and depression in urban contexts.

Witnessing Community Violence: A Potential Hazard for Women's Mental Health

In addition to the work discussed above, we are aware of few studies reporting the prevalence and correlates of witnessing violence among adult women in urban settings: Taylor et al. report 36% of mothers witnessed a knife attack or a shooting in Boston neighborhoods.[34] In addition, Holman et al. find a 13% prevalence of witnessing death or violence as a traumatic life event in a diverse primary care sample of adult men and women in southern California.[35] Women who experienced traumatic events were more likely than men to present with 1-year and lifetime psychological disorders.[35] Specific effects associated with witnessing community violence among women were not reported.

Brown et al. studied the relationship between intimate violence, community violence exposure, and mental health outcomes among urban African American women, and found an association between exposure to community violence (witnessing and victimization combined) and traumatic stress symptoms.[36] An interaction was found with intimate partner violence such that women with both community and intimate partner violence exposures had higher traumatic symptoms than women with exposure to either community or intimate violence alone. The finding underscores the importance of considering multiple sources of violence exposure. It is unclear whether the impact of community violence exposure was mediated through direct injury and victimization, or whether witnessing events was related to poor mental health outcomes.

Our study contributes to the literature by exploring anxiety and depressive symptoms as correlates of *witnessing* community violence in an ethnically diverse cohort of Latina and white adult women. We assess the contribution of witnessing community violence to anxiety and depressive symptoms when intimate partner violence experiences are considered. These data provide us with an opportunity to examine the effects of this specific route of exposure in a population of urban adult women of low socioeconomic status, whose experiences were recorded shortly after a spike in the U.S. community violence epidemic in the 1990s.[37]

METHODS

Study Cohort

Study participants were recruited from a longitudinal cohort of mother–child pairs enrolled in a study of the effect of prenatal smoking on respiratory disorders in infants and children. The design of the longitudinal study has been detailed previously.[38] Briefly, mothers enrolled in the parent study had ongoing obstetric and pediatric care at an ambulatory neighborhood health care clinic in the northeastern United States. Those presenting for prenatal care between March 25, 1986 and October 1, 1992 were eligible for enrollment in the parent study. Women

who did not speak English or Spanish, and who were younger than 18 years were excluded. The parent study recruited 1,000 of 1,365 women eligible to enroll (73.3%). Of these, 848 gave birth to a full-term infant and participated in the parent study. In November 1996, approximately 500 women (59%) continued active follow-up. From November 1996 to December 1998, voluntary consent was obtained to administer the Adult Violence Assessment Questionnaire. This study includes 386 mothers who agreed to be interviewed (77% of the active parent cohort). Subjects who did not participate in the violence assessment differed in ethnic composition (54.6% of nonparticipants were non-Hispanic whites and 45.4% of nonparticipants were Latina, whereas 44% of participants were non-Hispanic whites, and 52% of participants were Latinas). Both the parent study and the current study were approved by the Human Subjects Committees of Brigham & Women's Hospital and Beth Israel Deaconess Medical Center.

Measures

Outcome Measures: Anxiety and Depressive Symptoms Subscales from the Brief Symptom Inventory (BSI) were used to assess depressive and anxiety symptoms.[39] Participants reported symptoms experienced over the 7 days before the interview. Anxiety and depressive symptoms were each assessed through six questions rated on a five-point scale. A value of 0 indicated no symptoms, and a value of 4 indicated high levels of symptoms. Skilbeck et al.[40] have shown that the BSI anxiety and depression subscales are reliable measures of these constructs among white and Latino men and women in urban low-income populations. The subscales have good internal consistency among Latinas (anxiety Cronbach's $\alpha = 0.80$, depression Cronbach's $\alpha = 0.82$) and whites (anxiety Cronbach's $\alpha = 0.83$, depression Cronbach's $\alpha = 0.80$) in this cohort. Distributions for anxiety (mean score 0.58 units ± standard deviation [SD] 0.68 units) and depressive symptoms (mean score 0.41 units ± SD 0.59 units) were not normally distributed, but skewed toward the lower end of the scale. Thus, measures were divided into three levels, "none," "mild," and "high," to facilitate interpretation, and to identify participants with BSI scores comparable to clinical psychiatric populations. "High" symptoms were defined as scores equal to or greater than mean scores seen in psychiatric outpatients reported by Derogatis et al.[39] for anxiety (mean 1.70 units ± SD 1.0) and depression (mean 1.8 units ± SD 1.08).

Adult Community Violence Exposure The *Survey of Children's Exposure to Community Violence* was modified to assess mothers' self-reported exposures to community violence.[41] This multi-item questionnaire is designed to assess dimensions of victimization, perpetration, and witnessing community violence, including: 1) the location of the exposure (self-defined neighborhoods or other locations), and 2) the timing of the exposure (*recent exposure*, within 12 months of the study interview, or *remote exposure*, greater than 12 months before the study interview). Both location and timing of witnessed events were considered in the analyses. Two-week test–retest reliability in a random sample of 10 mothers was 0.95.

The survey assessed exposure to four examples of community violence: hearing gunshots; shoving, kicking, and punching; knife attacks; and shootings, referenced hereafter as Exposure to Violence (ETV) events. Women were asked to identify whether they were participants (victims or perpetrators), or witnesses of the events they experienced. A three-level summary variable was constructed to indicate: (1) *no*

exposure to ETV events (ETV = 0), (2) *witnessing* any ETV events (ETV = 1), or (3) *participating* in ETV events (ETV = 2). Forty-five women reported they were attacked, and five women were assailants in events they "witnessed." These women were coded as "participants" (ETV = 2) rather than "witnesses." Thus, those coded as *witnesses* (ETV = 1) did not participate in any events to which they were exposed. Considering witnessed violence as one level of a continuum of exposure to interpersonal conflicts is suggested by Buka et al.[42] Separate indicator variables were used to denote the location (neighborhood or other location) and timing (recent or remote) of the exposure.

Family and Intimate Partner Violence Exposure We hypothesized that intimate and community interpersonal violence exposure may be correlated and have independent effects on mental health. The Revised Conflict Tactics Scale (CTS2) was used to assess exposure to interpersonal violence among family members and intimate partners.[43] The CTS2 is designed to measure psychological and physical attacks experienced in the past year. Internal consistency, test–retest reliability, and validity have been well established for the CTS2 including the Spanish translation.[44] The CTS2 was scored according to published guidelines and summary scales were calculated to indicate exposure to *verbal aggression* and *minor* and *severe* physical violence.[45] The Verbal Aggression subscale consists of seven items (e.g., insulting or swearing at a partner, destroying a belonging or threatening to hit a partner). Minor Physical Violence consists of three items (e.g., throwing something at a partner, pushing or slapping a partner). Severe Physical Violence consists of six items (e.g., kicking, hitting, choking or beating, or using a knife or a gun against a partner). Participants rated the frequency with which a behavior was directed against them within in the past year. The three subscales for verbal aggression, minor and major physical violence were summed to comprise a summary scale, and divided into tertiles to indicate low, medium, and high intimate violence exposure.

Demographic Covariates Demographic characteristics including age, marital status, country of origin, educational attainment, and race/ethnicity were ascertained through self-report questionnaires. Reported race/ethnicity categories were "white," "black or African American," "Asian," and "Latina," irrespective of white or black race. Marital status was categorized as "married," or "unmarried" (single, separated, divorced, or widowed). A separate variable indicated participants who were unmarried but cohabiting to capture the theoretical risk of increased exposure to, or fear of, community violence among cohabiting women, and to capture differential risks of anxiety and depressive symptoms associated with single and cohabiting motherhood.[46,47]

Statistical Analysis

Chi squared analysis was used to test bivariate associations between categorical variables.[48] Logistic regression with the cumulative logic link was used to test the cumulative odds of experiencing no, mild, or high anxiety and depressive symptoms associated with witnessing ETV.[49,50] An appropriate interpretation of the cumulative odds ratio is the trend toward symptom severity associated with a given exposure. The study hypothesis is that witnessing community violence is associated with a trend toward experiencing clinically significant symptoms. We report odds ratios (OR) with 95% confidence intervals (CI) of the effect of *witnessing* community violence compared to those without exposure to community violence.

We do not report the effect sizes of *participating* in community violence because of small numbers. Models were adjusted for potential confounders, including intimate violence exposure assessed by the CTS2, race/ethnicity, age, education, and marital status. Differences by race and ethnicity were examined using stratified models. Models for non-white, non-Latinas were not estimated because of small numbers. Statistical analyses were conducted in SAS© version 9.1.

RESULTS

Demographic Characteristics

The mean age of study participants was 27 years (range 18–42 years, SD 5.2 years). The majority of women were married (63%). The sample was predominantly Latina ($n=200$); 44% were white ($n=170$), and 4% specified their race as African American, Asian, or other ($n=16$). A significant number of women were born outside of the US, including women born in Central America (28%),[1] South America (14%)[2], Mexico (7%), and the Caribbean (5%).[3] A smaller number of women were born in Asia and the Pacific Islands[4] (<1%), Europe[5] (1.8%), and Africa (<1%).[6] A large proportion of the study population had not completed high school (42%), 39% graduated from high school, and 19% had some college education.

Anxiety and Depressive Symptoms

Table 1 shows the prevalence of anxiety and depressive symptoms. The prevalence of high anxiety symptoms comparable to outpatient norms described by Derogatis was between 5% and 8%; the prevalence of high symptoms comparable to outpatient norms for depression was between 2% and 6%. Anxiety and depressive symptoms were tightly associated ($p<0.001$).

Race/ethnicity was significantly associated with anxiety symptoms ($p<0.05$); Latinas experienced a higher prevalence of anxiety symptoms than white women, and women from other races (Table 1). No racial or ethnic differences were seen in depressive symptoms.

Lifetime Exposure to Witnessing Community Violence

Table 2 shows the lifetime prevalence of witnessing ETV. Sixty-six percent of women witnessed at least one ETV event. Fifty-two percent of women witnessed someone being shoved, kicked, or punched; 46% heard gunshots; 10% witnessed knife attacks; and 8% saw someone shot within their lifetimes. Differences in witnessing ETV were seen by race/ethnicity and country of origin. Central American-born women had the highest lifetime prevalence of ETV. Central American-born women more commonly reported hearing gunshots compared to US-born women. However, Central American-born women had a lower prevalence of witnessing shoving, kicking, or punching than US-born women.

[1]Guatemala, Honduras, El Salvador, Nicaragua, Costa Rica, Panama
[2]Colombia, Peru, Brazil
[3]Cuba, Haiti, Dominican Republic, Puerto Rico, St. Kitts
[4]Cambodia, Philippines
[5]Italy, Spain, Portugal
[6]Senegal, Cape Verde

TABLE 1 Anxiety and depressive symptoms: prevalence by race/ethnicity[a]

Race/Ethnicity	White % ($n=170$)	Latina % ($n=200$)	Other % ($n=16$)
Anxiety symptoms*			
None	27	16	25
Mild	68	77	69
High	5	8	6
Depressive symptoms			
None	43	38	38
Mild	55	57	56
High	2	6	6

[a]Anxiety and depression subscales from the Brief Symptom Inventory (Derogatis et al. 1983)

*$p<0.05$, 2 degrees of freedom chi-squared tests for a trend toward higher symptoms associated with race/ethnicity.

Columns may not sum to 100% because of rounding off.

TABLE 2 Lifetime prevalence of ETV witnessed by location and timing[a] ($n=386$)

	Shoving, kicking, or punching	Knife attack	Hearing gunshots	Seeing someone Shot	Lifetime prevalence of witnessing any event[a]
	Percent	Percent	Percent	Percent	Percent
Participants who witnessed an ETV event	52	10	46	8	66
Race/Ethnicity[b]					
White ($n=170$)	56	10	33	5	59
Latina ($n=200$)	50	12	58**	10	74**
Other race ($n=16$)	31	0	31	13	44
Country of Origin[b]					
US ($n=167$)	59	10	34	6	61
Mexico ($n=26$)	58	8	35	8	65
Central America ($n=107$)	40*	11	69**	10	80*
Caribbean ($n=20$)	50	10	40	10	60
South America ($n=53$)	57	13	51	8	68
Other country ($n=13$)	23	8	15	0	31
Location of event					
Neighborhood	19	4	7	3	26
Other location	23	5	7	4	28
Timing of event					
Recent (past 12 months)	17	<1	7	0	19
Remote (greater than 12 months prior)	35	10	39	7.5	57

[a]Totals represent the cumulative percentage of the cohort that witnessed any ETV event. Lifetime prevalence of witnessing any event is not the sum of the row totals because participants may have witnessed multiple events. Where multiple events are witnessed, they may occur in more than one location, and recently as well as in the past.

[b]Three race/ethnic groups were compared via 2 degrees of freedom chi-squared tests. Six national groups were compared via 5 degrees of freedom chi-squared tests.

*$p<0.05$

**$p<0.001$

Witnessing Community Violence in the Neighborhood and Other Locations

Women witnessed violent events as frequently in the neighborhood (26%) as in "other" locations (28%), including their children's schools, daycare centers, and unspecified locations (Table 2). Both the neighborhood and "other" locations were sources of severe ETV events. In neighborhoods, 4% of women witnessed knife attacks, and 3% of women witnessed shootings. Latinas (8%) were more likely to witness knife attacks in their neighborhoods than white women (1%) and women of other racial groups (0%; $p<0.05$, not shown in tables).

Neither educational attainment, country of origin, nor marital status correlated with community violence exposure in this cohort. The types of events and the prevalence of exposures in "other" locations besides the neighborhood and home were similar to that seen in residential neighborhoods (Table 2).

Timing of Exposure: Recent and Remote ETV Events

The majority of participants witnessed ETV greater than 12 months before the study interview (57%); 19% witnessed events within 12 months of the interview. Timing of exposure differed by race/ethnicity and national origin. White women (25%) reported *recent* ETV more frequently than Latinas (14%) and women of other racial groups (13%) ($p<0.01$). Women from Central America reported the highest levels of remote exposures (74% vs. 49%, $p<0.01$).

Relationship Between Witnessing ETV and Intimate Partner Victimization

The raw mean score for intimate partner victimization (IPV) was skewed toward the lower range of the scale (mean 15.6, SD 12.8, range 0–69). Whites had a slightly higher mean exposure to intimate violence (mean 16.7, SD 11.0, range 0–56) than Latinas (mean 15.3, SD 13.9, range 0–69), although this difference was not statistically significant ($p=0.28$). The experience of witnessing ETV in neighborhoods and being victimized by IPV was highly correlated in the unstratified sample; 41% of women with high exposure to IPV witnessed ETV in their neighborhoods, whereas only 24% with low exposure to IPV witnessed community violence in their neighborhoods ($p<0.01$). This relationship was seen among Latinas (39% vs. 21%, $p<0.05$), but not white women (34% vs. 26%, $p=0.50$).

Multivariable Models

Depressive Symptoms: Associations with Witnessing Community Violence in Neighborhoods Adjusted for confounders, including intimate partner violence victimization, witnessing community violence in neighborhoods was associated with an increased odds of high depressive symptoms compared to those who never witnessed (had no exposure to) ETV events (OR=2.6, 95% CI 1.4–4.9) in the full cohort (Table 3). Witnessing community violence in "other" locations besides neighborhoods was not associated with depressive symptoms in the full cohort after adjusting for confounders.

In stratified models, significant correlations were found between witnessing community violence in neighborhoods and depressive symptoms among white women (Table 3). Witnessing neighborhood community violence among Latinas was not a statistically significant correlate of depressive symptoms.

Among Latinas, witnessing violence in other locations besides the neighborhood was associated with a sixfold increase in odds of experiencing depressive symptoms. Among white women, no increased odds of experiencing depressive symptoms were observed in association with witnessing violence in locations besides their neighborhoods.

High exposure to intimate partner violence was associated with an increase in depressive symptoms among Latinas (OR 2.2 95% CI 1.03–4.5, $p<0.05$) and whites (OR 8.4 95% CI 3.3–21.4, $p<0.0001$). No statistically significant interaction term was found between ETV and IPV exposure in predicting depressive symptoms in the unstratified sample, or within white and Latina subgroups.

TABLE 3 Cumulative odds of experiencing depressive symptoms associated with witnessing violence by race/ethnicity (95% confidence interval)[a]

	All Participants	White	Latina
	$N=386$	$N=170$	$N=200$
No events witnessed[b, c]			
All, $n=80$	1.0	1.0	1.0
Latina, $n=32$			
White, $n=39$			
Witnessed in neighborhood	2.6 (1.4–4.9)**	6.9 (2.3–20.3)***	1.8 (0.75–4.5)
All, $n=99$			
Latina, $n=57$			
White, $n=39$			
Neighborhood exposure was recent	3.9 (1.5–10.0)**	14.3 (3.2–63.9)***	2.0 (0.54–7.3)
All, $n=29$			
Latina, $n=14$			
White, $n=24$			
Neighborhood exposure was remote	2.2 (1.1–4.4)*	4.5 (1.4–15.1)*	1.7 (0.67–4.6)
All, $n=70$			
Latina, $n=43$			
White, $n=15$			
Witnessed in other locations	1.6 (0.91–2.9)	2.9 (1.1–7.4)*	1.5 (0.67–3.4)
All, $n=156$			
Latina, $n=91$			
White, $n=61$			
Exposure in other locations was recent	1.8 (0.82–4.1)	2.2 (0.72–6.5)	7.1 (1.6–32.3)*
All, $n=44$			
Latina, $n=14$			
White, $n=28$			
Exposure in other locations was remote	1.6 (0.85–3.0)	4.0 (1.3–11.9)*	1.2 (0.53–2.8)
All, $n=112$			
Latina, $n=77$			
White, $n=33$			

*$p\leq0.05$
**$p\leq0.01$
***$p\leq0.001$

[a]Cumulative odds ratio adjusted for ethnicity, educational status, being married, cohabiting, age at the time of enrollment, and intimate partner violence exposure assessed by the CTS.

[b]Reference category

[c]Recent exposure is defined as violence witnessed within 12 months of the study interview. Remote exposure is defined as violence witnessed before 12 months before the study interview.

Anxiety Symptoms: Associations with Witnessing Community Violence in Neighborhoods Fully adjusted analyses of all participants showed a strong association between witnessing community violence in neighborhoods and experiencing anxiety symptoms (OR=2.4, 95% CI 1.2–4.9) (Table 4).

In models stratified by race/ethnicity, odds of experiencing anxiety symptoms associated with witnessing community violence were twofold among whites. Where this exposure was recent, Latinas had almost eightfold risks of experiencing clinically significant anxiety symptoms (Table 4).

TABLE 4 Cumulative odds of experiencing anxiety symptoms associated with witnessing violence by race/ethnicity (95% confidence interval)[a]

	All Participants	White	Latina
	N=386	*N*=170	*N*=200
No events witnessed[b,c]			
All, *n*=80	1.0	1.0	1.0
Latina, *n*=32			
White, *n*=39			
Witnessed in neighborhood	2.4 (1.2–4.9)*	3.4 (1.2–10.0)*	2.6 (0.86–7.8)
All, *n*=99			
Latina, *n*=57			
White, *n*=39			
Neighborhood exposure was recent			
All, *n*=29	4.4 (1.5–12.5)**	5.8 (1.3–25.5)*	8.9 (1.6–49.2)*
Latina, *n*=14			
White, *n*=24			
Neighborhood exposure was remote			
All, *n*=70	1.9 (0.9–4.1)	2.6 (0.75–8.6)	1.9 (0.59–6.3)
Latina, *n*=43			
White, *n*=15			
Witnessed in other locations	1.6 (0.87–3.1)	3.1 (1.2–8.1)*	1.4 (0.56–3.7)
All, *n*=156			
Latina, *n*=91			
White, *n*=61			
Exposure in other locations was recent	2.0 (0.85–4.9)	2.2 (0.70–6.9)	12.9 (2.3–73.4)**
All, *n*=44			
Latina, *n*=14			
White, *n*=28			
Exposure in other locations was remote	1.5 (0.78–3.1)	5.6 (1.7–18.9)**	1.1 (0.41–2.9)
All, *n*=112			
Latina, *n*=77			
White, *n*=33			

*$p \leq 0.05$
**$p \leq 0.01$
***$p \leq 0.001$

[a]Cumulative odds ratio adjusted for ethnicity, educational status, being married, cohabiting, age at the time of enrollment, and intimate partner violence exposure assessed by the CTS.

[b]Reference category

[c]Recent exposure is defined as violence witnessed within 12 months of the study interview. Remote exposure is defined as violence witnessed before 12 months before the study interview.

Witnessing ETV in other locations besides the neighborhood was associated with anxiety symptoms among Latinas when this exposure occurred recently, and among whites when a remote exposure was reported.

High exposure to intimate partner violence was also independently associated with an increase in the odds of experiencing clinically significant anxiety among both Latinas (OR 5.2 95% CI 2.0–13.3, $p<0.001$) and whites (OR 13.0 95% CI 4.6–36.8, $p<0.0001$). No interaction term between ETV and IPV was found to be significant in predicting anxiety symptoms in the unstratified sample, or any white or Latina subgroup.

DISCUSSION

Our findings contribute at least three points to the literature on the mental health effects of community violence. First, our results indicate that a high percentage of adult women witnessed community violence in their residential neighborhoods. The prevalence of witnessing community violence among adult women in urban neighborhoods in our study is comparable to the experiences reported by Taylor et al. in a similar cohort during the early 1990s, and lower than that seen among urban children during this period, which has been reported to be between 47–91%.[13,34,51,52]

Second, we find that the experience of witnessing community violence in urban neighborhoods increases the likelihood that women experience clinically significant anxiety or depressive symptoms, even among women who were not victims or participants in neighborhood conflicts. The effects of witnessing community violence were also independent of exposure to intimate partner violence.

Third, we find that Latinas were less likely than white women to have witnessed community violence recently (within 12 months of the study interview). A significant number of Latinas in this cohort were immigrants. Their remote exposures may represent violence witnessed in their countries of origin. This might be anticipated given that immigration to the US is often related to socioeconomic and political forces linked to violence exposure in one's home country.[53] Remote exposures in this immigrant Latina population may have captured political violence as well as urban community violence associated with social disorganization processes. In a predominantly female clinical sample surveyed between 2001 and 2002, Eisenman reported a high percentage of participants from Mexico, El Salvador, Guatamala, and other groups who experienced political violence (54%), including 8% who reported torture.[54] Higher levels of psychological distress were reported in that sample, and statistically significant increases were found among those reporting political violence (36% versus 20% for depression, 18% versus 8% for posttraumatic stress symptoms).[54] The response of Latinas to recent and remote exposures in our cohort were more similar to results found by Aisenberg who assessed community violence in an urban US neighborhood. As reported by Aisenberg, we found no statistically significant associations between witnessing neighborhood violence and the experience of depression among Latinas.[30] Instead, we find anxiety symptoms were associated with recently witnessing community violence. The lack of association with depression could reflect the lower prevalence of witnessing recent events caused by emigration away from violence exposures. Alternatively, in these groups, anxiety may be a more prevalent psychological response to witnessing community violence than depression.

Our study has several strengths including the diverse cohort, the use of validated measures of community violence exposure, a clearly specified route of exposure (i.e, witnessing community violence), and the ability to control for other interpersonal violence exposure from intimate partners. In addition, measures of anxiety and depressive symptoms were reliable and valid for the diverse populations studied here.

Important limitations of the study include the cross-sectional design. With our data, we cannot distinguish between temporal proximity (do the effects of witnessing community violence dissipate over time?) and life stage effects (are adults and children just as susceptible to psychological distress when they witness violence?) However, the strong associations with recent exposure support our hypothesis that community violence witnessed in adulthood is associated with depressive or anxiety symptoms. We are similarly limited in drawing causal interpretations from our data. Women who are more anxious or depressed may be more likely to recall witnessing violence. Furthermore, nonanxious and nondepressed women may be better able to move away from violent neighborhoods, compared to women whose poorer mental health may pose psychological obstacles to moving. With these points considered, quasi-experimental evidence from the Moving to Opportunity Study (MTO) in Boston does support a causal link between violence exposure and depression among adult women. Women who were moved from high-poverty areas because of fear of crime reported greater calm and peacefulness and a trend toward lower major depressive episodes, compared to women who remained in high-poverty areas.[55]

Another limitation is that 23% of those eligible to participate in this study declined. If these women refused to participate because they did not want to discuss their violence exposures, the prevalence of exposure to violence could be underestimated. Furthermore, the small size of our cohort resulted in wide confidence intervals such that some effect sizes could not be precisely determined.

Importantly, the meaning of the association between violence exposure and mental health should be interpreted in terms of the larger context of social disorder in which community violence occurs in urban neighborhoods.[56] The women studied here tended to be of low socioeconomic status. Although the associations we find between witnessing community violence and anxiety and depressive symptoms remained when individual level socioeconomic status, demographic characteristics, and physical participation in community violence were considered, one's vulnerability to developing anxiety and depressive symptoms may be influenced by neighborhood level poverty and poor services, as well as the community violence we study in this paper. Our data provide a basis on which future studies in larger cohorts can address the relative importance of witnessing community violence alongside neighborhood factors that capture the broader social and institutional context in which women experience community violence. In addition, further research should explore biological and social correlates of community violence exposures among women, to contribute to theory on pathways that lead to distress associated with violence exposure. Community violence may lead to depression and anxiety via direct stress responses, through psychological pathways leading to feelings of helplessness suggested by Aisenberg, or through social pathways such as the dissolution of community social ties that might otherwise protect women's mental health.

In this study, no demographic characteristics (marriage or increasing educational attainment) were shown to be protective against experiencing anxiety or

depressive symptoms. Additional research is required to identify factors that promote resiliency in the face of witnessing neighborhood violence. We were unable to explore issues of acculturation among Latina groups that may influence their coping strategies when faced with community violence exposure.[25] Finally, culturally specific manifestations of distress are not measured in this paper and deserve further study.

CONCLUSIONS

In sum, this study contributes to the literature on the impact of community violence by demonstrating effects of witnessing community violence on the mental health of adult women. Although our findings should be replicated, the data presented in this paper have policy implications. Public health practitioners and clinicians alike must develop mental health interventions for *adult women* who witness community violence, a group whose outcomes are rarely considered in studies of community violence. Research linking maternal moods with the mental health of their children and adolescents underscores the importance of intervening to preserve the mental health of women who witness community violence.[57] Intervening to prevent violence exposures will likely require population-based approaches to build community capacity to reduce violent events.[58] Designing interventions to protect the mental health of women who witness community violence is an important endpoint in such violence prevention efforts.

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