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Neighborhood Characteristics and Sexual Intimate Partner Violence Against Women Among Low-Income, Drug-Involved New York City Residents: Results From the IMPACT Studies

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Introduction

A growing body of research documents relations among neighborhood characteristics and a range of violent outcomes (see Sampson, 2002, for a comprehensive review of the literature). Socio-economic conditions (Hyman, Forte, Du Mont, Romans, & Cohen, 2006; Peterson & Krivo, 2009), indicators of social disorganization (Sampson & Groves, 1989; Sampson, Raudenbush, & Earls, 1997), and other socio-structural factors (Bursik, 1988; Sampson, Morenoff, & Gannon-Rowley, 2002) have been linked with both lethal and non-lethal violence outcomes, among youths and adults. Increasingly, analyses focus on intimate partner violence (IPV) against women. These studies have typically assessed neighborhood-level indicators of social disorganization and have found mixed results, with the exception of neighborhood or area disadvantage or poverty, which has been consistently associated with a higher risk of violence (Browning, 2002; Cunradi, Caetano, Clark, & Schafer, 2000; Fox & Benson, 2006; Pearlman, Zierler, Gjelsvik, & Verhoek-Oftedahl, 2003; Spriggs, Halpren, Herring, & Schoenbach, 2009; Van Wyk, Benson, Litton Fox, & DeMaris, 2003). Most studies to date have examined predictors of the risk of physical IPV against women victimization, often excluding sexual partner violence from the definition. Thus, little is known about relations among neighborhood conditions and sexual intimate partner violence against women (SIPVAW) among adults.

Sexual Intimate Partner Violence Against Women

Recent nationally representative data on sexual violence against women within intimate relationships is scarce. According to the National Violence Against Women Survey (NVAWS), conducted nearly 20 years ago in 1995-1996, approximately 14% of women experienced a completed or attempted sexual assault in their lifetime (Tjaden & Thoennes, 2006). Of the lifetime assaults assessed by the NVAWS, 46% of the perpetrators were a spouse/ex-spouse, current/former cohabiting partner, boyfriend/girlfriend, or date. The report concluded that 7.7% and 0.2% of all U.S. women experienced intimate partner sexual assault in their lifetimes and the past year, respectively (Tjaden & Thoennes, 2006). More recent lifetime SIPVAW estimates range from 10.8% (Basile, Chen, Black, & Saltzman, 2007) to 10.2% (Breiding, Black, & Ryan, 2008). The health effects of experiencing sexual violence are numerous and profound, with immediate and longer term effects on physical, psychological, sexual, and reproductive health (Campbell, Dworkin, & Cabral, 2009; McFarlane, Malecha, Gist, et al., 2005). Analyses of the NVAWS data found that perpetrator type (being an intimate partner, acquaintance or relative) was significantly related to both depressive symptomatology and self-reported heath status, above and beyond the severity of the sexual and/or physical assault (Demaris & Kaukinen, 2005). Smaller clinical samples found a unique effect of sexual partner violence on posttraumatic stress disorder severity (Bennice, Resick, Mechanic, & Austin, 2003; Breslau, Peterson, Kessler, & Schultz, 1999; Dutton, Kaltman, Goodman, Weinfurt, & Vankos, 2005; McFarlane, Malecha, Watson, et al., 2005) and depressive or severe depressive symptoms (Bonomi, Anderson, Rivara, &

found less evidence of such relations among other neighborhood-level factors indicative of social disorganization, such as residential mobility or ethnic heterogeneity (Browning, 2002; Cunradi et al., 2000; Emery & Jolley, 2011; Fox & Benson, 2006; O'Campo et al., 1995; Van Wyk et al., 2003). One of the earliest neighborhood effects studies of IPV reported that neighborhood collective efficacy reduced individual-level risk of IPV (Browning, 2002), whereas another study reported no effect of collective efficacy or other related neighborhood-level factors on a range of partner violence-related outcomes, such as leaving a relationship or subsequent victimization (Block & Skogan, 2001). The most recent investigations in this area have used multi-level regression models with both fixed and random effects modeled. One found that among low-income pregnant women residing in Alabama, residential stability was positively associated with partner violence victimization, while controlling for relevant individual- and couple-level characteristics (Li et al., 2010). Another found that among adolescents in Chicago, collective efficacy accounted for a part of what neighborhood-level variation existed in IPV, but only among young men and in models of victimization, as opposed to perpetration (Jain, Buka, Subramanian, & Molnar, 2010). Finally, Wright and Benson (2010) report that immigrant concentration is negatively associated with IPV among women in Chicago.

We know of no study to date that assesses relations among neighborhood environmental characteristics and *sexual* partner violence against adult women using multilevel modeling. Gaining a clearer understanding of these potential relations not only contributes to the growing knowledge around the role of the neighborhood environment in IPV but also has the potential to inform interventions at the neighborhood level to prevent sexual violence, much of which is between dating and intimate partners. There is a growing effort to encourage bystander intervention into sexual violence and create social environments that are not supportive of sexual violence (see, for example, Banyard, Moynihan, & Plante, 2007). Despite a growing body of research on the role of collective efficacy in partner violence, there is little basic research that could inform the development of neighborhood-based primary prevention of sexual violence interventions for adults, although there are numerous calls for such interventions generally (Casey & Lindhorst, 2009). This analysis represents an effort to begin to build this knowledge base, specific to sexual partner violence.

The purpose of this analysis is to determine whether neighborhood-level indicators of social disorganization are associated with self-reported SIPVAW among low-income, New York City (NYC) residents, the majority of whom are either current or former drug users. In addition to assessing factors indicative of social disorganization, we measured indicators of neighborhood physical disorder and general crime rates, as these two neighborhood-level characteristics often co-vary (Sampson, 2011) with indicators of social disorganization, and may independently contribute to violence against women within intimate partnerships (Cunradi, 2010). The analysis also assesses relations among individual-level factors that may increase risk of SIPVAW, such as drug and alcohol use (El-Bassel et al., 2001; El-Bassel, Gilbert, & Rajah, 2003; El-Bassel, Gilbert, Witte, et al., 2003; Frye et al., 2001), level of acculturation (Caetano, Ramisetty-Mikler, Caetano Vaeth, & Harris, 2007; Raj & Silverman, 2003;

interview and reported a main sexual partner (defined as "someone whom you feel close to in your heart, like a steady girlfriend/boyfriend or a spouse") in the last 12 months. Of these, 94 (11.5%) were excluded because they lacked the geographic information needed to map them to a neighborhood of residence. Of these 722 men, 5 participants (0.7%) were excluded from analysis because they did not provide information on perpetration of sexual violence. Finally, an additional 47 (6.5%) were excluded due to missing or incomplete data on key covariates such as income, race/ethnicity, age, education, and childhood experience of abuse and drug dependence. Thus, the final study sample consisted of 670 men and 360 women.

Measures

Dependent variable. The main independent variable assessed was SIPVAW with a main male partner in the year prior to the interview. Both SIPVAW victimization and perpetration were measured using a modified version of the Revised Conflict Tactics Scale (CTS2; Straus, Hamby, Boney-McCoy, & Sugarman, 1996). Specifically, among other items, participants were asked how often in the past year a partner "used threats to make you have sex" and "used force (like hitting, holding down, or using a weapon) to make you have sex?" (α = .842). We dichotomized the scale to model SIPVAW victimization (among women) in the past year or SIPVAW perpetration (among men) in the past year as compared with no victimization or perpetration in the past year.

Independent variables

Individual-level factors. We assessed a range of individual-level covariates, identified a priori based on the considerable literature on individual-level correlates of SIPVAW (Basile, 2002; Basile et al., 2007; Frye et al., 2001), in three domains for their associations with SIPVAW, including socio-demographic factors, psychosocial/substance use, and partner/relationship. Socio-demographic factors included age (assessed as a continuous variable), race (White, Black, Latino, and Other), income level (no income, between US$1,000 and US$4,999 per year, and more than US$5,000 per year), income from criminal activity (such as theft, conning, or drug dealing), employment status (paid job, full- or part-time vs. no paid job), education level (high school education or more vs. less than high school education), and born in the United States (yes/no). Acculturation was also assessed, using items from the Welfare Reform Baseline Interview as adapted by Marin and colleagues (Marin, Sabogal, Marin, Otero-Sabogal, & Perez-Stable, 1987). Psychosocial factors assessed included childhood experience of abuse, witnessing of maternal abuse and affective lability (Harvey, Greenberg, & Serper, 1989; women's sample α = .88; men's sample α = .85). Substance use factors assessed included heroin, crack, and cocaine dependence in the past year using items from the National Household Survey on Drug Abuse, designed to measure dependence using *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.; *DSM-IV*; American Psychiatric Association, 1994) criteria (Arria, Fuller, Strathdee, Latkin, & Vlahov, 2002). Partner factors evaluated included partner's age and length of

internal water leakage, toilet breakdowns, or peeling paint and plaster and percent not owner occupied ($\alpha = .95$). In addition, we assessed the roles of ethnic heterogeneity and residential mobility as fifth and sixth indicators of social disorganization according to the original formulation of the theory. Ethnic heterogeneity measures the degree to which communities are heterogeneous in terms of racial and/or ethnic composition; we calculated the measure by subtracting from 1 the sum of the squared proportions (percent Black, percent White, and percent Hispanic) of the population for each group, such that a higher score indicates greater heterogeneity. Residential stability was assessed using the proportion of residents living in the same house for the past years. We controlled for median household income in all multi-variable analyses as we were most interested in non-income-related indicators of social disorganization, as the sample was largely a low-income sample.

From NYSES we assessed collective efficacy, a key component of social disorganization, by combining the measures of social cohesion and informal social control, as per Sampson and colleagues (1997). Neighborhood-level social cohesion was measured using the following items: "people around here are willing to help their neighbors" and "people in this neighborhood can be trusted." Informal social control was assessed using the traditional items (Sampson et al., 1997), which included the following questions: "If there was a fight in front of your house or building and someone was being beaten or threatened, how likely is it that your neighbors would break it up?" and "If a group of neighborhood children were skipping school and hanging out on a street corner, how likely is it that your neighbors would do something about it?" We created a single item to measure informal social control of IPV against women, asking: "If a man was hitting his wife on the street in your neighborhood, how likely is it that your neighbors would do something about it?" Finally, from NYSES, we created an index of neighborhood levels of physical assault and burglary victimization, using the following questions about the past 12 months: "Have you been the victim of a serious physical attack or assault?" and "Were you robbed or was your home burglarized?" Responses to these questions were aggregated up to the community district (CD) level and transformed into z scores for use in analyses.

Analysis

In this study, we initially built multi-level models applying a generalized linear mixed modeling approach, as our outcome was binary (Guo & Zhao, 2000), using the GLIMMIX procedure in SAS 9.2 (Cary, NC). Our modeling proceeded in steps. First, univariate distributions were examined and bivariate relations were estimated in unadjusted logistic models. Next, we developed the individual-level model, including a core set of individual-level socio-demographic factors, specifically age, race, education, and income. In this individual-level model, we also included individual-level factors associated at $p < .10$ in bivariate analyses. When individual-level covariates were inter-correlated, we ran regressions to identify uncorrelated individual-level factors for inclusion in the final multi-variable individual-level model, with all individual-level variables modeled as fixed effects. Next, we estimated associations between each neighborhood-level

a parent or guardian as a child and more than a third (39.9%) reported witnessing their mother or mother-figure being abused. In terms of relationship characteristics, partners' average age was 42.0 (*SD* = 10.3) and the average number of years that the relationship had lasted was 6.7 (*SD* = 7.1). Twenty-two women (6.1%) reported experiencing SIPVAW in this sample of street-recruited women living in NYC.

SIPVAW victimization was not associated with any socio-demographic factors (Table 1). SIPVAW victimization was positively associated with cocaine (OR = 2.45; 95% confidence interval [CI] = [1.01, 5.94]) and alcohol dependence (OR = 4.70; 95% CI = [1.75, 12.63]) and marginally positively associated with witnessing abuse of a mother/mother-figure in childhood (OR = 2.25; 95% CI = [0.93, 5.47]); SIPVAW was negatively associated with relationship power (OR = 0.22; 95% CI = [0.08, 0.59]).

Socio-Demographic Characteristics and SIPVAW Perpetration Among Men: Univariate and Bivariate Analyses

The average age of the men in our sample was 38.9 (*SD* = 10.9) and, as with the women enrolled in the study, the sample was largely African American (48.8%) and Hispanic (42.1%), with the remainder being White (3.9%) or Asian/Other (5.2%). Almost half (44.8%) had less than a high school degree (or equivalent) and most male participants reported little to no personal income, with 71.3% reporting an annual income of US$5,000 or less per year. Approximately half (49.7%) reported being employed in the past 6 months. Almost one in five (18.8%) reported being born outside of the United States, and 48.0% reported that their parents were born outside of the United States. Almost a third met criteria for cocaine (32.5%), crack (29.3%), and heroin (30.1%) dependence in the last year; 14.6% met criteria for alcohol dependence. Almost a third (31.5%) reported experiencing physical abuse by a parent or guardian as a child and witnessing their mother or mother-figure being abused (29.6%). In terms of relationship characteristics, partners' average age was 36.4 (*SD* = 10.4) and the average number of years that the relationship had lasted was 5.8 (*SD* = 7.1). Thirty-three men (4.9%) reported perpetrating sexual intimate partner violence (SIPV) with a main female partner in the past year.

In bivariate analyses (Table 1), SIPVAW perpetration was associated with only one socio-demographic factor: income from drug dealing in the past 6 months (OR = 2.41; 95% CI = [1.17, 4.97]). Perpetration of SIPVAW was positively associated with depression (OR = 1.63; 95% CI = [1.04, 2.58]), and cocaine (OR = 2.99; 95% CI = [1.47, 6.08]) and crack dependence (OR = 2.72; 95% CI = [1.34, 5.50]). Among men, both experiencing childhood physical abuse (OR = 3.59; 95% CI = [1.75, 7.37]) and witnessing abuse of a mother/mother-figure in childhood were positively associated with SIPV perpetration (OR = 3.47; 95% CI = [1.70, 7.08]).

SIPVAW Victimization Among Women: Multi-Level Analyses

We assessed relations between neighborhood characteristics and SIPVAW victimization; in the unadjusted models (results not shown), no neighborhood-level factors were

Table 1. (continued)

	SIPVAW victimization among women (n = 360)				SIPVAW perpetration by men (n = 670)			
	Total	SIPVAW	No SIPVAW	p value	Total	SIPVAW	No SIPVAW	p value
Heroin dependence, past year, n (%)				.157				.984
No	274 (76.1)	14 (63.6)	260 (76.9)	—	468 (69.9)	23 (69.7)	445 (69.9)	—
Yes	86 (23.9)	8 (36.4)	78 (23.1)	—	202 (30.1)	10 (30.3)	192 (30.1)	—
Alcohol dependence, past year, n (%)				.004				.164
No	323 (89.7)	15 (68.2)	308 (91.1)	—	555 (85.4)	21 (75.0)	534 (85.9)	—
Yes	37 (10.3)	7 (31.8)	30 (8.9)	—	95 (14.6)	7 (25.0)	88 (14.1)	—
Income from theft or conning in past 6 months, n (%)				.062				.298
No	299 (84.2)	15 (68.2)	284 (85.3)	—	534 (79.8)	24 (72.7)	510 (80.2)	—
Yes	56 (15.8)	7 (31.8)	49 (14.7)	—	135 (20.2)	9 (27.3)	126 (19.8)	—
Income from dealing drugs in past 6 months, n (%)				.109				.014
No	308 (85.6)	16 (72.7)	292 (86.4)	—	521 (77.9)	20 (60.6)	501 (78.8)	—
Yes	52 (14.4)	6 (27.3)	46 (13.6)	—	148 (22.1)	13 (39.4)	135 (21.2)	—
Childhood physical abuse by parent/guardian, n (%)				.123				.0002
No	234 (65.2)	11 (50)	223 (66.2)	—	459 (68.5)	13 (39.4)	446 (70.0)	
Yes	125 (34.8)	11 (50)	114 (33.8)	—	211 (31.5)	20 (60.6)	191 (30.0)	
Witnessed mother physically abused <18 years old, n (%)				.058				.0003
No	215 (60.1)	9 (40.9)	206 (61.3)	—	472 (70.4)	14 (42.4)	458 (71.9)	—
Yes	143 (39.9)	13 (59.1)	130 (38.7)	—	198 (29.6)	19 (57.6)	179 (28.1)	—
Anxiety/depression, M (SD)	3.3 (0.9)	3.6 (0.6)	3.3 (0.9)	.043	3.1 (0.8)	3.4 (0.7)	3.1 (0.8)	.033
Age of partner, M (SD)	42.0 (10.3)	39.7 (9.7)	42.1 (10.3)	.296	36.4 (10.4)	36.1 (10.8)	36.4 (10.4)	.865
Weeks involved with partner, M (SD)	351.3 (370.3)	366.0 (331.4)	350.3 (373.1)	.851	302.7 (372.4)	234.6 (229.2)	306.2 (378.0)	.105
Relationship dominance, M (SD)	1.0 (0.4)	0.8 (0.6)	1.1 (0.4)	.042	1.0 (0.4)	0.9 (0.5)	1.0 (0.4)	.138

Note. SIPVAW = sexual intimate partner violence against women.

Table 3. Final Mixed Model of Neighborhood-Level Ethnic Heterogeneity and SIPVAW Victimization Among Women: IMPACT Studies, New York 2004-2008 (n = 360).

	OR (95% CI)
Individual-level factors	
Age	1.03 [0.97, 1.09]
Race/ethnicity[a]	
Hispanic	0.35 [0.09, 1.34]
White	0.61 [0.06, 5.99]
Other	0.90 [0.09, 9.18]
Education	
High school degree or more	0.84 [0.31, 2.31]
Income[b]	
No income	1.10 [0.23, 5.30]
Up to US$5,000	0.53 [0.18, 1.59]
Alcohol dependence	3.83 [1.27, 11.60]*
Relationship dominance	0.18 [0.06, 0.53]*
Neighborhood-level factors	
Median household income	1.26 [0.44, 3.64]
Murder rate	0.59 [0.21, 1.65]
Victimization and burglary index	1.56 [0.92, 2.65]
Ethnic heterogeneity	0.32 [0.12, 0.88]*
Fit statistics	
−2 residual log likelihood	2,236.81
Generalized χ^2	278.92
df	0.81

Note. SIPVAW = sexual intimate partner violence against women; OR = odds ratio; CI = confidence interval.
[a]Referent category is Black.
[b]Referent category is US$5,000 and over.
*$p < .05$.

uncontrolled neighborhood-level factors exist that are correlated with both ethnic heterogeneity and SIPVAW, and make independent contributions to risk of SIPVAW victimization among women. In comparison with a model with only individual-level characteristics (not shown), including neighborhood-level factors increased the magnitude of the association between individual-level alcohol dependence (OR = 3.83; 95% CI = [1.27, 11.60]) and relationship dominance (OR = 0.18; 95% CI = [0.06, 0.53]) and SIPVAW victimization (Table 3).

SIPVAW Perpetration Among Men: Multi-Level Analyses

As with SIPVAW victimization among women, no neighborhood-level factors were significantly associated with SIPVAW perpetration among men in unadjusted models (results not shown), although neighborhood-level informal social control was

Table 4. Final Logistic Model of Neighborhood-Level Collective Efficacy and SIPVAW Perpetration Among Men: IMPACT Studies, New York 2004-2007 (n = 670).

	OR (95% CI)
Individual-level factors	
Age	1.01 [0.97, 1.05]
Race/ethnicity[a]	
Hispanic	0.43 [0.18, 1.05]†
White	0.53 [0.06, 5.15]
Other	1.33 [0.33, 5.39]
Education	
High school or more	1.42 [0.64, 3.15]
Income[b]	
No income	0.77 [0.21, 2.80]
Up to US$5,000	1.14 [0.49, 2.65]
Cocaine dependence	3.37 [1.55, 7.31]*
Childhood physical abuse by parent/guardian	2.81 [1.27, 6.24]*
Witnessed mother physically abused <18 years old	2.47 [1.12, 5.42]*
Neighborhood-level factors	
Median household income	0.52 [0.19, 1.41]
Murder rate	0.96 [0.60, 1.53]
Victimization and burglary index	1.06 [0.78, 1.44]
Collective efficacy	1.69 [1.02, 2.80]*

Note. SIPVAW = sexual intimate partner violence against women; OR = odds ratio; CI = confidence interval.
[a]Referent category is Black.
[b]Referent category is US$5,000 and over.
†$p < .10$. *$p < .05$.

report greater relationship power were less likely to experience partner violence (Coker et al., 2000; El-Bassel, Gilbert, & Rajah, 2003; El-Bassel, Gilbert, Witte, et al., 2003; Martin, Taft, & Resick, 2007). In models of SIPVAW perpetration among men, we found associations among experiencing and witnessing domestic violence in childhood and perpetration, consistent with the partner violence literature among men (El-Bassel et al., 2001), as well as the literature on the intergenerational transmission of violence (Shields & Hanneke, 1988).

Although there was neighborhood-level variation in self-reported past-year SIPVAW victimization among women, the only neighborhood factor measured and found to be associated with SIPVAW in fully adjusted, multi-level mixed models was ethnic heterogeneity. That neighborhood-level ethnic heterogeneity was inversely associated with SIPVAW victimization is not consistent with social disorganization theory, which posits that high levels of ethnic heterogeneity, along with other indicators of structural neighborhood instability, reduce social cohesion, thus weakening informal social controls on deviant behavior and resulting in higher levels of violence. Here we found a modest, but significant, protective effect of ethnic heterogeneity on

that could explain the observed positive association between collective efficacy and SIPVAW perpetration. Thus, we evaluated relations among neighborhood-level crime indicators, including assault and murders per 10,000, using official crime statistics, and self-reported victimization and burglary, using the NYSES data, but found no statistically significant relationship among these crime indicators and SIPVAW perpetration. Furthermore, we controlled for these neighborhood-level indicators of crime in multivariable regressions and found no relationship to SIPVAW perpetration.

Strengths and Limitations

This analysis has both strengths and limitations. The first limitation is the narrow definition of SIPVAW used. Sexual violence against women is widely recognized to encompass more than forced sex or sex achieved through the threat of force (Basile, 2002). Future research designed to assess neighborhood-level correlates of SIPVAW must use a broader definition. Next, inherent to all cross-sectional research is that no causation may be inferred from the correlations identified in the analysis. As well, inherent to much place-based research, generalizability to other urban areas is limited. In terms of neighborhood units used in the analysis, socially and politically meaningful community districts are large and internally heterogeneous, decreasing our ability to detect neighborhood effects. A related limitation is that not all 59 community districts were included in the analyses, such that the neighborhoods included had on average lower income and fewer White residents than the full 59 community districts of NYC. Using smaller neighborhood units like census tracts could have potentially diminished the impact of these two related limitations, creating more homogeneous neighborhood units with greater variability by income and race across units. However, we chose to use community districts because the NYSES-derived, neighborhood-level measures of collective efficacy and informal social control of partner violence were collected at and designed to be representative of the community district level. That we were able to model both neighborhood collective efficacy and a unique neighborhood-level measure of informal social control of partner violence is a major strength of the analysis. Another strength is that the neighborhood-level data (NYSES) and the outcome data (IMPACT) were drawn from two separate samples, reducing the threat of same source bias. However, this also resulted in a temporal mismatch between the neighborhood- and individual-level data collected, which raises two related issues. The first is that the models depend upon the belief that the neighborhood conditions measured in 2002 were largely the same as the neighborhood conditions between 3 and 6 years later. The second is that IMPACT participants who moved into the neighborhood recently would not have experienced the neighborhood conditions measured in 2002, thus resulting in misclassification. Although a limitation, we do not believe that the pace of neighborhood change between 2002 and 2005/2008 was rapid enough to warrant not using the NYSES data, which because of its unique data elements allowed us to model informal social control specific to partner violence. As well, 68% and of IMPACT study participants with complete data reported residing in their neighborhood for 3 or more years prior to the survey. Finally, the NYSES survey response

women? Recent research has attempted to directly study the process of informal social control of IPV (Frye, 2007; Frye et al., 2010, 2012), as well as how key neighborhood leaders respond to partner violence (Yonas et al., 2011). O'Campo, Burke, Peak, McDonnell, and Gielen (2005) have applied mixed methods to identify specific neighborhood factors related to both partner violence perpetration and victimization, from the perspectives of neighborhood residents. These analyses have identified unique aspects of the neighborhood environment, as well as insights into specific groups of residents who may not benefit from what informal social control of partner violence does exist. Raghavan, Mennerich, Sexton, and James (2006) focus on the level of partner violence in the neighborhood-based social networks of women who are victimized and how this affects women's perceptions of what is normative and acceptable. As further grounded research results emerge, the next wave of neighborhood effects research on partner violence against women ought to incorporate these insights and apply novel neighborhood-level measures, reflective of these understandings, and network-focused mediators to conduct multi-level analyses that will truly advance the knowledge base (Frye & O'Campo, 2011). Such advances are critical to informing and further developing the growing number of neighborhood-based primary and secondary prevention efforts that are underway throughout the United States.

Authors' Note

At the time that these data were collected, Dr. Frye, Ms. Blaney, Dr. Cerdá, Dr. Vlahov, and Dr. Ompad were affiliated with the Center for Urban Epidemiologic Studies of the New York Academy of Medicine, New York.

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