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Post-Traumatic Stress Disorder, Neighborhood Residency and Satisfaction, and Social Network Characteristics among Underserved Women in Baltimore, Maryland

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A B S T R A C T

Background: Post-traumatic stress disorder (PTSD) prevalence is high, but not well-understood, among women living in urban, impoverished areas. Although previous studies have established social support as an important factor in PTSD development and maintenance, little is known about how perceptions of neighborhood are linked to PTSD. This study examined the relationship between PTSD and social network and neighborhood factors among women with a low socioeconomic status.

Methods: We analyzed cross-sectional data collected from a human immunodeficiency virus/sexually transmitted infection peer network study in Baltimore, Maryland ($n = 438$). We used bivariate analyses to examine the associations between PTSD and social network characteristics and time in neighborhood and satisfaction. We then constructed multivariable regression models that controlled for the following with PTSD: homelessness, cocaine/heroin use, and unemployment.

Main Findings: Overall, 30% of women had PTSD symptom severity consistent with a clinical diagnosis. In the multivariable model, dissatisfaction with neighborhood block (odds ratio [OR], 1.80; $p = .03$) and living in one's neighborhood for more than 5 years (OR, 1.69; $p = .03$) were associated with PTSD. Social network factors that were significantly associated with PTSD included a higher number of network members in conflict with the participant (OR, 1.28; $p = .02$), presence of a network member who would let the participant stay with them (OR, 0.4; $p = .004$), and the number of network members with whom the participant socialized (OR, 0.6; $p = .04$).

Conclusions: In this sample of impoverished urban women with a high prevalence of PTSD, duration of residency, satisfaction with neighborhood, and network characteristics were found to be strongly associated with PTSD symptom severity.

Post-traumatic stress disorder (PTSD) is a trauma-related psychological disorder resulting from at least one traumatic event as defined in the *Diagnostic and Statistical Manual of Mental Disorders* (DSM; American Psychiatric Association, 2000). In the DSM-V, PTSD is characterized by re-experiencing, avoidance, negative affect and mood, and hyperarousal symptoms (American Psychiatric Association, 2013). Direct experience of assaultive, or intentional, violence perpetrated by another person leads to PTSD more often than any other type of traumatic event (Breslau, Chilcoat, Kessler, & Davis, 1999b; Breslau, Chilcaot, Kessler, Peterson, & Lucia, 1999a; Gill, Page, Sharps, & Campbell, 2008; White et al., 2015). Earlier age of trauma and genetic factors are also implicated in developing PTSD (Anda et al., 2006; Duncan et al., 2017). The manifestation of PTSD varies based on characteristics of the underlying trauma (e.g., severity, number of occurrences, and duration) and can be temporary or persist for many years (Breslau & Davis, 1992; Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). An earlier age at traumatic event is also associated with PTSD development. Prior trauma and lack of social support after trauma are associated with increased susceptibility to PTSD

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(Brewin, Andrews, & Valentine, 2000; Javidi & Yadollahie, 2012). Several factors have been identified as protective, including social support (Herman, 1997).

PTSD among Urban U.S. Women

Previous studies have found that women are more likely than men to develop PTSD (Walker, Carey, Mohr, Stein, & Seedat, 2004). In particular, impoverished women living in urban areas have a high prevalence of PTSD compared with men and other socioeconomic groups. The Healthy Aging in Neighborhoods of Diversity across the Lifespan Study (HANDLS) in Baltimore found that, compared with men, women significantly more often had PTSD scores aligned with a PTSD diagnosis, and 13.8% of women had PTSD symptoms versus 11.3% of men. White women living below 125% of the poverty line were more likely to have PTSD symptoms when compared with all men in the study or all African American participants in the study (Parto, Evans, & Zonderman, 2011). One study representing the full U.S. population found higher rates of PTSD among Blacks/African Americans (8.7%) compared with Whites (7.4%), Hispanics (7.0%), and Asians (4.0%). These patterns held when controlling for trauma exposure, and all minority groups were significantly less likely to seek care for PTSD when compared with Whites (Roberts, Gilman, Breslau, Breslau, & Koenen, 2011).

PTSD is linked to a wide range of deleterious health conditions. Depression and substance use disorders are common PTSD comorbidities, and PTSD is associated with increased risky sexual behavior, human immunodeficiency virus (HIV), sexually transmitted infections (STIs), cardiovascular disease, sexual revictimization, and medication nonadherence (Brown & Mellman, 2014; Duncan et al., 2015; Edmondson & Cohen, 2013; El-Bassel, Gilbert, Vinocur, Chang, & Wu, 2011; Green et al., 2005; Houston, Sandfort, Watson, & Caton, 2013; Hutton et al., 2001; Kronish, Edmondson, Li, & Cohen, 2012; Overstreet, Willie, Hellmuth, & Sullivan, 2015; Pearson et al., 2015; Plotzker, Metzger, & Holmes, 2007; Risser, Hetzel-Riggin, Thomsen, & McCanne, 2006; Seedat, 2012; Sumner et al., 2015; Weiss, Tull, & Gratz, 2014). Despite the higher prevalence of PTSD among women and racial minorities compared with men and White individuals, most studies of PTSD focus on military service members or victims of sexual assault. To address this gap, the current investigation examines PTSD in an understudied population with a low socioeconomic status (SES; Brewin et al., 2000; Crevier, Marchand, Nachar, & Guay, 2014).

PTSD, Neighborhood, and Social Support

According to the theory of social suffering, post-traumatic stress can be understood as a disease with its roots in broader structures, including physical and social environments that create the conditions for traumatic events while diminishing support. Hence, social suffering provides a lens for inquiry into exploring PTSD among underserved, urban women as well as interpreting the findings of this study (Das, Kleinman, Lock, Ramphele, & Reynolds, 2001; Kleinman, Das, & Lock, 1997). Herein, we examine the influence of physical and social environments, including duration of time in a neighborhood, as well as interactions an individual has with their social network.

Aside from community violence, relatively few studies have examined the relationship between neighborhood characteristics (e.g., environmental disorder, quality of housing, neighborhood violence) and PTSD. One study of male and female residents across 59 New York City neighborhoods showed that neighborhood characteristics, such as deteriorated housing and neighborhood violence, were related to PTSD symptomatology (Ahern, Galea, Tracy, & Vlahov, 2004). Another study found a similar result: that neighborhood disorder (i.e., self-reported perceptions about the physical environment in which the participant resided) was related to PTSD symptoms among low-income African Americans in an urban area. In this study, community cohesion (i.e., the number of social ties perceived by an individual) was related to lower PTSD symptom severity and even partially mediated the negative effects of neighborhood disorder (Gapen et al., 2011).

Many studies have found a link between social support and the development and maintenance of PTSD. Studies of social support have defined it as “information leading the subject to believe that he is cared for and loved, esteemed, and a member of a network of mutual obligations” and “the availability of interpersonal resources” (Cobb, 1976; Sarason, 2013). In an earlier review of the literature, a lack of social support was found to be one of the strongest predictors of PTSD after a traumatic event (Brewin et al., 2000). Studies of war veterans or individuals experiencing breast cancer found that low social support was associated with the development and persistence of PTSD (Andrykowski & Cordova, 1998; Barrett & Mizes, 1998; Jankowski et al., 2004; Schnurr, Lunney, & Sengupta, 2004). Another study among individuals who had experienced sexual assault found that social support immediately after the trauma was significantly and negatively correlated with PTSD symptom levels (Kimerling & Calhoun, 1994). However, a longitudinal study among a military sample found that PTSD was linked to lower future social support but that poor social support was not related to later PTSD. Bearing in mind that these studies are among different populations, the latter finding suggests that PTSD may either work differently across populations or may influence social relationships rather than the converse (King, Taft, King, Hammond, & Stone, 2006).

An analysis of data from the National Epidemiologic Survey on Alcohol and Related Conditions found that having multiple social network roles was more protective against PTSD compared with the perceived strength of participants' social networks (Platt, Keyes, & Koenen, 2014). Another study using this same dataset did not look at PTSD specifically, but found that social support was protective against other mental health psychopathology (e.g., major depressive disorder, generalized anxiety, social phobia; Moak & Agrawal, 2009).

Studies have found that women often have greater social support than do men. Among women, the nature of and response by supporters may also explain, in part, why women more often develop PTSD than men. In one study of victims of violent crime, men and women described similar levels of positive social support, but women were more likely than men to report that supporters made them feel worse after the event (Andrews, Brewin, & Rose, 2003). Negative responses, but not positive social support, were found to be associated with PTSD. A cross-sectional study found women with PTSD to have poorer communication with members of their social network compared with men. This finding suggests that PTSD in women is associated with relational disturbances not observed among men (Crevier et al., 2014). A prospective study among women who had experienced sexual violence found no relationship between positive social support and PTSD, but did find that the intensity of interpersonal conflict was related to PTSD (Zoellner et al., 1999). These three studies are consistent with a larger body of