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Exposure to violence, neighborhood context, and health-related outcomes in low-income urban mothers

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ABSTRACT

Exposure to violence in youths has been associated with negative health outcomes, yet evidence of such in adults is limited. Additionally, it is unknown whether these negative associations persist over time and whether neighborhood characteristics affect such associations. Using longitudinal data from a sample of 2481 mostly low-income urban mothers, logistic regressions indicate that exposure to violence is associated with several poorer health outcomes after accounting for neighborhood and social factors. Also, these poorer health outcomes persisted for two years after violence exposure. This analysis underscores the need to invest in efforts to prevent and reduce exposure to violence.

1. Introduction

Exposure to violence, which includes victimization or witnessing someone else being victimized, affects millions of people every year in both the United States and around the world (Butchart and Mikton, 2014). In 2015, about 2.7 million of all persons aged 12 or older experienced at least one violent victimization in the United States (Truman and Morgan, 2016). In 2008, it was estimated that close to 60% of all youths were exposed to violence in a given year in the U.S. (Finkelhor et al., 2009). To underline the extent of the problem, the World Health Organization (WHO) released a report in 2014 on violence, which concluded that most countries are underinvesting in violence prevention compared to its prevalence (Butchart and Mikton, 2014). Moreover, the WHO and a U.S. Attorney General's National Task Force called exposure to violence a global public health issue (Butchart and Mikton, 2014; Listenbee et al., 2012).

Violence exposure can be harmful and debilitating to mothers and children. Much of the existing empirical evidence on the consequences of exposure to violence focuses on children and youths, which finds many negative health consequences. For example, youths exposed to violence are at higher risk of being in poor general health (Boynton-Jarrett et al., 2008), having hypertension (Ford and Browning, 2014), and antisocial behaviors (Miller et al., 1999). In addition, youths exposed to violence are more likely to have substance abuse problems (Vermeiren, 2003) and become delinquent (Zimmerman and Posick, 2016). Victimized children grow up to victimize others, thus perpetuating the cycle of violence (Heyman and Slep, 2002). Exposure to violence can also reduce the ability to cope with stressful events, leading to a greater risk of mental health disorders such as posttraumatic stress disorder (Fowler et al., 2009). Evidence on the consequences of exposure to violence in adults is sparser. A handful of studies that find negative consequences of violence exposure in adults rely on either convenience samples or restricted demographic groups (e.g. African-American mothers) (Johnson et al., 2009; Mitchell et al., 2010). In addition, these studies are cross-sectional in nature, making it hard to rule out simultaneity in their estimates.

While these studies have documented important negative consequences of exposure to violence, they often omit important factors that could potentially explain the link between violence exposure and health: neighborhood characteristics and social environment (such as social support). There is an abundance of evidence showing that neighborhoods affect health (e.g., Diez Roux and Mair, 2010 for a review of the literature). Studies on the built environment have argued that characteristics of poor and socially disadvantaged neighborhoods and the social environment could explain the poorer health outcomes of residents (Diez Roux and Mair, 2010; Nagel et al., 2008). For example, disadvantaged neighborhoods may be less pedestrian friendly and more likely to be perceived as unsafe (Booth et al., 2005; Larsen et al., 2009). These characteristics discourage physical activity and lead to greater stress and anxiety (Humpel et al., 2002), contributing to poorer health

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of residents (Diez Roux and Mair, 2010). Previous research also shows that violence is substantially more prevalent and spatially concentrated in disadvantaged neighborhoods (Mazerolle et al., 2010; Milam et al., 2010). However, only a handful of studies have attempted to account for neighborhood characteristics and the social environment as confounding factors (Scarpa and Harden, 2006; Joshi et al., 2017). It is unclear whether exposure to violence is associated with poor health outcomes after considering the neighborhood-level characteristics and their social environment. This is a particularly important question for low-income urban mothers who are vulnerable to violence and reside in poor neighborhoods.

Our study examines the association between exposure to violence and several health-related outcomes (health problems, illicit drug use, binge drinking, and depression) using a nationally representative sample of urban unmarried mothers. This dataset offers a rich set of characteristics that can be used to account for potential confounding effects from the neighborhood context and social factors. The use of longitudinal data also allows us to place a two-year period between exposure to violence and its potential outcomes, alleviating the issue of reverse association. Additionally, we examine whether the negative associations of exposure to violence persist after a few years. Finally, it is important to understand the consequences of exposure to violence for mothers due to the potential negative effects on their children. Children of mothers in poor health tend to receive lower parenting quality and have greater behavioral and mental health problems (Mitchell et al., 2011; Mohammad et al., 2015), which in turn may lead to lower educational attainment, higher risk of delinquency, and poorer developmental outcomes (McLeod and Kaiser, 2004). Thus, mothers' exposure to violence may contribute to intergenerational social and health disparities (Broidy et al., 2003; McLeod and Kaiser, 2004).

1.1. Conceptual framework

Exposure to violence is a traumatic event, generating acute and sometimes chronic stress (Fowler et al., 2009). Chronic stress causes debilitation, showing in symptoms such as headaches, trouble sleeping, anger, anxiety, and depression, among others (American Heart Association, 2015). Hormonal changes can also be a result of long-term stressors, which then impedes growth and metabolism and weakens individuals' reproductive, gastrointestinal, and immune system functions (Stratakis and Chrousos, 1995). In addition to such physiological effects, chronic stress can also affect one's judgment and decision making and increase an individual's vulnerability to drug use and addiction (Sinha, 2008).

On the other hand, there is abundant evidence that neighborhoods affect the health of their residents (Diez Roux and Mair, 2010). Studies on the built environment find that characteristics of socially disadvantaged and deprived neighborhoods explain part of the poorer health outcomes of their residents (Diez Roux and Mair, 2010; Nagel et al., 2008). For example, pedestrian-unfriendly roads that are poorly lit, uneven, and hilly can reduce physical activity among residents and their children (Booth et al., 2005; Larsen et al., 2009). Residents who perceive their neighborhood as unsafe see an increase in stress and anxiety, which contributes to mental health problems (Diez Roux and Mair, 2010; Humpel et al., 2002) and increases the likelihood of physical health complications. Social features of neighborhoods, such as neighborhood social cohesion, social control (Sampson et al., 1997), and social support (Mair et al., 2010), are also shown to explain the health of residents. One argument is that residents living in neighborhoods with lower density of social ties and social support have fewer coping mechanisms and lower resources to deal with social problems and stressors.

Although crime and violence have been found to be concentrated in disadvantaged neighborhoods (Mazerolle et al., 2010; Milam et al., 2010), only recently have studies started to examine the potential confounding roles of neighborhood characteristics and social features in the associations between violence exposure and health-related and behavioral outcomes (Joshi et al., 2017; Mair et al., 2010; Scarpa and Haden, 2006). These studies either focus on a different population than our target or use a cross-sectional dataset.

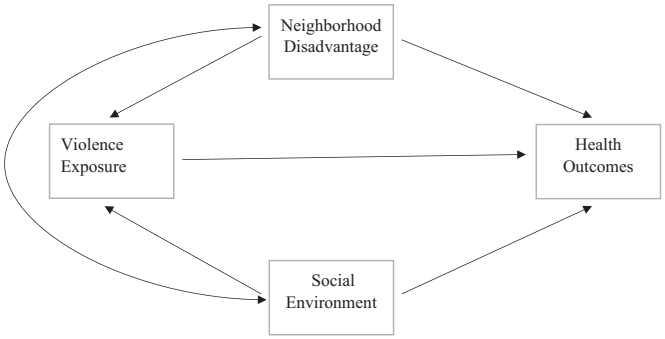

Fig. 1. Conceptual model of the relationships between violence exposure and health-related outcomes.

Drawing on the body of research discussed above and Mitchell et al.'s (2010) model for maternal exposure to violence, we build our conceptual model to delineate the relationship between violence exposure and health-related outcomes (Fig. 1). Mitchell et al. (2010) use the model to show how violence exposure affects the psychological health of mothers and their parenting abilities, and how all these factors affect the development of their children. Our study focuses instead on health-related behaviors such as drinking, drug use, depression and other health problems in mothers, therefore replacing parenting and child development with mothers' health outcomes in our model. In addition, we include neighborhood characteristics – especially those of disadvantaged neighborhoods – and their social features (such as social support) in the model. We hypothesize that these factors would account for some of the associations between violence exposure and health outcomes.

1.2. Empirical evidence on the consequences of violence exposure in mothers

Much of the evidence on the consequences of exposure to violence focuses on children and adolescents. For example, exposure to violence has been linked with poorer health outcomes (Boynton-Jarrett et al., 2008), hypertension (Ford and Browning, 2014), antisocial behaviors (Fowler et al., 2009; Miller et al., 1999), substance abuse problems (Vermeiren et al., 2003), and delinquent behaviors (Zimmerman and Posick, 2016). Existing studies show that violence exposure in children and adolescent has negative long-term consequences. For example, children exposed to violence are more likely to victimize others as adults, thus perpetuating the cycle of violence (Heyman and Slep, 2002). In addition, exposure to violence in childhood has been linked with anxiety disorders and other poor long-term outcomes in adulthood (McDougall and Vaillancourt, 2015; Rossman, 2001; Stapinski et al., 2014).

The empirical evidence on the consequences of violence exposure on adults is much less. Two cross-sectional studies have examined the consequences of violence exposure for mothers. One study of 230 African-American mothers in Washington, DC finds that violence exposure increases their risk of depressive symptoms and general aggression (Mitchell et al., 2010). The other study uses a sample of 382 mothers in Baltimore and finds that mothers exposed to violence have poorer health, poorer sleep habits, are more likely to never exercise, and are more likely to smoke (Johnson et al., 2009). One longitudinal study using a sample of elderly adults aged 50–74 living in New Jersey finds that neighborhood violence and perception of unsafety increase depressive symptoms (Wilson-Genderson and Pruchno, 2013). Given the prevalence of violence exposure in the U.S., more studies are needed to shed light on its implications for different demographic