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Trauma exposure and PTSD symptoms associate with violence in inner city civilians

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ABSTRACT

Understanding whether a history of psychological trauma is associated with perpetrating aggressive and violent behavior is of critical importance to public health. This relationship is especially important to study within urban areas where violence is prevalent. In this paper we examined whether a history of trauma or Post Traumatic Stress Disorder (PTSD) in inner city civilians was associated with violent behavior. Data were collected from over 1900 primary care patients at Grady Memorial Hospital in Atlanta, Georgia. Childhood trauma history was assessed with the Childhood Trauma Questionnaire (CTQ) and adult trauma history with the Traumatic Events Inventory (TEI). PTSD symptoms were measured with the PTSD Symptom Scale (PSS) and violent behaviors were measured with the Behavior Questionnaire (BQ). Using these measures we studied violent behavior in the inner city and its association with childhood or adult trauma history or PTSD. Trauma, PTSD and violence were all prevalent in this at-risk urban cohort. Perpetrating interpersonal violence was associated with a history childhood and adult trauma history, and with PTSD symptoms and diagnosis. An association between violent behavior and PTSD diagnosis was maintained after controlling for other pertinent variables such as demographics and presence of depression. Our findings point to a dysregulation of aggressive and violent behavior that may be a consequence of trauma and PTSD. These data indicate that more effective PTSD screening and treatment may help to reduce urban violence.

1. Introduction

Traumatic experiences are tragically common within inner-city neighborhoods (Breslau et al., 1998; Latkin et al., 2013). Urban trauma includes the sudden death of loved ones, being assaulted and being exposed to the violent deaths of others (Breslau et al., 1998; Latkin et al., 2013). As an example, nearly 1 in 6 people recruited from areas of inner city Baltimore, Maryland, have encountered a dead body with violence being a leading cause of death (Latkin et al., 2013).

This violence exposure has insidious effects on the psychological health of urban civilians. For instance, inner city students that experience violence are more likely to be depressed, to contemplate suicide and to abuse substances (Lipschitz et al., 2003; Mazza and Reynolds, 1999). Another consequence of this violence is Post Traumatic Stress Disorder (PTSD). PTSD is a debilitating psychiatric disorder that may develop after exposure to a traumatic event and is characterized by intrusive and avoidant symptoms, as well as hyper-arousal and negative cognition and mood (Kirkpatrick and Heller, 2014). Though commonly associated with combat Veterans, PTSD also exists at a high frequency within urban neighborhoods. In fact, our research groups have demonstrated that nearly 90% of urban, low-income residents of inner city Atlanta, GA have been traumatized with a lifetime PTSD prevalence of at least 40% (Gillespie et al., 2009).

Given the high level of violence in America's inner cities, and its' devastating psychological consequences, it is critical to understand the factors contributing to its frequency. One influential factor may reside in the very behavioral consequences of being traumatized.

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For instance, many studies have associated PTSD symptoms with being violent (Barrett et al., 2014; Daisy and Hien, 2014; Elbogen et al., 2010; Macmanus et al., 2013; Wekerle et al., 2009). Added to these observations, we have demonstrated that PTSD in inner city civilians is strongly associated with violent criminal offenses (Donley et al., 2012). These data suggest that PTSD within inner city civilians is related to the perpetration of violent actions. Confirming this relationship would broaden the significance of PTSD treatment, not only for lessening the suffering of individuals with this disorder, but also for potentially decreasing inner city violence.

In this study we sought to directly examine whether a history of trauma and PTSD associated with violent behavior in inner city civilians. We hypothesized that childhood and adult trauma and PTSD burden would be associated with the perpetration of violence, and that this effect would be maintained after controlling for other pertinent variables such as demographics and presence of depression. Additionally, we hypothesized that trauma and PTSD would associate with the perpetration of violence in both sexes. An analysis of both sexes is essential since PTSD is more common in females (Stein et al., 2000), including those in the inner city (Breslau et al., 1998). PTSD also has differing symptoms and behavioral consequences in males versus females (Reddy et al., 2011; Renshaw et al., 2014). Therefore, it is important to investigate whether there are consequences of trauma that differ according to sex.

To test these hypotheses, data were collected from male and female primary care patients in a large inner-city hospital setting. We assessed childhood trauma history with the Childhood Trauma Questionnaire (CTQ) and adult trauma history with the Traumatic Events Inventory (TEI). PTSD symptoms were measured with the PTSD Symptom Scale (PSS) and violent behaviors were measured with the Behavior Questionnaire (BQ). Using these measures, we examined the prevalence of self-reported history of violent behavior and whether childhood or adult trauma exposure associated with violent behavior in both sexes. We further studied if PTSD symptoms associated with violence in both sexes.

2. Materials and methods

2.1. Recruitment and procedures

The participants (n = 1975) were recruited as part of a larger study (Donley et al., 2012). Briefly, we approached potential participants in the waiting rooms of primary care and medical clinics at a large metropolitan county hospital, Grady Memorial Hospital in Atlanta, Georgia, from 2005 to 2012. Participants were approached randomly to create a cross-sectional sample of convenience. Those who agreed to be interviewed were administered a set of self-report questions by being read them aloud by a volunteer or project staff member, due to the varying literacy of the subjects. The items included demographic information, questions about childhood and adult trauma exposure, PTSD symptoms, symptoms of depression, and self-report items about history of perpetration of interpersonal violence. Participants received $15 compensation for their answers.

We obtained written, informed consent for all subjects after they received a complete description of the study. Potential subjects were excluded if they were under age 18, if they were actively psychotic, or if they had intellectual disability. The overall project has IRB approval granted by the Institutional Review Board at Emory University.

2.2. Measures

2.2.1. Demographic data

Demographic information was collected from the subjects using questions about the participant's sex, age, race/ethnicity, household income, education level, employment and disability status.

2.2.2. Childhood Trauma history

A history of traumatic experiences during childhood was assessed using the Childhood Trauma Questionnaire (CTQ), a validated, self-report inventory of questions on a wide range of potentially traumatic incidents occurring before age 18, including history of neglect, emotional, sexual, and physical abuse, and other types of trauma (Bernstein et al., 2003). CTQ data demonstrated good internal consistency reliability ($\alpha = 0.99$ for physical abuse; $\alpha = 0.94$ for sexual abuse; $\alpha = 0.93$ for emotional abuse; and $\alpha = 0.98$ for the total of these 3 scales). Childhood trauma burden was then stratified according to Bernstein and Fink's stratification system (Bernstein and Fink, 1998). Participants were first classified into two groups: 1) none/mild range and b) moderate/severe range. A composite variable was then created across all three types of abuse. Using this composite, participants were then organized into 3 categories based upon the severity and frequency of abuse: a) 'None' = no abuse in the moderate/severe range, b) 'Moderate' = 1 type of abuse in the moderate/severe range, and c) 'Severe' = greater than or equal to 2 types of abuse in the moderate/severe range (Bradley et al., 2008; Wingo et al., 2010).

2.2.3. Adult Trauma history

Traumatic exposure during adulthood was assessed using the Traumatic Events Inventory (TEI), a fourteen-item self-report measure that asks participants if they have ever experienced a series of potential traumatic incidents (Schwartz et al., 2006). Only the TEI items pertaining to traumatic events occurring after age 18 were considered. For each item answered in the positive a series of follow-up questions assesses frequency of the type of trauma exposure. This allowed us to assess the degree of severity of adult trauma exposure in each participant. Adult trauma burden was then stratified according to previously described methods (Wrenn et al., 2011). Briefly, participants were divided into 3 categories based on the number of traumas they had experienced as quantified by the Traumatic Events Inventory: a)'None' = those with no traumatic experiences, b)'Moderate' = those with 1 type of traumatic exposure and c)'Severe' = those with 2 types of trauma exposure.

2.2.4. PTSD symptoms

To assess PTSD symptomatology, we used the PTSD Symptom Scale (PSS), which is a validated 17-item self-report measure that asks participants to rate how often they have had PTSD symptoms, as defined by DSM-IV, over the preceding two weeks. We then summed the frequency items of the PSS into a continuous measure of PTSD symptom severity which ranged from 0 to 51 (Foa and Tolin, 2000). The PSS is a psychometrically valid measure that assesses PTSD symptoms over the 2 weeks prior to assessment. Using this measure, scores from the B, C, and D clusters were individually quantified. These represent intrusive, avoidance/numbing, and hyperarousal symptoms, respectively (Jovanovic et al., 2010). The categorical diagnosis of PTSD required the presence of trauma, at least 1 intrusive symptom, the presence of at least 3 avoidance/numbing symptoms and at least 2 hyperarousal symptoms, present for at least one month.

2.2.5. Violent behavior

Violent behavior was assessed using 15 items from the Behavior