Resilience characteristics mitigate tendency for harmful alcohol and illicit drug use in adults with a history of childhood abuse: A cross-sectional study of 2024 inner-city men and women

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ABSTRACT

Resilience refers to abilities to cope adaptively with adversity or trauma. A common psychological sequella of childhood abuse or other traumatic experiences is substance use problems. There are, however, very limited data on relationships among resilience traits, childhood abuse, and alcohol or drug use problems. Hence, we aimed to examine associations between resilience characteristics and lifetime alcohol and illicit drug use in 2024 inner-city adults with high rates of childhood abuse and other trauma exposure. In this cross-sectional study, resilience was assessed with the Connor-Davidson Resilience Scale, childhood abuse with the Childhood Trauma Questionnaire, lifetime alcohol and illicit drug use with the Alcohol Use Disorder Identification Test and Drug Abuse Screening Test. Associations between resilience and substance use were examined with linear regression models, adjusting for trauma load, age, and sex. We found that resilience characteristics mitigated tendency for lifetime alcohol use problems both as a main effect ($\beta = -0.11$; $p = 0.0014$) and an interaction with severity of childhood abuse ($\beta = -0.06$; $p = 0.0115$) after trauma severity, age, and sex were controlled for. Similarly, resilience reduced lifetime illicit drug use both as a main effect ($\beta = -0.03$; $p = 0.0008$) and as an interaction with severity of childhood abuse ($\beta = -0.01$; $p = 0.0256$) after trauma load, age, and sex were adjusted for. Our findings add to a nascent body of literature suggesting that resilience characteristics mitigate risks not only for PTSD, major depression, and suicidality, but also for substance use problems in adults exposed to childhood abuse or other traumatic experiences.

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1. Introduction

Exposure to traumatic experiences, including childhood abuse, substantially increases one's risks for psychiatric disorders such as post-traumatic stress disorder (PTSD), major depressive disorder, substance abuse or dependence, or a combination of these disorders (Alim et al., 2008; Bennett and Kemper, 1994; Downs and Harrison, 1998; Dunca et al., 1996; Eisen et al., 2004; Petrakis et al., 2011; Weiss et al., 1999). Longitudinal studies suggest that these psychiatric disorders can persist for many years after trauma exposure (up to 40 years in one study), and are less likely to respond to treatment (Boe et al., 2011; Hull et al., 2002; Kadri et al., 2006; Nanni et al., 2011). As a trauma, childhood abuse has quite

unique and important implications in that it can exert negative influences on sensitive developmental periods for emotional, behavioral, cognitive, and social domains, interrupt healthy development, and lead to increased risk for psychopathology. Substance abuse or dependence is one of the most common psychological sequella of childhood abuse (Bennett and Kemper, 1994; Downs and Harrison, 1998; Green et al., 2010a; Kendler et al., 2000; McLaughlin et al., 2010). Despite the increased risk associated with exposure to childhood abuse and other traumas, some individuals develop effective coping responses and are successful in one or more important life domains such as relationship or work, illustrating the concept of resilience (Alim et al., 2008; Collishaw et al., 2007; Fergusson and Lynskey, 1996).

Resilience refers to the ability to cope adaptively with adversity or trauma (Luthar et al., 2000). It has been conceptualized as a complex and multidimensional construct with personal characteristics and environmental factors (Feder et al., 2009; Luthar et al., 2000). Studies have identified several salient traits of resilience

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including ego strength, hardiness, positive emotions, optimism, spirituality/faith, adaptive coping styles, or cognitive flexibility (Feder et al., 2009; Southwick et al., 2005). Certain environmental factors such as strong role models, close and nurturing family bonds, and access to quality or supportive relationships have all been shown to foster resilience (Feder et al., 2009; Southwick et al., 2005). Given its complexity, resilience has been operationally defined in various ways. One of the most widely used and validated measures of resilience is the self-report Connor-Davidson Resilience Scale (CDRISC), which assesses a combination of core resilience characteristics − hardiness, tenacity, strong self-efficacy, emotional and cognitive control under pressure, adaptability, ability to bounce back, tolerance of negative affect, spiritual coping, and goal orientation (Campbell-Sills and Stein, 2007; Connor and Davidson, 2003). Therefore, in this study, we assessed resilience traits using the 10-item version of the CDRISC (Campbell-Sills and Stein, 2007).

Resilience characteristics are likely to mitigate risks of developing substance use disorders, perhaps through effective emotional regulation, tolerance of negative affect, or active seeking of supportive or nurturing relationships. So far, studies on the interaction between resilience attributes and exposure to childhood abuse on substance use problems are still very limited. To our knowledge, there has been only one study in 497 OEF/OIF veterans who experienced combat trauma, and it found that high CDRISC scores were associated with less alcohol use problem (Green et al., 2010b). Therefore, to address gaps in research on resilience and substance use disorders, we aimed to examine associations between resilience traits and lifetime alcohol and illicit drug use problems in a population of inner-city adults with high rates of childhood abuse and other trauma exposure. We hypothesized that greater resilience would be associated with fewer substance use problems.

2. Methods

2.1. Sample

This cross-sectional study was part of a larger study investigating genetic and environmental factors for PTSD in a population of inner-city, low income, and high stress and trauma exposure (Binder et al., 2008; Bradley et al., 2008). Inclusion criteria were: 1) age 18 or older; 2) understanding English; and 3) able to give informed consent. Exclusion criteria consisted of: 1) being acutely suicidal; or 2) psychotic; or 3) having an acute medical problem. Members of the research team approached adult patients waiting for their appointments in several locations including primary care or obstetrical-gynecology clinic, or general pharmacy waiting area of the Grady Memorial Hospital in Atlanta, GA to solicit study participation. Participants gave informed consent and completed a battery of measures. Sociodemographic information including age, sex, race, education, income, and marital status was also collected. The study was approved by the Institutional Review Boards of Emory University School of Medicine and Grady Memorial Hospital.

2.2. Assessment instruments

Resilience was assessed with the abbreviated 10-item Connor-Davidson Resilience Scale (CDRISC), which has excellent psychometric properties, with internal consistency Cronbach's α of 0.85 and test-retest correlation coefficient of 0.87 (Campbell-Sills and Stein, 2007). The 10-item CDRISC is highly correlated with the full CDRISC, with a correlation coefficient of 0.92 (Campbell-Sills and Stein, 2007). The 10-item CDRISC score ranges from 0 to 40, with higher scores indicating greater resilience.

Alcohol use was evaluated with the 10-item, self-report Alcohol Use Disorders Identification Test (AUDIT) designed by the World Health Organization to screen for harmful and hazardous alcohol use (Babor et al., 1994). The AUDIT has been validated in primary care patients in six countries, is consistent with the ICD-10 definitions of alcohol dependence and harmful alcohol use, and provides an accurate measure of hazardous alcohol drinking (Babor et al., 1994). This measure has a reliability correlation coefficient of 0.83 and test-retest reliability of 0.87—0.95 (Babor et al., 1994). In our study we assessed both current alcohol use, using the standard version of the AUDIT, and lifetime alcohol use using a modified version of the AUDIT. To assess lifetime alcohol use, we modified the phrase "during the last year" to "during the year when you drank the most" for each question in the AUDIT. For instance, we modified the original question of "During the last year, on average, how many drinks containing alcohol do you have on a typical drinking day?" to "During the year when you drank the most, how many drinks containing alcohol did you have on a typical drinking day?" When participants reported that their current level of drinking was the highest it had been during their lifetime, the current and lifetime AUDIT scores were the same. For the purposes of this paper, we presented data from the lifetime AUDIT assessment. Each item of the AUDIT is rated on a scale of 0—4, yielding a possible score range of 0—40, with higher scores reflecting more problematic alcohol drinking (Babor et al., 1994).

Illicit drug use was assessed with the self-report psychometrically validated Drug Abuse Screening Test (DAST) (Cocco and Carey, 1998; Skinner, 1982; Yudko et al., 2007). The DAST has an internal consistency of 0.92 and test-retest reliability of 0.78 (Yudko et al., 2007). We also assessed both current and lifetime drug use patterns using the standard and modified versions of the DAST. To assess lifetime drug use, we modified the phrase "in the last year" to "in your life" in the DAST questionnaire. For example, the question "In the last year, have you used drugs other than those required for medical reasons?" was modified into "In your life, have you used drugs other than those required for medical reasons?" When individuals reported that their current level of illicit substance use was the highest it had been during their lifetime, the current and lifetime DAST scores were the same. For the purposes of this paper we presented data from the lifetime DAST assessment. Each item on the DAST consists of a choice of yes (1) or no (0), yielding a score range of 0—10, with higher scores indicating more hazardous illicit drug use.

Childhood abuse was assessed retrospectively with the self-report and psychometrically validated 28-item childhood trauma questionnaire (CTQ) (Bernstein and Fink, 1998; Bernstein et al., 2003). The CTQ captures emotional, sexual, and physical abuse. It has an internal consistency Cronbach's α of 0.91, test-retest reliability of 0.79—0.86 over an average of 4 months, and convergent validity with both clinician-rated interview of childhood abuse and therapists' ratings of abuse (Pearson correlation: 0.38—0.65) (Bernstein et al., 1994; Scher et al., 2001). Scores from the CTQ were extracted for each of the categories of emotional, physical, and sexual abuse and classified into either none/mild or moderate/severe range for each type of abuse following Bernstein and Fink's score cutoffs (Bernstein and Fink, 1998). Similar to our previous approach (Bradley et al., 2013, 2008), we summed the number of types of abuse in the moderate/severe range to create a childhood abuse index, which ranged from 0 to 3 for each participant. This index was included as a covariate in our linear regression models to control for severity of childhood abuse.

Other trauma exposure was reported retrospectively by participants via the Traumatic Events Inventory (TEI) (Gillespie et al., 2009; Schwartz et al., 2005). The TEI elicits lifetime history of exposure to different categories of trauma. Traumatic event is