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Research article

Pathways from childhood abuse and other adversities to adult health risks: The role of adult socioeconomic conditions☆

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ABSTRACT

Adverse childhood experiences (ACEs), including child abuse, have been linked with poor health outcomes in adulthood. The mechanisms that explain these relations are less understood. This study assesses whether associations of ACEs and health risks are mediated by adult socioeconomic conditions, and whether these pathways are different for maltreatment than for other types of adversities. Using the Behavioral Risk Factor Surveillance System 2012 survey (N = 29,229), we employ structural equation modeling to (1) estimate associations of the number and type of ACEs with five health risks—depression, obesity, tobacco use, binge drinking, and self-reported sub-optimal health; and (2) assess whether adult socioeconomic conditions—marriage, divorce and separation, educational attainment, income and insurance status—mediate those associations. Findings suggest both direct and indirect associations between ACEs and health risks. At high numbers of ACEs, 15–20% of the association between number of ACEs and adult health risks was attributable to socioeconomic conditions. Associations of three ACEs (exposure to domestic violence, parental divorce, and residing with a person who was incarcerated) with health risks were nearly entirely explained by socioeconomic conditions in adulthood. However, child physical, emotional, and sexual abuse were significantly associated with several adult health risks, beyond the effects of other adversities, and socioeconomic conditions explained only a small portion of these associations. These findings suggest that the pathways to poor adult health differ by types of ACEs, and that childhood abuse is more likely than other adversities to have a direct impact.

A significant body of research has documented associations between adverse childhood experiences (ACEs), including child maltreatment, and poor health behaviors and outcomes (Anda et al., 1999, 2001, 2002; Dietz et al., 1999; Dong, Anda, Dube, Giles, & Felitti, 2003; Dube, Anda, Felitti, Chapman, et al., 2001; Dube, Anda, Felitti, Croft, et al., 2001; Felitti et al., 1998). Additionally, researchers widely agree that social and economic characteristics (especially poverty) are associated with poor health outcomes (Wilkinson & Marmot, 2003). Yet, little research has sought to understand the extent to which ACEs influence socioeconomic status (SES), and whether some portion of the established associations between ACEs and health reflect an indirect effect operating through SES. The current study focuses on poverty and its correlates as key mediating mechanisms through which ACEs might contribute to poor health and health behaviors. In addition, we assess whether

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these mechanisms differ across types of ACEs. Specifically, we address 3 research questions: (1) What is the direct effect of ACEs (ACE scores and ACE types) on three adult socioeconomic factors—education level, marital status, and income level?; (2) What is the direct effect of ACEs (ACE scores and ACE types) on five health risks—depression, tobacco use, binge drinking, obesity, and self-reported health status?; and (3) Is part of the association between ACEs (ACE scores and ACE types) and the four health-related outcomes mediated by adult socioeconomic factors?

Literature Review

ACEs and Health

Experiences during childhood have a profound effect on health and well-being later in life. Much of our knowledge about this issue stems from studies of ACEs. Generally speaking, studies of ACEs include the following types of adversities: physical, sexual and emotional abuse, as well as exposure to domestic violence, parental divorce or separation, or having resided with someone who abused drugs or alcohol, was incarcerated, or had a mental illness. In the initial ACEs study, which involved over 17,000 adults in California, researchers asked adult respondents to retrospectively report ACEs, and assessed how these reported ACEs predicted their current health status (Felitti et al., 1998). The authors found that individuals who had experienced 4 or more ACEs were more likely to report smoking, poor self-rated health, sexual transmitted infections, physical inactivity, and severe obesity as well as increased health risks for alcoholism, drug abuse, depression, and suicide attempt compared to those with no ACEs (Felitti et al., 1998). Additionally, there was a strong graded relationship between multiple categories of ACEs and ischemic heart disease, cancer, chronic lung disease, skeletal fractures, and liver disease (Felitti et al., 1998). This important work spurred an entire body of research dedicated to understanding how childhood experiences impact health (Chartier, Walker, & Naimar, 2010; Dong, Dube, Felitti, Giles, & Anda, 2003; Dong et al., 2004; Dube, Williamson, Thompson, Felitti, & Anda, 2004; Ramiro, Madrid, & Brown, 2010) and whether effects differ across types of ACEs or demographic characteristics (Chartier et al., 2010; Dube et al., 2004).

Count of ACEs vs. Type of ACEs

Notably, some of the commonly measured ACEs constitute clear child abuse (physical, sexual, and emotional) and others could be considered neglect (e.g., exposure to domestic violence or substance abuse in the home). Yet, some items (e.g., parental divorce) are stressful, but are not maltreatment. Yet, much of the work on ACEs has focused on the count of ACEs, treating each adversity with equal weight. Much evidence suggests that maltreatment is associated with poor physical and psychological health throughout the life course (Hussey, Chang, & Kotch, 2006; Norman et al., 2012; Springer, Sheridan, Kuo, & Carnes, 2007; Widom, Czaja, Bentley, & Johnson, 2012), but the ACE studies have also suggested that these other, non-maltreatment, adversities may be equally important. All types of ACEs have been associated with negative psychological outcomes, such as drug use and suicidality, though abuse-related ACEs may have a slightly larger impact on suicidality (Dube et al., 2005; Dube, Anda, Felitti, Chapman, et al., 2001). However, we are not aware of any studies that assess whether specific types of ACEs differentially impact physical health outcomes. To assess whether the measurement of ACEs matters, the current study specifically examines the relationship between both the count of ACEs as well as the different types of ACEs and their relation with adult health outcomes.

Socioeconomic Status as a Mediating Mechanism

Despite numerous studies examining associations between ACEs and health behaviors and outcomes, there is limited understanding of the specific mechanisms through which these associations occur. Prior studies documented associations between ACEs and risky health behaviors, such as smoking and a greater number of sexual partners (Anda et al., 1999; Felitti et al., 1998), which may partly explain broader associations between ACEs and poor health. However, social and economic conditions must also be considered. Although many factors contribute to an individual's socioeconomic conditions, some evidence suggests that childhood adversities are associated with adult economic outcomes. First, associations between ACEs and aspects of job performance have been reported, including self-reported absenteeism, self-reported financial problems, and self-reported job problems (Anda et al., 2004). Second, a small body of research has identified associations between maltreatment (as identified through child protection records) and income, earnings, and educational attainment in early and mid-adulthood (Currie & Widom, 2010; Mersky & Topitzes, 2010). Other childhood experiences such as growing up with a single mother, experiencing economic hardship, living apart from parents, and experiencing housing hardship have been found to be associated with experiencing homelessness as an adult (Koegel, Melamid, & Burnam, 1995). Additionally, it is well established that socioeconomic factors, including poverty, marriage, educational attainment, social status, and stress, are associated with health outcomes (Conroy, Sandel, & Zuckerman, 2010; Johnson et al., 2010; Kiecolt-Glaser & Newton, 2005; Morris, Donkin, Wonderling, Wilkinson, & Dowler, 2000; Wilkinson & Marmot, 2003). Despite evidence suggesting that childhood experiences are associated with lower adult SES and evidence documenting the relationship between SES and adult health, it remains unclear whether various types of ACEs are differentially associated with adult SES, or whether SES plays a mediating role in associations between childhood adversities and adult health.

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