



Research article

Assessing the interrelatedness of multiple types of adverse childhood experiences and odds for poor health in South Carolina adults



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ABSTRACT

Adverse childhood experiences (ACEs) have been linked to negative health outcomes in adulthood, but little research has been done on the effect of ACEs on the health and well-being of adults in South Carolina (SC). This study analyzed a sample of 9744 respondents who participated in the 2014 South Carolina Behavioral Risk Factor Surveillance System (BRFSS) to examine the relationship among childhood experiences of physical, sexual, and emotional abuse, as well as witnessing household violence, on mental and physical health outcomes in adulthood among SC residents. Twenty-two percent of survey respondents reported poor general health (22.1%), and a smaller proportion reported high frequent mental distress in the past month (13.1%). Each category of childhood experiences was associated with an increase in the risk of poor general health. Individuals reporting three or more types of experiences were more likely to report poor health (aOR 2.89; 95% CI 2.86–2.92) than adults without such experiences. Respondents reporting three or more types of childhood adverse experiences were more likely to report frequent mental distress (aOR 3.29; 95% CI 3.26–3.33) compared to adults who did not report three or more types of adversity. Findings from the SC BRFSS highlight a connection between ACEs and negative health outcomes later in life. Given that results of this study also demonstrated that increased exposure to ACEs was associated with greater odds of negative health in adulthood, preventing adverse events such as experiencing abuse or witnessing domestic violence in childhood will have significant effects on later adult health.

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1. Introduction

The effects of adverse child experiences (ACEs) have been shown to have a profound impact on long-term health. ACEs include various types of abuse: physical, sexual, and emotional; as well as household dysfunction such as living in a household

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with violence, alcohol and substance abuse, mental illness, criminal activity, and parental separation or divorce. Exposure to ACEs is associated with numerous health risk factors, including cigarette smoking and excessive alcohol use (Dube, Anda, Felitti, Edwards, & Croft, 2002). A large body of research has confirmed that ACEs are associated with negative long-term health outcomes, as well as overall poor physical and mental health (Anda et al., 2008; Brown et al., 2010; Cannon, Bonomi, Anderson, Rivara, & Thompson, 2010; Chapman et al., 2004; Chapman et al., 2011; Danese et al., 2009; Dube et al., 2009; Felitti et al., 1998; Horowitz, Widom, McLaughlin, & White, 2001; McNutt, Carlson, Persaud, & Postmus, 2002; Rich-Edwards et al., 2012; Roy, Janal, & Roy, 2010; Waite, Davey, & Lynch, 2013).

Beyond just exposure to an ACE, the nature of an ACE matters. For example, sexual abuse in childhood has been associated with an increased potential of engaging in HIV risk behaviors among women, whereas physical abuse was not shown to predict the same level of subsequent risk behaviors (Bensley, Van Eenwyk, & Simmons, 2000). The cumulative exposure of ACEs also matter, with a higher number of ACEs associated with an increase in adult health risk behavior and disease (Felitti et al., 1998). Experiencing ACEs has also been shown to be costly, with much higher annual healthcare usage and costs among women with a history of child abuse, particularly those with physical and sexual child abuse (Bonomi et al., 2008).

Adults who experienced ACEs may differ from those who have not through their behavior, health, and healthcare utilization. Models of stress are instructive for understanding these differences. Exposure to childhood abuse, as well other forms of family dysfunction such as household violence, has been shown to activate a stress response in children (DeBellis et al., 1999; Stein, Koverola, Hanna, Torchia, & McClarty, 1997; Teicher et al., 1997). High levels of stress hormones, protective for survival, can be toxic after prolonged exposure (Dube et al., 2009). The conceptual framework of childhood stress divides stress into three categories: positive, tolerable, and toxic. Positive stress is brief and mild, with a protective quality. Tolerable stress includes exposure to non-normal experiences that can be mitigated with the help of a supportive environment. Toxic stress, exposure to multiple stressors or extremely harmful stressors such as ACEs, may lead to developmental disruptions in the architecture of the brain that will later result in chronic, stress-related physical and mental illness (Shonkoff et al., 2012). Hence, this exposure to prolonged stress may explain the relationship between ACEs and long-term physical and mental health.

Given that childhood experiences of abuse (i.e. physical, sexual, emotional, and witnessing domestic violence) have been linked to negative health outcomes in adulthood in addition to increased public health costs (Felitti & Anda, 2010), it is important to better understand specific relations between such experiences in childhood and outcomes in adulthood. To date, little research has been done on the effect of ACEs on the health and well-being of adults in South Carolina (SC). Research on the effect of ACEs may inform policy and programs designed to address changes in generational behaviors that affect health and well-being of SC residents. The purpose of this study is to examine the relationship between childhood experiences of physical, sexual, and emotional abuse, as well as witnessing household violence, on mental and physical health outcomes in adulthood among South Carolina residents.

2. Methods

We conducted a cross sectional analysis of the 2014 South Carolina Behavioral Risk Factor Surveillance System (BRFSS). The BRFSS, developed by the Center for Disease Control and Prevention (CDC), is a nationwide survey that collects information on chronic conditions and health-related risk behaviors by state (Centers for Disease Control and Prevention, 2014). In South Carolina, the survey is administered by the University of South Carolina's Institute of Public Service and Policy Research. The survey is conducted daily to non-institutionalized adults eighteen years or older using random digit dialing on landlines and cell phones. Children's Trust of South Carolina and the South Carolina Department of Health and Environmental Control (DHEC) partnered to use the BRFSS to collect additional questions on adverse childhood experiences: these questions were fielded in the 2014 survey (Morse, Strompolis, Priester, & Wooten, 2016). The survey does not measure how frequently ACEs occurred, just whether a survey respondent had experienced a particular type of ACE. The BRFSS was administered to 11,027 South Carolina adults in 2014 and 9774 participants answered the ACE questions used for this study. Population weights were assigned to each survey respondent by the CDC to correct for under or oversampling and non-response or non-coverage (Morse et al., 2016).

The main independent variable of interest was exposure to an ACE. This study used eleven ACE survey questions. Measures of a childhood history of abuse included witnessing household domestic violence, physical abuse, sexual abuse, and emotional abuse. We used these four categories of abuse to be consistent with the original ACE study (Felitti et al., 1998). The question used to measure household domestic violence was "How often did your parents or adults in your home ever slap, hit, kick, punch, or beat each other up?" To measure physical abuse, the survey question asked was "How often did a parent or adult in your home ever hit, beat, kick, or physically hurt you in anyway?" The respondent was told to not include spanking. Three questions measured sexual abuse: "How often did anyone at least five years older than you or an adult, ever touch you sexually? Or force you to have sex? Or try to make you touch them sexually?" The question measuring emotional abuse was "How often did a parent or adult in your home ever swear at you, insult you, or put you down?" Responses to these questions could include never, once, more than once, don't know, or refused. From these questions, a measure for types of childhood experiences was developed with twelve categories: physical abuse only, sexual abuse only, witnessing household domestic violence only, emotional abuse only, physical and sexual abuse, physical abuse and witnessing household domestic violence, physical and emotional abuse, sexual abuse and witnessing household domestic violence, sexual and emotional

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