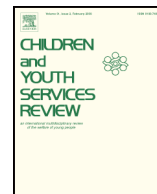




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## Children and Youth Services Review

journal homepage: [www.elsevier.com/locate/childyouth](http://www.elsevier.com/locate/childyouth)Adverse childhood experiences and life opportunities: Shifting the narrative<sup>☆</sup>Marilyn Metzler, RN, MPH<sup>a,b,\*</sup>, Melissa T. Merrick, PhD<sup>a</sup>, Joanne Klevens, MD, PhD, MPH<sup>a</sup>,  
Katie A. Ports, PhD<sup>a</sup>, Derek C. Ford, PhD<sup>a</sup><sup>a</sup> Division of Violence Prevention, Centers for Disease Control and Prevention, Atlanta, GA<sup>b</sup> Karna, LLC, Atlanta, GA

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## ABSTRACT

Substantial research shows that early adversity, including child abuse and neglect, is associated with diminished health across the life course and across generations. Less well understood is the relationship between early adversity and adult socioeconomic status, including education, employment, and income. Collectively, these outcomes provide an indication of overall life opportunity. We analyzed data from 10 states and the District of Columbia that used the adverse childhood experiences (ACE) module in the 2010 Behavioral Risk Factor Surveillance System to examine the association between ACEs and adult education, employment, and income. Compared to participants with no ACEs, those with higher ACE scores were more likely to report high school non-completion, unemployment, and living in a household below the federal poverty level. This evidence suggests that preventing early adversity may impact health and life opportunities that reverberate across generations. Current efforts to prevent early adversity might be more successful if they broaden public and professional understanding (i.e., the narrative) of the links between early adversity and poverty. We discuss our findings within the context of structural policies and processes that may further contribute to the intergenerational continuity of child abuse and neglect and poverty.

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## 1. Introduction

Assuring the healthy development of all children is essential for societies seeking to achieve their full health, social, and economic potential. Preventing early adversity, including child abuse and neglect, is critical if these goals are to be met. Families, communities, organizations, and governments—all of society—must be involved in order to achieve these goals. While all are responsible, some have unique roles. Child protection, for example, is responsible for identifying children and families at risk and providing services to minimize harm and treat trauma when harm has occurred. Public health, on the other hand, is responsible for promoting, protecting, improving, and, when necessary, restoring the health of all people (Last, 2007), which requires understanding, at a population level, why some children and families are at greater risk than others and intervening to promote conditions that reduce or eliminate risk. Given the vast problem that is early adversity and

its countless ill effects over the life course and across generations, multiple partnerships and disciplines are vital in creating a shared vision for the health and prosperity of our most vulnerable citizens.

The known associations between early adversity and subsequent adverse outcomes are substantial. In addition to the lifetime economic burden of child abuse and neglect (Fang, Brown, Florence, & Mercy, 2012), decades of research also find a robust, dose-response relationship between child abuse and neglect and other forms of adverse childhood experiences (ACEs), and leading causes of adult morbidity and mortality (Felitti et al., 1998; Gilbert et al., 2010). Previous research has examined the relationship between ACEs and health outcomes, often by controlling for socioeconomic indicators such as education, employment, and income. However, less attention has been paid to early experiences as potential determinants of life opportunities, such as later education, employment, and earning outcomes. Understanding the full impact of early adversity across the life course is important if we are to interrupt the cycle of early adversity across generations and assure that all children and societies reach their full health and human potential.

## 1.1. ACEs and Impact on Health

The original ACE Study, a collaboration between the Centers for Disease Control and Prevention (CDC) and Kaiser Permanente, examined the ACE categories of childhood physical, sexual, and emotional abuse,

*Abbreviations:* ACEs, Adverse Childhood Experiences; BRFSS, Behavioral Risk Factor Surveillance System; CDC, Centers for Disease Control & Prevention; CSDH, Commission on the Social Determinants of Health.

<sup>☆</sup> The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

\* Corresponding author at: Division of Violence Prevention/Karna LLC, Centers for Disease Control and Prevention, 4770 Buford Highway, NE, Mailstop F64, Atlanta, GA 30341.

E-mail address: [MMetzler@cdc.gov](mailto:MMetzler@cdc.gov) (M. Metzler).

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childhood physical and emotional neglect, witnessing domestic violence as a child, and living with a substance abusing, mentally ill, or incarcerated household member as a child (Felitti et al., 1998). More contemporary ACE-related studies have broadened the construct of early adversity to be even more comprehensive, including sibling and peer victimization, property crimes, and parental death as a child (Finkelhor, Shattuck, Turner, & Hamby, 2013). Irrespective of the particular forms of early adversity examined, the link between experiences in childhood and adolescence and subsequent adult health and well-being has been repeatedly established.

Health conditions and indicators associated with early life adversity include: chronic disease (Felitti et al., 1998; Gilbert et al., 2010); cancer (Brown et al., 2010); sexually transmitted diseases (Felitti et al., 1998); frequent mental distress (Gilbert et al., 2010) and depression (Chapman et al., 2004; Anda et al., 2002); intimate partner violence (Whitfield, Anda, Dube, & Felitti, 2003); suicide attempts (Dube et al., 2001); health risk behaviors such as smoking (Felitti et al., 1998; Ford et al., 2001), alcohol abuse (Dube, Anda, Felitti, Edwards, & Croft, 2002), substance abuse (Dube et al., 2003), sexual risk-taking (Hillis, Anda, Felitti, & Marchbanks, 2001), and youth violence (Fox, Perez, Cass, Baglivio, & Epps, 2015); and increased risk for premature mortality by as many as 19 years (Brown et al., 2009). A dose-response relationship between early adversity and poor health has been observed among adolescents as young as age 14 (Flaherty et al., 2013), and modest associations with health have been observed as early as ages 4 to 6 (Flaherty et al., 2006).

The numerous health outcomes associated with ACEs have been largely explained by neurobiological factors that impact early brain development (McCrorry, De Brito, & Viding, 2011; Shonkoff, Boyce, & McEwen, 2009; Shonkoff & Garner, 2012; Danese et al., 2008), the immune system (Bierhaus et al., 2003), and the endocrine system (Colborn, 2004; Roth, Lubin, Funk, & Sweatt, 2009; Szyf, 2009). For example, exposure to chronic stress can induce changes in the architecture of different regions of the developing brain (e.g., amygdala, hippocampus), which can impact a range of important functions, such as regulating the stress response, attention, memory, planning, and learning new skills, and also contribute to dysregulation of inflammatory response systems that can lead to a chronic “wear and tear” effect on multiple organ systems (Shonkoff & Garner, 2012).

In addition to describing the relationships between ACEs and health outcomes, and the likely impacts and processes implicated in such, some researchers also attempt to identify populations most at risk (Centers for Disease Control and Prevention, 2010; Ye & Reyes-Salvail, 2014; Andersen & Blossnich, 2013). For example, Ye and Reyes-Salvail report the distribution of risk whereby they highlight that individuals with low education or low income are more likely to report ACEs and more likely to have ill health effects (Ye & Reyes-Salvail, 2014). In these analyses, consistent gradient patterns are observed, with people with lower education and lower income reporting higher ACEs and those with higher education and higher income reporting fewer ACEs. While the distribution of risk is important, it does not address the temporal direction of the relationship between early adversity on these socioeconomic indicators as *outcomes*. Given that ACEs, by definition, occur in childhood and therefore precede educational attainment, employment, and income, it is likely that ACEs also impact these outcomes, in addition to their impact on health. Thus, these indicators of adult socioeconomic status warrant examination as outcomes of interest in order to expose the relationships between early experiences and subsequent life opportunities.

### 1.2. Early adversity and impact on socioeconomic status

Education, employment, and income are commonly used measures of socioeconomic status in U.S. health research, and each independently and consistently correlates with health (Braveman, Cubbin, Egerter, Williams, & Pamuk, 2010). A small but growing body of research

connects child abuse and neglect to later life education, employment, and income. For example, multiple types of child abuse have been shown to negatively impact adult employment status, (Sansone, Leung, & Wiederman, 2012; Zielinski, 2009), and have also been linked to poverty and Medicaid usage (Zielinski, 2009). Adults reporting histories of child abuse and neglect have been shown to have lower levels of education, lower employment earnings, and fewer assets compared to matched controls (Currie & Widom, 2010). Adolescents exposed to violence are at increased risk of lower educational attainment and lower adult employment and income (Covey, Menard, & Franzese, 2013; Macmillan & Hagan, 2004). While these studies are informative, many have limited generalizability because of their highly specific samples (e.g., Sansone et al., 2012) or their scope of exposure to early adversity being limited to child abuse and neglect (e.g., Sansone et al., 2012, Currie & Widom, 2010) or violence only (e.g., Covey et al., 2013, Macmillan & Hagan, 2004).

As noted above, an extensive body of literature has identified associations between additional early adversities, including household substance abuse and parental incarceration, and adult health outcomes. We also know from the ACE Study that many early adversities, beyond child abuse and neglect alone, are common (Felitti et al., 1998). While the ACE questionnaire does not provide an exhaustive list of adversities to which a child could be exposed (e.g., bullying, neighborhood violence) (Finkelhor et al., 2013), it does include additional adversities occurring in the home prior to age 18 and gives us a broader understanding of the impact of early experiences on health. Data demonstrating the link between ACEs and other socioeconomic outcomes, including adult education, employment, or income, is sparse, though dose-response relationships between ACEs and adult employment status (Liu, Croft, Chapman, et al., 2013), and adult work performance and financial stress (Anda et al., 2004) have been documented. Such examinations expand our understanding of the impact of early adversity on multiple outcomes that likely contribute to one's later socioeconomic status. Recently, Font and Maguire-Jack (Font & Maguire-Jack, 2015) examined and found a mediational role for education, income, and health insurance status in the relationship between ACEs and health. Such methodologically rigorous analyses move the field forward by considering the important explanatory contributions of indicators of socioeconomic status in predicting health outcomes. However, also needed are analyses of early adversity and indicators of socioeconomic status that are explored as separate but connected outcomes of interest.

## 2. Theory

This study was informed by current theories from social epidemiology (Berkman, Kawachi, & Glymour, 2014) around the social construction of health that seek not only to document health outcomes, including child abuse and neglect, but to also examine the social and economic contexts that may contribute to the differential distribution of outcomes. These theories, discussed below, are not mutually exclusive and provide important guidance for understanding the differential burden and impact of early adversity across the life course, which is critical if we are to achieve our U.S. goal to eliminate health inequities (Healthy People 2020). Health inequities are broadly understood as the persistent observation of health and disease, including violence, along social and economic hierarchies including race, ethnicity, class, and gender (Braveman, 2014).

Growing interest in the social determinants of health has led to increased understanding that no single theory can fully explain the complexity of pathways and relationships that may give rise to these inequities. Rather, multiple theories are needed to explain how, for example, health behaviors contributing to poor outcomes are patterned by social and economic conditions. In other words, the choices a person makes are shaped by the choices a person has, which are themselves shaped by structural policies and processes. For example, the ability to live in a safe neighborhood may be limited by housing and economic

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