Research article

Adverse childhood experiences and behavioral problems in middle childhood

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ABSTRACT

Children who have been exposed to maltreatment and other adverse childhood experiences (ACEs) are at increased risk for various negative adult health outcomes, including cancer, liver disease, substance abuse, and depression. However, the proximal associations between ACEs and behavioral outcomes during the middle childhood years have been understudied. In addition, many of the ACE studies contain methodological limitations such as reliance on retrospective reports and limited generalizability to populations of lower socioeconomic advantage. The current study uses data from the Fragile Families and Child Wellbeing Study, a national urban birth cohort, to prospectively assess the adverse experiences and subsequent behavior problems of over 3000 children. Eight ACE categories to which a child was exposed by age 5 were investigated: childhood abuse (emotional and physical), neglect (emotional and physical), and parental domestic violence, anxiety or depression, substance abuse, or incarceration. Results from bivariate analyses indicated that Black children and children with mothers of low education were particularly likely to have been exposed to multiple ACE categories. Regression analyses showed that exposure to ACEs is strongly associated with externalizing and internalizing behaviors and likelihood of ADHD diagnosis in middle childhood. Variation in these associations by racial/ethnic, gender, and maternal education subgroups are examined. This study provides evidence that children as young as 9 begin to show behavioral problems after exposure to early childhood adversities.

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1. Introduction

In 2014, the Administration on Children, Youth, and Families estimated that 702,000 children were victims of maltreatment nationwide (U.S. Department of Health and Human Services [USDHHS], 2016). Survivors of child maltreatment suffer from adverse health consequences throughout their life span, including an increased risk for chronic diseases (Danese et al., 2009), mental health disorders (Edwards, Holden, Felitti, & Anda, 2003), and overall reduced health-related quality of life (Corso, Edwards, Fang, & Mercy, 2008). Researchers have found that the long-term health effects of child maltreatment are often due to the cumulative influence of multiple forms of childhood maltreatment and adverse household characteristics in areas such as alcohol and drug abuse, domestic violence, and criminal activity (Dong, Anda, Dube, Giles, & Felitti, 2003; Dube, Williamson, Thompson, Felitti, & Anda, 2004). Collectively, these co-occurring conditions have been termed adverse childhood experiences (ACEs; Felitti et al., 1998).

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The Adverse Childhood Experiences (ACE) Study, a collaboration between the Centers for Disease Control and Prevention and Kaiser Permanente’s Health Appraisal Clinic in San Diego, is one of the largest research endeavors ever conducted to examine associations between childhood adversity and adult health (Centers for Disease Control and Prevention, 2013). The original ACE questionnaire assessed 3 categories of ACEs: 3 categories of child maltreatment (psychological abuse, physical abuse, and sexual abuse) and 4 categories of household dysfunction (mother treated violently, living with a household member who was a substance abuser, mentally ill or suicidal, or was ever imprisoned). Subsequent ACE studies incorporated neglect and parental divorce or separation into the ACE index. The CDC-Kaiser ACE studies reported a strong, graded relationship between the number of ACEs a person was exposed to and the risk for cancer, ischemic heart disease, liver disease, substance abuse, depression, and chronic obstructive pulmonary disease, among other health problems (Felitti et al., 1998). Since then, numerous investigators have reported the link between ACE exposure and social and health problems, including teen pregnancy (Hillis et al., 2004); autoimmune disease (Dube et al., 2009); and use of psychotropic medications (Anda et al., 2007).

Despite this growing body of literature, the proximal effects of ACEs on behavioral outcomes during the middle childhood years have been understudied. The current study prospectively assessed ACEs and subsequent behavior problems of over 3000 children. Eight ACE categories to which a child was exposed to by age 5 were investigated: emotional neglect, physical neglect, emotional abuse, physical abuse, and parental domestic violence, anxiety or depression, substance abuse, or incarceration.

1.1. Proximal relationships between ACEs and child health problems

The CDC-Kaiser ACE studies have linked childhood adversity to a wide range of health problems in adulthood. Whether ACEs predict behavioral problems in childhood has received relatively less empirical attention. Internalizing (e.g., anxiety, depression) and externalizing (e.g., aggression) problem behaviors, have been observed to have a higher likelihood of emerging after exposure to childhood adversity. In a study examining ACEs among a pediatric sample, exposure to 4 or more ACEs was associated with 33 times the odds of reporting a learning or behavioral problem as compared to children without ACE exposure (Burke, Hellman, Scott, Weems, & Carrion, 2011). Other studies have found substantial increases in attention and behavioral problems among children as young as 5 after cumulative ACE exposure (Jimenez, Wade, Lin, Morrow, & Reichman, 2016; McKelvey, Whiteside-Mansell, Conners-Burrow, Swindle, & Fitzgerald, 2016). These studies advance the ACE literature by indicating that cumulative adversity is not only associated with strong effects on adulthood health outcomes but also childhood behavioral problems. Nevertheless, that most of these studies rely on cross-sectional and retrospective study designs introduces the possibility of reverse causation in regards to the associations between ACEs and child behavioral problems. A first step to overcoming this limitation involves examining these associations with a prospective lens.

Children with problem behaviors have an increased risk of developing clinical level mental illnesses and physical health problems later in life. Adults are more vulnerable to depression if they were anxious or depressed in childhood and more likely to have anxiety disorders if they experienced childhood externalizing problem behaviors (Roza, Hofstra, van der Ende, & Verhulst, 2003). Children with behavioral problems are also at risk of engaging in health risk behaviors later in childhood (Fanti & Henrich, 2010). This association between behavioral problems and health risk behaviors is significant given that the development of the disease outcomes reported in the CDC-Kaiser ACE studies is likely mediated through engagement in health risk behaviors in adolescence or early adulthood. For instance, victims of maltreatment have been found to be susceptible to numerous health risk behaviors during adolescence, such as sexual promiscuity, substance use (Repetti, Taylor, & Seeman, 2002), and obesity (Shin & Miller, 2012), behaviors that may develop into disabling diseases and premature death in adulthood. In sum, existing evidence points to the value of including middle childhood problem behaviors in the examination of childhood adversity and subsequent health problems.

1.2. Subgroup differences in prevalence and susceptibility to ACE exposure

Differences exist in risk of adversity in families across levels of socioeconomic advantage. Children are more likely to be victims of child maltreatment if they come from low-income or single-parent households (Berger, 2004; USDHHS, 2016), characteristics that are highly correlated with low educational attainment among parents. Parents of such households may have insufficient financial, emotional, or social resources to adequately support their children. It is also possible that increased stress resulting from socioeconomic disadvantage contributes to more punitive parenting behaviors among these families (Graham, Weiner, Cobb, & Henderson, 2001). Relatedly, risk for exposure to adversity is not evenly distributed across racial and ethnic subgroups. Hispanic and Black children have disproportionately high rates of maltreatment victimization (USDHHS, 2016) and disproportionately grow up in disadvantaged communities. The CDC-Kaiser ACE studies demonstrated that child maltreatment and adverse household characteristics are highly co-occurring phenomenon, as the presence of one ACE significantly predicting the odds of exposure to additional ACEs (Dong et al., 2003). For this reason, it is likely that children in socioeconomically disadvantaged families will not only have higher exposure to maltreatment, but will also have greater exposure to other ACE categories compared to children of higher socioeconomic advantage.

Although ACE exposure may be greater in more vulnerable families, there has been scant research dedicated to potential differences in health or behavioral problems after ACE exposure across groups of differing levels of advantage. The studies that are available portray a mixed picture. Schilling, Aseltine, and Gore (2007) observed that the negative impact of cumulative and
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