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Colorectal cancer screening and adverse childhood experiences: Which adversities matter?



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ABSTRACT

Adverse Childhood Experiences (ACEs) have been associated with an increased risk of a variety of diseases, including cancer. However, research has not paid enough attention to the association between ACEs and cancer screening. As such, the present study examined the association between ACEs and ever using colorectal cancer (CRC) screening, among adults age 50 and over. Analyses used the 2011 Behavioral Risk Factor Surveillance System ($n = 24,938$) to model odds of ever engaging in CRC screening from nine different adversities. Bivariate and multivariate models were fit. In bivariate models, physical abuse, having parents that were divorced or separated, and living in a household where adults treated each other violently were associated with lower odds of engaging in CRC. In multivariate models that accounted for potential confounders, emotional and sexual abuse were each associated with higher odds of engaging in CRC. Results suggest potential pathways by which early childhood experiences can impact future health behaviors. Future research should examine this association longitudinally.

1. Introduction

Adverse childhood experiences (ACEs) encompass childhood conditions such as abuse and household dysfunction (Centers for Disease Control and Prevention, 2014) and have been linked to many negative health outcomes for adults. A greater number of ACEs has been positively associated with ischemic heart disease (Felitti et al., 1998), stroke (Felitti et al., 1998), chronic bronchitis or emphysema (Felitti et al., 1998), mental illness and substance use, (Anda et al., 2006; Felitti et al., 1998; Mersky, Topitzes, & Reynolds, 2013) severe obesity (Anda et al., 2006), adult compromised metabolic functioning (Lehman, Taylor, Kiefe, & Seeman, 2005) and cardiovascular disease (Batten, Aslan, Maciejewski, & Mazure, 2004). A growing body of research has linked experiences of childhood adversity to cancer (Alcalá, 2016; Brown et al., 2010; Felitti et al., 1998; Kelly-Irving et al., 2013). Despite the growing interest in the association between childhood adversity and cancer, there is a lack of research examining how childhood adversity impacts the utilization of preventative health care services, like cancer screening, which may help us understand why the association exists to begin with.

One cancer that can be acted upon in early stages by utilization of health care and consistent screening is colorectal cancer (CRC). Colorectal cancer kills more than 50,000 people in the United States annually, ranking it behind only lung and bronchial cancers in terms of site-specific cancer deaths (Siegel, Naishadham, & Jemal, 2013). Fortunately, several screening options exist including fecal occult blood tests (FOBT), colonoscopy and sigmoidoscopy, that have been proven effective at disease detection (Whitlock, Lin, Liles, Beil, & Fu, 2008). Consequently, opportunities for treatment of colorectal cancer exists if screening identifies cancer in its early stages. Unfortunately, sizable proportions of the US population have not undergone recent CRC screening (Siegel, DeSantis, & Jemal, 2014).

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Current guidelines recommend that adults aged 50–75 undergo screening for CRC (U.S. Preventative Services Task Force, 2008). Given the importance of CRC screening, it is critical to examine if ACEs impact uptake of screening.

Available information suggests that ACEs may be associated with utilization of health care services, but that this relationship depends on both the adversity and services under examination. Reporting a greater number of ACEs has been associated with higher odds of having more than six general practitioner visits, more than two emergency room visits and 25 or more visits to health professionals (i.e. family doctor, medical specialist, nurse, optometrist, chiropractor, physiotherapist, dentist, pharmacist, psychologist or other health professional) in the past 12 months (Chartier, Walker, & Naimark, 2010). When the same study examined specific ACE items (which included measures of physical abuse, sexual abuse and other adversities), only some ACE items were associated with use of certain services. Of note, sexual and physical abuse were not associated with use of general practitioner services but were associated with higher use of specialty care and emergency services. This suggests that abuse does not promote use of preventive care (Chartier et al., 2010). In terms of cancer screening, childhood sexual abuse is associated with lower odds of current compliance with screening recommendations, after accounting for confounders (Alcalá, Mitchell, & Keim-Malpass, 2017), while eight other ACEs (i.e. physical abuse, parental drug use, parental separation etc.) were not associated with cervical cancer screening. Findings not focusing solely on ACEs have also shown that childhood sexual abuse is associated with lower odds of cervical cancer screening (Farley, Golding, & Minkoff, 2002). Consequently, sexual abuse, and not other ACEs, may discourage use of cervical cancer screening.

Discrepancies between the patterns observed more between omnibus measures of utilization of care and cancer screening may exist for a variety of reasons. First, the discrepancy between cervical cancer screening and general use of care may be due to the invasive nature of cervical cancer screenings. Women with a history of sexual abuse may be re-traumatized by this procedure in a way that women experiencing other adversities are not. Similarly, it is possible that victims of sexual abuse involving anal penetration may avoid potential re-traumatization from procedures like colonoscopies and sigmoidoscopies. Second, the discrepancy in findings may be because cancer screening is preventative in nature, while other services, like emergency department utilization are usually motivated by existing health care needs. This is important to note because people who experience ACEs have worse health overall and thus need more health care. Finally, these findings may not be discrepant at all. Specifically, because cancer screenings prevent cancer, avoiding these screening services may necessitate usage of other services like the emergency department.

ACEs, broadly speaking, may discourage use of preventative health services, like cancer screening, because people who have experienced ACEs may have a broader pattern of engaging in negative health behaviors. Specifically, ACEs have been linked to riskier health behaviors such as alcohol abuse, substance abuse, tobacco use, having more sexual partners, not using contraception, earlier age at sexual debut and being physically inactive (Alcalá, von Ehrenstein, & Tomiyama, 2016; Coker, Hopenhayn, DeSimone, Bush, & Crofford, 2009; Dube, Anda, Felitti, Edwards, & Croft, 2002; Felitti et al., 1998; Hillis, Anda, Felitti, & Marchbanks, 2001). Thus, individuals who experience ACEs may eschew preventative health care because of an underlying predisposition to not engage in health promoting behaviors, which differs from use of emergency or specialty care, which will arise out of medical necessity.

Finally, ACEs may negatively impact utilization of health care because of the confluence of ACEs with limited socioeconomic status. Several specific ACEs have been associated with diminished socioeconomic status in adulthood and adolescence (Astone & McLanahan, 1991; Boden, Horwood, & Fergusson, 2007; Currie & Spatz Widom, 2010; Paolucci, Genuis, & Violato, 2001; Paradise, Rose, Sleeper, & Nathanson, 1994). Lower SES, in turn, has been associated with decreased usage of several different cancer screening procedures (Achat, Close, & Taylor, 2005; Rundle et al., 2013; Segnan, 1996; Stein, Fox, & Murata, 1991), including CRC screening (Singh et al., 2004).

The goal of the present study is to examine associations between ACEs and colorectal cancer screening. Given that this is an understudied area of inquiry, we are specifically interested in whether or not specific adversities occurring in childhood impact colorectal cancer screening among adults age 50 and older.

2. Methods

2.1. Data source

This study utilized publically available data from the 2011 Behavioral Risk Factor Surveillance System (BRFSS). This multistage, random digit dial telephone survey is designed to be representative of non-institutionalized adults (ages 18 and over) living in U.S. states and territories.

The BRFSS is an annual survey, with a core set of questions asked of all participants in all states and territories. Optional questions were asked of all or some participants in states or territories choosing to administer them. Core questions were collected using both landlines and cell phones in all states and territories. Optional questions were administered with landlines and/or cellphones (CDC, 2011a). In the 2011 BRFSS cycle, only 10 states (California, Maine, Minnesota, Montana, Nebraska, Nevada, Oregon, Vermont, Washington and Wisconsin) administered a module of questions measuring ACEs (CDC, 2011b). Of these 10 states, only two states (Nebraska and Washington) administered a module of questions about CRC screening. Nebraska and Washington had a total of 28,198 respondents who were over 50. Of these, 3,260 were excluded from the present analyses because they had responses of, “don’t know” or “refused” or because they were missing on any variable in the present study. This yielded an analytic sample of 24,938 respondents.

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