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Adverse Childhood Experiences, Disability and Health-Risk Behaviors

Adverse childhood experiences (ACEs), including exposure to abuse and family dysfunction, impact over half the US population.[1] The original ACE study, performed in over 17,000 members of a California health maintenance organization, found that ACEs are highly interrelated and that there is a strong graded relationship between ACE exposure and health-risk behaviors such as smoking and substance abuse.[1,2] In addition to the social and behavioral impact of ACEs, adverse childhood environments are increasingly recognized to have potential biological effects on later life health, through environment-gene interactions which can result in changes in gene expression and alterations [2,3]These changes can result in altered physiological responses to future stresses. Recognizing the importance of ACEs, the American Academy of Pediatrics has called for all physicians to incorporate an "ecobiodevelopmental" framework as a way of understanding the social, behavioral and economic determinants of physical and mental health disparities.[4] In this article I will discuss my work examining the relationship between ACEs, disability and health-risk behaviors.[5,6]

My interest is in how ACEs impact the development of disability after neurological trauma. Most studies on childhood adversity have focused on psychological disability; less is known about the impact on those with disabling physical injuries. My ongoing work examines the relationship between childhood adversity and disability. An exploratory study, described below, found that rates of self-reported disability were increased in those reporting adverse childhood experiences, even after controlling for health conditions. One possible mediator of the relationship between ACEs and increased rates of disability are health-risk behaviors.

I used data from the Behavioral Risk Factor Surveillance System (BRFSS), an annual state population-based random-digit-dialed telephone survey that is a joint effort of the Centers for Disease Control and Prevention and state health departments.[7] Starting in 2009, the BRFSS implemented an ACE module containing questions that were adapted from the original ACE study.[8] Fourteen states and the District of Columbia used the ACE module in 2009 and/or 2010. The ACE module asks participants about abuse (sexual, physical and verbal) and family dysfunction (witnessing domestic violence, having a caregiver with substance abuse problems, mental illness, or absence of a parent because of incarceration or divorce/separation) occurring before age 18.[8] The BRFSS also asks about disability (defined as activity limitation from a mental or physical health problem and/or use of an assistive device) and health-risk behaviors (smoking, heavy drinking, binge drinking and HIV risk behaviors (under age 65 only.) Age adjustment was performed using direct standardization and the US Census 2000 population standard. Multivariate logistic regression was used to control for age, sex, race, marital status, education and income.

Preliminary results showed that respondents reporting disability had a higher age-adjusted prevalence of experiencing any ACE (70.2% vs. 54.2%) and four or more ACEs (27.4% vs. 12.1%) compared to respondents not reporting disability. Those reporting disability had a higher age-adjusted prevalence of smoking (27.4% vs. 17.1%) and HIV-risk behaviors, but not heavy or binge drinking. However, among persons reporting disability, those who reported one or more ACEs had higher age-adjusted rates of each type of health-risk behavior compared to those with no ACEs, including more than twice the prevalence of smoking (31.5% vs. 15.3%) and greater than three times the prevalence of HIV risk behaviors (6.6% vs. 1.4%). This increase remained significant even after adjusting for other demographic factors.

The results are consistent with those of the original ACE study, but have the advantage of having been performed in a population-based sample. ACEs appeared to affect those reporting disability similarly to those not reporting disability with respect to increases in health-risk behavior prevalence. However, because those reporting disability already had an increased prevalence of certain health-risk behaviors (current smoking and HIV risk behaviors), those reporting disabilities and ACEs had the highest prevalence of these behaviors. Future research will investigate the role of health-risk behaviors as a mediator in the relationship between ACEs and associated increased rates of self-reported disability.

Clinicians working with patients to change health-risk behaviors should inquire about ACEs. Although further research is needed, to the extent that health-risk behaviors may represent a way of coping with the effects of ACEs, addressing the underlying experiences may be necessary to enable effective change in behavior.[9] The strong association of ACEs with health-risk behaviors suggests that policy interventions aimed at preventing ACEs or ameliorating their effects early on is an important strategy in public health efforts to decrease the prevalence of

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health-risk behaviors. Policies include supporting early childhood programs that provide services to vulnerable children and families;[10] working with Medicaid and other insurers to increase access to needed services; and enabling coverage of services aimed at both parents and child.[11]States that participated in the BRFSS ACE module, such as Wisconsin, have begun using the ACE Study data to raise awareness, foster collaboration and identify successful existing programs aimed at ACE prevention and fostering resilience.[11] ■

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