

## Adverse Childhood Experiences: Annotated Bibliography

Anda, R., Felitti, VJ, Walker, J, Whit, CL (2006). "The enduring effects of abuse and related adverse experiences in childhood: A convergence of evidence from neurobiology and epidemiology." *European Archives of Psychiatry and Clinical Neurosciences* 256(3): 174-186.

Andersen, J. P., et al. (2015). "Multiple early victimization experiences as a pathway to explain physical health disparities among sexual minority and heterosexual individuals." *Social Science & Medicine* 133: 111-119. <http://www.sciencedirect.com/science/article/pii/S0277953615001963>

Brown, M. J., et al. (2015). "Sex and sexual orientation disparities in adverse childhood experiences and early age at sexual debut in the United States: Results from a nationally representative sample()." *Child Abuse & Neglect* 46: 89-102.

Adverse childhood experiences (ACEs) have been linked to early sexual debut, which has been found to be associated with multiple adverse health outcomes. Sexual minorities and men tend to have earlier sexual debut compared to heterosexual populations and women, respectively. However, studies examining the association between ACEs and early sexual debut among men and sexual minorities are lacking. The aim of this study was to examine the sex and sexual orientation disparities in the association between ACEs and age at sexual debut. Data were obtained from Wave 2 of the National Epidemiologic Survey on Alcohol and Related Conditions. Logistic and linear regression model were used to obtain crude and adjusted estimates and 95% confidence intervals adjusting for age, race/ethnicity, income, education, insurance and marital status for the association between ACEs (neglect, physical/psychological abuse, sexual abuse, parental violence, and parental incarceration and psychopathology) and early sexual debut. Analyses were stratified by sex and sexual orientation. Larger effect estimates depicting the association between ACEs and sexual debut were seen for women compared to men, and among sexual minorities, particularly among men who have sex with men (MSM) and women who have sex with women (WSW), compared to heterosexuals. Sexual health education programs with a focus on delaying sexual debut among children and adolescents should also consider addressing ACEs, such as neglect, physical, psychological and sexual abuse, witnessing parental violence, and parental incarceration and psychopathology. Public health practitioners, researchers and sexual health education curriculum coordinators should consider these differences by sex and sexual orientation when designing these programs. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4527947/>

Brown, M. J., et al. (2015). "Adverse childhood experiences and intimate partner aggression in the US: Sex differences and similarities in psychosocial mediation." *Social science & medicine* (1982) 131: 48-57.

Six in ten people in the general population have been exposed to adverse childhood experiences (ACEs). Intimate partner violence (IPV) is a major public health problem in the US. The main objective of this study was to assess sex differences in the role of posttraumatic stress disorder (PTSD), substance abuse, and depression as mediators in the association between ACEs and intimate partner aggression. Data were obtained from Wave 2 (2004–2005) of the National Epidemiologic Survey on Alcohol and Related Conditions. Structural equation modeling was used to determine the mediational role of PTSD, substance abuse and depression in the association between ACE constructs (neglect, physical/psychological abuse, sexual abuse, parental violence, and parental incarceration/psychopathology) and intimate partner aggression. Among men, PTSD mediated the relationship between sexual abuse and intimate partner aggression. However, among men and women,

substance abuse mediated the relationship between physical and psychological abuse and intimate partner aggression. IPV programs geared towards aggressors should address abuse (sexual, physical and psychological), which occurred during childhood and recent substance abuse and PTSD. These programs should be implemented for men and women. Programs aimed at preventing abuse of children may help to reduce rates of depression and PTSD in adulthood, and subsequent intimate partner aggression.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4479130/>

Danese, A., et al. (2007). "Childhood maltreatment predicts adult inflammation in a life-course study." *Proceedings of the National Academy of Sciences* 104(4): 1319-1324.

Dube, S. R., et al. (2001). "Childhood abuse, household dysfunction, and the risk of attempted suicide throughout the life span: findings from the Adverse Childhood Experiences Study." *JAMA* 286(24): 3089-3096.

CONTEXT: Suicide is a leading cause of death in the United States, but identifying persons at risk is difficult. Thus, the US surgeon general has made suicide prevention a national priority. An expanding body of research suggests that childhood trauma and adverse experiences can lead to a variety of negative health outcomes, including attempted suicide among adolescents and adults. OBJECTIVE: To examine the relationship between the risk of suicide attempts and adverse childhood experiences and the number of such experiences (adverse childhood experiences [ACE] score). DESIGN, SETTING, AND PARTICIPANTS: A retrospective cohort study of 17 337 adult health maintenance organization members (54% female; mean [SD] age, 57 [15.3] years) who attended a primary care clinic in San Diego, Calif, within a 3-year period (1995-1997) and completed a survey about childhood abuse and household dysfunction, suicide attempts (including age at first attempt), and multiple other health-related issues. MAIN OUTCOME MEASURE: Self-reported suicide attempts, compared by number of adverse childhood experiences, including emotional, physical, and sexual abuse; household substance abuse, mental illness, and incarceration; and parental domestic violence, separation, or divorce. RESULTS: The lifetime prevalence of having at least 1 suicide attempt was 3.8%. Adverse childhood experiences in any category increased the risk of attempted suicide 2- to 5-fold. The ACE score had a strong, graded relationship to attempted suicide during childhood/adolescence and adulthood ( $P < .001$ ). Compared with persons with no such experiences (prevalence of attempted suicide, 1.1%), the adjusted odds ratio of ever attempting suicide among persons with 7 or more experiences (35.2%) was 31.1 (95% confidence interval, 20.6-47.1). Adjustment for illicit drug use, depressed affect, and self-reported alcoholism reduced the strength of the relationship between the ACE score and suicide attempts, suggesting partial mediation of the adverse childhood experience-suicide attempt relationship by these factors. The population-attributable risk fractions for 1 or more experiences were 67%, 64%, and 80% for lifetime, adult, and childhood/adolescent suicide attempts, respectively. CONCLUSIONS: A powerful graded relationship exists between adverse childhood experiences and risk of attempted suicide throughout the life span. Alcoholism, depressed affect, and illicit drug use, which are strongly associated with such experiences, appear to partially mediate this relationship. Because estimates of the attributable risk fraction caused by these experiences were large, prevention of these experiences and the treatment of persons affected by them may lead to progress in suicide prevention.

Felitti, V. J., et al. (1998). "Relationship of Childhood Abuse and Household Dysfunction to Many of the Leading Causes of Death in Adults." *American Journal of Preventive Medicine* 14(4): 245-258.

Background: The relationship of health risk behavior and disease in adulthood to the breadth of exposure to childhood emotional, physical, or sexual abuse, and household dysfunction during childhood has not previously been described. Methods: A questionnaire about adverse childhood experiences was mailed to 13,494 adults who had completed a standardized medical evaluation at a large HMO; 9,508 (70.5%) responded. Seven categories of adverse childhood experiences were studied: psychological, physical, or sexual abuse; violence against mother; or living with household members who were substance abusers, mentally ill or suicidal, or ever imprisoned. The number of categories of these adverse childhood experiences was then compared to measures of adult risk behavior, health status, and disease. Logistic regression was used to adjust for effects of demographic factors on the association between the cumulative number of categories of childhood exposures (range: 0–7) and risk factors for the leading causes of death in adult life. Results: More than half of respondents reported at least one, and one-fourth reported  $\geq 2$  categories of childhood exposures. We found a graded relationship between the number of categories of childhood exposure and each of the adult health risk behaviors and diseases that were studied ( $P < .001$ ). Persons who had experienced four or more categories of childhood exposure, compared to those who had experienced none, had 4- to 12-fold increased health risks for alcoholism, drug abuse, depression, and suicide attempt; a 2- to 4-fold increase in smoking, poor self-rated health,  $\geq 50$  sexual intercourse partners, and sexually transmitted disease; and a 1.4- to 1.6-fold increase in physical inactivity and severe obesity. The number of categories of adverse childhood exposures showed a graded relationship to the presence of adult diseases including ischemic heart disease, cancer, chronic lung disease, skeletal fractures, and liver disease. The seven categories of adverse childhood experiences were strongly interrelated and persons with multiple categories of childhood exposure were likely to have multiple health risk factors later in life. Conclusions: We found a strong graded relationship between the breadth of exposure to abuse or household dysfunction during childhood and multiple risk factors for several of the leading causes of death in adults. <http://www.sciencedirect.com/science/article/pii/S0749379798000178>

Herman, D. B., et al. (1997). "Adverse childhood experiences: are they risk factors for adult homelessness?" *American Journal of Public Health* 87(2): 249-255.

OBJECTIVES: We tested the hypothesis that adverse childhood experiences are risk factors for adult homelessness. METHODS: We interviewed a nationally representative sample of 92 US household members who had previously been homeless and a comparison group of 395 individuals with no prior homelessness. We assessed childhood adversity with a structured protocol that included a previously validated scale indicating lack of care from parents and single-item measures of physical and sexual abuse. RESULTS: Lack of care from a parent during childhood sharply increased the likelihood of subsequent homelessness (odds ratio [OR] = 13), as did physical abuse (OR = 16). Sexual abuse during childhood was associated with a nonsignificant trend toward homelessness (OR = 1.7). The risk of subsequent homelessness among individuals who experienced both lack of care and either type of abuse was dramatically increased compared with subjects reporting neither of these adversities (OR = 26). CONCLUSIONS: Adverse childhood experiences are powerful risk factors for adult homelessness. Effectively reducing child abuse and neglect may ultimately help prevent critical social problems including homelessness. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1380802/>

Huang, H., et al. (2015). "Adverse childhood experiences and risk of type 2 diabetes: A systematic review and meta-analysis." *Metabolism* 64(11): 1408-1418.

**Abstract**Aims It is evident that adverse childhood experiences (ACEs) can influence health status of adult life, but few large-scale studies have assessed the relation of ACEs with type 2 diabetes. This meta-analysis aimed to summarize existing evidence on the link between ACEs and type 2 diabetes in adults. **Materials and method** We searched all published studies from PubMed and EMBASE before Aug 2015 using keywords like adverse childhood experiences and diabetes, and scanned references of relevant original articles. We included studies that reported risk estimates for diabetes by ACEs and matched our inclusion criteria. We examined the overall relationship between ACEs and diabetes, and stratified the analyses by type of childhood adversities, study design and outcome measures, respectively. **Results** Seven articles fulfilled the inclusion criteria for this Meta-analysis, comprising 4 cohort and 3 cross-section studies. A total of 87,251 participants and 5879 incident cases of type 2 diabetes were reported in these studies. The exposure of ACEs was positively associated with the risk of diabetes with a combined odds ratio of 1.32 (95% confidence interval 1.16 to 1.51) in the total participants. The influence of neglect was most prominent (pooled odds ratio 1.92, 95% confidence interval 1.43 to 2.57) while the effect of physical abuse was least strong (pooled odds ratio 1.30, 95% confidence interval 1.19 to 1.42). The pooled odds ratio associated with sexual abuse was 1.39 with the 95% confidence intervals from 1.28 to 1.52. **Conclusions** The results support a significant association of adverse childhood experiences with an elevated risk of type 2 diabetes in adulthood.

<http://www.sciencedirect.com/science/article/pii/S0026049515002528>

Meyer, I. H. (2003). "Prejudice, Social Stress, and Mental Health in Lesbian, Gay, and Bisexual Populations: Conceptual Issues and Research Evidence." *Psychological bulletin* 129(5): 674-697.

In this article the author reviews research evidence on the prevalence of mental disorders in lesbians, gay men, and bisexuals (LGBs) and shows, using meta-analyses, that LGBs have a higher prevalence of mental disorders than heterosexuals. The author offers a conceptual framework for understanding this excess in prevalence of disorder in terms of minority stress—explaining that stigma, prejudice, and discrimination create a hostile and stressful social environment that causes mental health problems. The model describes stress processes, including the experience of prejudice events, expectations of rejection, hiding and concealing, internalized homophobia, and ameliorative coping processes. This conceptual framework is the basis for the review of research evidence, suggestions for future research directions, and exploration of public policy implications.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2072932/>

Korotana, L. M., et al. (2016). "A review of primary care interventions to improve health outcomes in adult survivors of adverse childhood experiences." *Clinical Psychology Review* 46: 59-90.

<http://www.sciencedirect.com/science/article/pii/S0272735815300295>

Krause, K. D., et al. (2016). "Early Life Psychosocial Stressors and Housing Instability among Young Sexual Minority Men: the P18 Cohort Study." *Journal of Urban Health : Bulletin of the New York Academy of Medicine* 93(3): 511-525.

Homelessness and housing instability is a significant public health problem among young sexual minority men. While there is a growing body of literature on correlates of homelessness among sexual minority men, there is a lack of literature parsing the different facets of housing instability. The present

study examines factors associated with both living and sleeping in unstable housing among n = 600 sexual minority men (ages 18–19). Multivariate models were constructed to examine the extent to which sociodemographic, interpersonal, and behavioral factors as well as adverse childhood experiences explain housing instability. Overall, 13 % of participants reported sleeping in unstable housing and 18 % had lived in unstable housing at some point in the 6 months preceding the assessment. The odds of currently sleeping in unstable housing were greater among those who experienced more frequent lack of basic needs (food, proper hygiene, clothing) during their childhoods. More frequent experiences of childhood physical abuse and a history of arrest were associated with currently living in unstable housing. Current enrollment in school was a protective factor with both living and sleeping in unstable housing. These findings indicate that being unstably housed can be rooted in early life experiences and suggest a point of intervention that may prevent unstable housing among sexual minority men.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4899333/>

Nemeroff, C. B. (2004). "Neurobiological consequences of childhood trauma." *The Journal of clinical psychiatry*.

Nurius, P. S., et al. (2012). "ACEs within a Social Disadvantage Framework: Distinguishing Unique, Cumulative, and Moderated Contributions to Adult Mental Health." *J Prev Interv Community* 40(4): 278-290.

The deleterious impact of adverse childhood experiences (ACEs) may be confounded with frequently co-occurring social disadvantage. In this analysis we test the effects of ACEs on adult mental health within a social disadvantage framework, using a population-based survey (n=7,444; mean age=55.2 years) from Washington State. We also examined the protective effects of socioemotional support, and the distinct and combined contribution of the measured ACE factors. Results demonstrated sustained impact of ACEs on mental health many decades later, even net of social disadvantage and demographic contributors. Protective factors provided both direct and moderating influences, potentially masking the elevated effects of ACEs for those with few resources. Toxicity examination of ACE items evinced differential effects of ACE experiences on mental health. These results demonstrate that interventions ameliorating the effects of ACEs and bolstering protective resources such as socioemotional support may be effective toward augmenting mental health even late in life.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3445037/>

Patterson, M. L., et al. (2014). "Setting the stage for chronic health problems: cumulative childhood adversity among homeless adults with mental illness in Vancouver, British Columbia." *BMC Public Health* 14: 350-350.

**BACKGROUND:** It is well documented that childhood abuse, neglect and household dysfunction are disproportionately present in the backgrounds of homeless adults, and that these experiences adversely impact child development and a wide range of adult outcomes. However, few studies have examined the cumulative impact of adverse childhood experiences on homeless adults with mental illness. This study examines adverse events in childhood as predictors of duration of homelessness, psychiatric and substance use disorders, and physical health in a sample of homeless adults with mental illness. **METHODS:** This study was conducted using baseline data from a randomized controlled trial in Vancouver, British Columbia for participants who completed the Adverse Childhood Experiences (ACE) scale at 18 months follow-up (n = 364). Primary outcomes included current mental disorders; substance use including type, frequency and severity; physical health; duration of homelessness; and vocational

functioning. RESULTS: In multivariable regression models, ACE total score independently predicted a range of mental health, physical health, and substance use problems, and marginally predicted duration of homelessness. CONCLUSIONS: Adverse childhood experiences are overrepresented among homeless adults with complex comorbidities and chronic homelessness. Our findings are consistent with a growing body of literature indicating that childhood traumas are potent risk factors for a number of adult health and psychiatric problems, particularly substance use problems. Results are discussed in the context of cumulative adversity and self-trauma theory. TRIALS REGISTRATION: This trial has been registered with the International Standard Randomized Control Trial Number Register and assigned ISRCTN42520374. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3991866/>

Roos, L. E., et al. (2013). "Relationship Between Adverse Childhood Experiences and Homelessness and the Impact of Axis I and II Disorders." *American Journal of Public Health* 103(Suppl 2): S275-S281.

**Objectives.** We investigated the links between homelessness associated with serious mental and physical health disparities and adverse childhood experiences (ACEs) in nationally representative data, with Axis I and II disorders as potential mediators. **Methods.** We examined data from the National Epidemiologic Survey of Alcohol and Related Conditions in 2001–2002 and 2004–2005, and included 34 653 participants representative of the noninstitutionalized US population who were 20 years old or older. We studied the variables related to 4 classes of Axis I disorders, all 10 Axis II personality disorders, a wide range of ACEs, and a lifetime history of homelessness. **Results.** Analyses revealed high prevalences of each ACE in individuals experiencing lifetime homelessness (17%–60%). A mediation model with Axis I and II disorders determined that childhood adversities were significantly related to homelessness through direct effects (adjusted odd ratios = 2.04, 4.24) and indirect effects, indicating partial mediation. Population attributable fractions were also reported. **Conclusions.** Although Axis I and II disorders partially mediated the relationship between ACEs and homelessness, a strong direct association remained. This novel finding has implications for interventions and policy. Additional research is needed to understand relevant causal pathways. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3969113/>

Schneeberger, A. R., et al. (2014). "Stressful childhood experiences and health outcomes in sexual minority populations: a systematic review." *Soc Psychiatry Psychiatr Epidemiol* 49(9): 1427-1445.

Stressful childhood experiences (SCE) are associated with many different health outcomes, such as psychiatric symptoms, physical illnesses, alcohol and drug abuse, and victimization experiences. Lesbian, gay, bisexual, and transgender (LGBT) people are at risk to be victims of SCE and show higher prevalence of SCE when compared with heterosexual controls. <https://link.springer.com/article/10.1007%2Fs00127-014-0854-8>

Vernon-Feagans, L., Cox, M. J., & Conger, R. (2013). *The family life project: An epidemiological and developmental study of young children living in poor rural communities*. Boston, MA, Wiley.

Zou, C. and J. P. Andersen (2015). "Comparing the Rates of Early Childhood Victimization across Sexual Orientations: Heterosexual, Lesbian, Gay, Bisexual, and Mostly Heterosexual." *PLoS ONE* 10(10): e0139198.

Few studies have examined the rates of childhood victimization among individuals who identify as "mostly heterosexual" (MH) in comparison to other sexual orientation groups. For the present study,

we utilized a more comprehensive assessment of adverse childhood experiences to extend prior literature by examining if MH individuals' experience of victimization more closely mirrors that of sexual minority individuals or heterosexuals. Heterosexual (n = 422) and LGB (n = 561) and MH (n = 120) participants were recruited online. Respondents completed surveys about their adverse childhood experiences, both maltreatment by adults (e.g., childhood physical, emotional, and sexual abuse and childhood household dysfunction) and peer victimization (i.e., verbal and physical bullying). Specifically, MH individuals were 1.47 times more likely than heterosexuals to report childhood victimization experiences perpetrated by adults. These elevated rates were similar to LGB individuals. Results suggest that rates of victimization of MH groups are more similar to the rates found among LGBs, and are significantly higher than heterosexual groups. Our results support prior research that indicates that an MH identity falls within the umbrella of a sexual minority, yet little is known about unique challenges that this group may face in comparison to other sexual minority groups.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4596800/>