

# Adverse Effects/Economic Impact of Child Maltreatment

## *A Bibliography*



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**National Children's  
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## Scope

This selected bibliography provides citations, abstracts and links to articles and reports which cover economic impact and adverse effects-related economic impact. This bibliography is limited to open-source material and is not comprehensive.

## Organization

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# Adverse Effects/Economic Impact of Child Maltreatment

## Selected Bibliography of Open-Access Publications

### Health

Chanlongbutra, A., Singh, G. K., & Mueller, C. D. (2018). [Adverse childhood experiences, health-related quality of life, and chronic disease risks in rural areas of the United States.](#) *Journal of Environmental and Public Health*, 2018.

Exposure to adverse childhood experiences (ACEs) is associated with increased odds of high-risk behaviors and adverse health outcomes. This study examined whether ACE exposure among individuals living in rural areas of the United States is associated with adult activity limitations, self-reported general poor health status, chronic diseases, and poor mental health. Data from the 2011 and 2012 Behavioral Risk Factor Surveillance System (BRFSS) (N=79,810) from nine states were used to calculate the prevalence of ACEs in rural and urban areas. ACE scores were determined by summing 11 survey items. Multiple logistic regression was used to examine the association between ACE scores and health outcomes, including self-reported general health status, chronic diseases, and health-related quality of life. Approximately 55.4% of rural respondents aged  $\geq 18$  years reported at least one ACE and 14.7% reported experiencing  $\geq 4$  ACEs in their childhood, compared to 59.5% of urban residents who reported at least one ACE and 15.5% reporting  $\geq 4$  ACEs. After adjusting for sociodemographic covariates, compared to rural respondents who never reported an ACE, rural respondents who experienced  $\geq 1$  ACEs had increased odds of reporting fair/poor general health, activity limitations, and heart disease, which is consistent with previous studies. The odds of experiencing a heart attack were higher for rural residents reporting 2 and  $\geq 4$  ACEs; the odds of diabetes were higher for those with 3 ACEs; and the odds of ever having asthma or poor mental health was higher for those with  $\geq 3$  ACEs. Although individuals in rural areas are less likely to experience ACEs, over half of rural respondents reported experiencing an ACE in childhood. Programs aimed at preventing ACEs, including child maltreatment, can benefit rural areas by reducing adult morbidity and increasing quality of life.

Banyard, V., Hamby, S., & Grych, J. (2017). Health effects of adverse childhood events: [Identifying promising protective factors at the intersection of mental and physical well-being](#). *Child Abuse & Neglect*, 65, 88-98.

Research documents how exposure to adversity in childhood leads to negative health outcomes across the lifespan. Less is known about protective factors – aspects of the individual, family, and community that promote good health despite exposure to adversity. Guided by the Resilience Portfolio Model, this study examined protective factors associated with physical health in a sample of adolescents and adults exposed to high levels of adversity including child abuse. A rural community sample of 2565 individuals with average age of 30 participated in surveys via computer assisted software. Participants completed self-report measures of physical health, adversity, and a range of protective factors drawn from research on resilience. Participants reporting a greater burden of childhood victimization and current financial strain (but not other adverse life events) had poorer physical health, but those with strengths in emotion regulation, meaning making, community support, social support, and practicing forgiveness reported better health. As hypothesized, strengths across resilience portfolio domains (regulatory, meaning making, and interpersonal) had independent, positive associations with health related quality of life after accounting for participants' exposure to adversity. Prevention and intervention efforts for child maltreatment should focus on bolstering a portfolio of strengths. The foundation of the work needs to begin with families early in the lifespan. © 2017 Published by Elsevier Ltd

Hughes, K., Bellis, M. A., Hardcastle, K. A., Sethi, D., Butchart, A., Mikton, C., ... & Dunne, M. P. (2017). [The effect of multiple adverse childhood experiences on health: A systematic review and meta-analysis](#). *The Lancet Public Health*, 2(8), e356-e366.

A growing body of research identifies the harmful effects that adverse childhood experiences (ACEs; occurring during childhood or adolescence; eg, child maltreatment or exposure to domestic violence) have on health throughout life. Studies have quantified such effects for individual ACEs. However, ACEs frequently co-occur and no synthesis of findings from studies measuring the effect of multiple ACE types has been done. In this systematic review and meta-analysis, we searched five electronic databases for cross-sectional, case-control, or cohort studies published up to May 6, 2016, reporting risks of health outcomes, consisting of substance use, sexual health, mental

health, weight and physical exercise, violence, and physical health status and conditions, associated with multiple ACEs. We selected articles that presented risk estimates for individuals with at least four ACEs compared with those with none for outcomes with sufficient data for meta-analysis (at least four populations). Included studies also focused on adults aged at least 18 years with a sample size of at least 100. We excluded studies based on high-risk or clinical populations. We extracted data from published reports. We calculated pooled odds ratios (ORs) using a random-effects model. Of 11 621 references identified by the search, 37 included studies provided risk estimates for 23 outcomes, with a total of 253 719 participants. Individuals with at least four ACEs were at increased risk of all health outcomes compared with individuals with no ACEs. Associations were weak or modest for physical inactivity, overweight or obesity, and diabetes (ORs of less than two); moderate for smoking, heavy alcohol use, poor self-rated health, cancer, heart disease, and respiratory disease (ORs of two to three), strong for sexual risk taking, mental ill health, and problematic alcohol use (ORs of more than three to six), and strongest for problematic drug use and interpersonal and self-directed violence (ORs of more than seven). We identified considerable heterogeneity (I<sup>2</sup> of >75%) between estimates for almost half of the outcomes. To have multiple ACEs is a major risk factor for many health conditions. The outcomes most strongly associated with multiple ACEs represent ACE risks for the next generation (eg, violence, mental illness, and substance use). To sustain improvements in public health requires a shift in focus to include prevention of ACEs, resilience building, and ACE-informed service provision. The Sustainable Development Goals provide a global platform to reduce ACEs and their life-course effect on health.

Campbell, K. A., Telford, S. R., Cook, L. J., Waitzman, N. J., & Keenan, H. T. (2016). [Medicaid expenditures for children remaining at home after a first finding of child maltreatment.](#) *Pediatrics*, 138(3), e20160439.

Child maltreatment is associated with physical and mental health problems. The objective of this study was to compare Medicaid expenditures based on a first-time finding of child maltreatment by Child Protective Services (CPS). This retrospective cohort study included children aged 0 to 14 years enrolled in Utah Medicaid between January 2007 and December 2009. The exposed group included children enrolled in Medicaid during the month of a first-time CPS finding of



maltreatment not resulting in out-of-home placement. The unexposed group included children enrolled in Medicaid in the same months without CPS involvement. Quantile regression was used to describe differences in average nonpharmacy Medicaid expenditures per child-year associated with a first-time CPS finding of maltreatment. A total of 6593 exposed children and 39 181 unexposed children contributed 20 670 and 105 982 child-years to this analysis, respectively. In adjusted quantile regression, exposed children at the 50th percentile of health care spending had annual expenditures \$78 (95% confidence interval [CI], 65 to 90) higher than unexposed children. This difference increased to \$336 (95% CI, 283 to 389) and \$1038 (95% CI, 812 to 1264) at the 75th and 90th percentiles of health care spending. Differences were higher among older children, children with mental health diagnoses, and children with repeated episodes of CPS involvement; differences were lower among children with severe chronic health conditions. Maltreatment is associated with increased health care expenditures, but these costs are not evenly distributed. Better understanding of the reasons for and outcomes associated with differences in health care costs for children with a history of maltreatment is needed.

Mouton, C. P., Hargreaves, M. K., Liu, J., Fadeyi, S., & Blot, W. J. (2016). [Adult cancer risk behaviors associated with adverse childhood experiences in a low income population in the southeastern United States](#). *Journal of health care for the poor and underserved*, 27(1), 68-83.

Adverse childhood experiences (ACE) can affect health in adulthood. We investigate the relationship between childhood experiences and adult cancer risk and screening behaviors in a racially diverse, low income population. Nearly 22,000 adults 40 years and older in the Southern Community Cohort Study were administered the ACE questionnaire. We estimated odds ratios (OR) for the prevalence of smoking, alcohol consumption, BMI and five cancer screening methods in relation to the ACE score. Over half reported at least one ACE, with percentages higher for women (61%) than men (53%). Higher ACE scores were related to increased prevalence of smoking (ORs 1.25 (1.05–1.50) to 2.33 (1.96–2.77)). Little association was seen between rising ACE score and alcohol consumption or BMI, except for a modest trend in morbid obesity (BMI  $\geq$  40 kg/m<sup>2</sup>). Mammography and cervical cancer screening decreased with rising ACE scores, but no trends were seen with prostate or colorectal cancer screening. Adverse childhood experiences are

strong predictors of adult cancer risk behaviors, particularly increased likelihood of smoking, and among women, lower mammography and Pap screening rates.

Reuben, A., Moffitt, T. E., Caspi, A., Belsky, D. W., Harrington, H., Schroeder, F., ... & Danese, A. (2016). [Lest we forget: Comparing retrospective and prospective assessments of adverse childhood experiences in the prediction of adult health.](#) *Journal of Child Psychology and Psychiatry*, 57(10), 1103-1112.

Adverse childhood experiences (ACEs; e.g. abuse, neglect, and parental loss) have been associated with increased risk for later-life disease and dysfunction using adults' retrospective self-reports of ACEs. Research should test whether associations between ACEs and health outcomes are the same for prospective and retrospective ACE measures. We estimated agreement between ACEs prospectively recorded throughout childhood (by Study staff at Study member ages 3, 5, 7, 9, 11, 13, and 15) and retrospectively recalled in adulthood (by Study members when they reached age 38), in the population-representative Dunedin cohort (N = 1,037). We related both retrospective and prospective ACE measures to physical, mental, cognitive, and social health at midlife measured through both objective (e.g. biomarkers and neuropsychological tests) and subjective (e.g. self-reported) means. Dunedin and U.S. Centers for Disease Control ACE distributions were similar. Retrospective and prospective measures of adversity showed moderate agreement ( $r = .47$ ,  $p < .001$ ; weighted Kappa = .31, 95% CI: .27–.35). Both associated with all midlife outcomes. As compared to prospective ACEs, retrospective ACEs showed stronger associations with life outcomes that were subjectively assessed, and weaker associations with life outcomes that were objectively assessed. Recalled ACEs and poor subjective outcomes were correlated regardless of whether prospectively recorded ACEs were evident. Individuals who recalled more ACEs than had been prospectively recorded were more neurotic than average, and individuals who recalled fewer ACEs than recorded were more agreeable. Prospective ACE records confirm associations between childhood adversity and negative life outcomes found previously using retrospective ACE reports. However, more agreeable and neurotic dispositions may, respectively, bias retrospective ACE measures toward underestimating the impact of adversity on objectively measured life outcomes and overestimating the impact of adversity on self-reported outcomes. Associations between personality factors and the propensity to recall adversity were extremely modest and warrant further investigation. Risk predictions based on retrospective ACE reports should utilize



objective outcome measures. Where objective outcome measurements are difficult to obtain, correction factors may be warranted.

Su, S., Jimenez, M. P., Roberts, C. T., & Loucks, E. B. (2015). [The role of adverse childhood experiences in cardiovascular disease risk: A review with emphasis on plausible mechanisms.](#) *Current Cardiology Reports*, 17(10), 88.

Childhood adversity, characterized by abuse, neglect, and household dysfunction, is a problem that exerts a significant impact on individuals, families, and society. Growing evidence suggests that adverse childhood experiences (ACEs) are associated with health decline in adulthood, including cardiovascular disease (CVD). In the current review, we first provide an overview of the association between ACEs and CVD risk, with updates on the latest epidemiological evidence. Second, we briefly review plausible pathways by which ACEs could influence CVD risk, including traditional risk factors and novel mechanisms. Finally, we highlight the potential implications of ACEs in clinical and public health. Information gleaned from this review should help physicians and researchers in better understanding potential long-term consequences of ACEs and considering adapting current strategies in treatment or intervention for patients with ACEs.

Flaherty, E. G., Thompson, R., Dubowitz, H., Harvey, E. M., English, D. J., Proctor, L. J., & Runyan, D. K. (2013). [Adverse childhood experiences and child health in early adolescence.](#) *JAMA Pediatrics*, 167(7), 622-629.

Child maltreatment and other adverse childhood experiences, especially when recent and ongoing, affect adolescent health. Efforts to intervene and prevent adverse childhood exposures should begin early in life but continue throughout childhood and adolescence. To examine the relationship between previous adverse childhood experiences and somatic concerns and health problems in early adolescence, as well as the role of the timing of adverse exposures. Prospective analysis of the Longitudinal Studies of Child Abuse and Neglect interview and questionnaire data when target children were 4, 6, 8, 12, and 14 years old. Children with reported or at risk for maltreatment in the South, East, Midwest, Northwest, and Southwest United States Longitudinal Studies of Child Abuse and Neglect sites. A total of 933 children who completed an interview at age 14 years, including health outcomes. Eight categories of adversity (psychological maltreatment, physical

abuse, sexual abuse, neglect, caregiver's substance use/alcohol abuse, caregiver's depressive symptoms, caregiver treated violently, and criminal behavior in the household) experienced during the first 6 years of life, the second 6 years of life, the most recent 2 years, and overall adversity. Child health problems including poor health, illness requiring a doctor, somatic concerns, and any health problem at age 14 years. More than 90% of the youth had experienced an adverse childhood event by age 14 years. There was a graded relationship between adverse childhood exposures and any health problem, while 2 and 3 or more adverse exposures were associated with somatic concerns. Recent adversity appeared to uniquely predict poor health, somatic concerns, and any health problem. Childhood adversities, particularly recent adversities, already show an impact on health outcomes by early adolescence. Increased efforts to prevent and mitigate these experiences may improve the health outcome for adolescents and adults.

Florence, C., Brown, D. S., Fang, X., & Thompson, H. F. (2013). [Health care costs associated with child maltreatment: Impact on Medicaid](#). *Pediatrics*, *132*(2), 312-318.

To estimate the increased Medicaid expenditures associated with child maltreatment. Data on child maltreatment were collected from the National Survey of Child and Adolescent Well Being, a nationally representative sample of cases investigated or assessed by local Child Protective Services agencies between October 1999 and December 2000. Medicaid claims data for 2000 to 2003 were obtained from the Medicaid Analytic Extract (MAX). Children from the National survey of Child and Adolescent Well-Being who had Medicaid were matched to the MAX data by Social Security number or birthdate, gender, and zip code. Propensity score matching was used to select a comparison group from the MAX data. Two-part regression models were used to estimate the impact of child maltreatment on expenditures. Data with individual identifiers were obtained under confidentiality agreements with the collecting agencies. Children who were identified as maltreated or as being at risk of maltreatment incurred, on average, Medicaid expenditures that were >\$2600 higher per year compared with children not so identified. This finding accounted for ~9% of all Medicaid expenditures for children. Child maltreatment imposes a substantial financial burden on the Medicaid system. These expenses could be partially offset by increased investment in child maltreatment prevention.

Min, M. O., Minnes, S., Kim, H., & Singer, L. T. (2013). [Pathways linking childhood maltreatment and adult physical health](#). *Child abuse & neglect*, 37(6), 361-373.

This study examined whether a self-reported history of childhood maltreatment (physical, emotional, and sexual abuse and physical and emotional neglect) is related to poor adult physical health through health risk behaviors (obesity, substance dependence, and smoking), adverse life events, and psychological distress. Methods: Two hundred and seventy nine (279) women aged 31–54, primarily poor, urban, and African American with a history of substance use during pregnancy, were assessed for perceived physical health status using the Health Status Questionnaire (SF-36) and any reported chronic medical condition. Hierarchical multiple and logistic regression were used to test mediation, as well as to assess relative contributions of multiple mediators on physical health. Results: More than two-thirds ( $n = 195$ , 70%) of the sample reported at least 1 form of childhood maltreatment, with 42% ( $n = 110$ ) having a lifetime history of substance dependence and 59% ( $n = 162$ ) having a chronic medical condition. Controlling for age, education, and race, childhood maltreatment was related to increased likelihood of lifetime history of substance dependence ( $OR = 1.19$ , 95%  $CI = 1.01–1.39$ ), more adverse life events ( $\beta = .14$ ), and greater psychological distress ( $\beta = .21$ ). Psychological distress and adverse life events partially mediated the relationship between childhood maltreatment and perceived physical health, accounting for 42% of the association between childhood maltreatment and perceived physical health. Adverse life events accounted for 25% of the association between childhood maltreatment and chronic medical condition. Conclusions: Our findings provide additional evidence that the ill health effects associated with childhood maltreatment persist into adulthood. Adverse life events and psychological distress were key mechanisms shaping later physical health consequences associated with childhood maltreatment among relatively young urban women with a history of substance use. Practice implications: Health care providers should be aware that childhood maltreatment contributes to adult health problems. Interventions aimed at preventing child maltreatment and addressing life stress and psychological distress will improve long-term physical health among abused children, adults with such histories, as well as children who are likely to be affected by maternal history of childhood maltreatment. (Author Abstract)

Norman, R. E., Byambaa, M., De, R., Butchart, A., Scott, J., & Vos, T. (2012). [The long-term health consequences of child physical abuse, emotional abuse, and neglect: A systematic review and meta-analysis.](#) *PLoS medicine*, 9(11), e1001349.

Child sexual abuse is considered a modifiable risk factor for mental disorders across the life course. However the long-term consequences of other forms of child maltreatment have not yet been systematically examined. The aim of this study was to summarise the evidence relating to the possible relationship between child physical abuse, emotional abuse, and neglect, and subsequent mental and physical health outcome

Pretty, C., D O'Leary, D., Cairney, J., & Wade, T. J. (2013). [Adverse childhood experiences and the cardiovascular health of children: Across-sectional study.](#) *BMC Pediatrics*, 13(1), 208-215.

Adverse childhood experiences (ACEs), such as abuse, household dysfunction, and neglect, have been shown to increase adults' risk of developing chronic conditions and risk factors for chronic conditions, including cardiovascular disease (CVD). Much less work has investigated the effect of ACEs on children's physical health status that may lead to adult chronic health conditions. Therefore, the present study examined the relationship between ACEs and early childhood risk factors for adult cardiovascular disease. Methods: 1 234 grade six to eight students participated in school-based data collection, which included resting measures of blood pressure (BP), heart rate (HR), body mass index (BMI) and waist circumference (WC). Parents of these children completed an inventory of ACEs taken from the Childhood Trust Events Survey. Linear regression models were used to assess the relationship between experiencing more than 4 ACEs experienced, systolic BP, HR, BMI and WC. In additional analysis, ACEs were assessed ordinally in their relationship with systolic BP, HR, and BMI as well as clinical obesity and hypertension status. Results: After adjustment for family education, income, age, sex, physical activity, and parental history of hypertension, and WC for HR models, four or more ACEs had a significant effect on HR (b = 1.8 bpm, 95% CI (0.1-3.6)) BMI (b =1.1 kg/m<sup>2</sup> , 95% CI (0.5-1.8)), and WC (b = 3.6 cm, 95% CI (1.8-5.3)). A dose-response relationship between ACE accumulation and both BMI and WC was also found to be significant. Furthermore, accumulation of 4 or more ACEs was significantly associated with clinical obesity (95th percentile), after controlling for the aforementioned covariates. Conclusions: In a community sample of grade six to eight children, accumulation of 4

or more ACEs significantly increased BMI, WC and resting HR. Therefore, risk factors related to reported associations between ACEs and cardiovascular outcomes among adults are identifiable in childhood suggesting earlier interventions to reduce CVD risk are required

Shonkoff, J. P., Garner, A. S., & The Committee on Psychosocial Aspects of Child and Family Health, Committee on Early Childhood, Adoption, and Dependent Care, and Section on Developmental and Behavioral Pediatrics (2012). [The lifelong effects of early childhood adversity and toxic stress.](#) *Pediatrics*, 129(10), e232-e246.

Advances in fields of inquiry as diverse as neuroscience, molecular biology, genomics, developmental psychology, epidemiology, sociology, and economics are catalyzing an important paradigm shift in our understanding of health and disease across the lifespan. This converging, multidisciplinary science of human development has profound implications for our ability to enhance the life prospects of children and to strengthen the social and economic fabric of society. Drawing on these multiple streams of investigation, this report presents an ecobiodevelopmental framework that illustrates how early experiences and environmental influences can leave a lasting signature on the genetic predispositions that affect emerging brain architecture and long-term health. The report also examines extensive evidence of the disruptive impacts of toxic stress, offering intriguing insights into causal mechanisms that link early adversity to later impairments in learning, behavior, and both physical and mental well-being. The implications of this framework for the practice of medicine, in general, and pediatrics, specifically, are potentially transformational. They suggest that many adult diseases should be viewed as developmental disorders that begin early in life and that persistent health disparities associated with poverty, discrimination, or maltreatment could be reduced by the alleviation of toxic stress in childhood. An ecobiodevelopmental framework also underscores the need for new thinking about the focus and boundaries of pediatric practice. It calls for pediatricians to serve as both front-line guardians of healthy child development and strategically positioned, community leaders to inform new science-based strategies that build strong foundations for educational achievement, economic productivity, responsible citizenship, and lifelong health.

Nicolaidis, C., McFarland, B., Curry, M., & Gerrity, M. (2009). [Differences in physical and mental health symptoms and mental health utilization associated with intimate-partner violence versus childhood abuse](#). *Psychosomatics*, 50(4), 340-346.

There is ample evidence that both intimate-partner violence (IPV) and childhood abuse adversely affect the physical and mental health of adult women over the long term. In this study the authors assessed the associations between abuse, symptoms, and mental health utilization by performing a cross-sectional survey of 380 adult internal-medicine patients. They found that while both IPV and childhood abuse were associated with depressive and physical symptoms, IPV was independently associated with physical symptoms, and childhood abuse was independently associated with depression. Women with a history of childhood abuse had higher odds, whereas women with IPV had lower odds, of receiving care from mental health providers. They concluded that IPV and childhood abuse may have different effects on women's symptoms and mental health utilization.

Middlebrooks, J.S. & Audage, N.C. (2008). [The effects of childhood stress on health across the lifespan](#). Atlanta, GA: Centers for Disease Control and Prevention, National Center for Injury Prevention and Control.

This publication summarizes the research on childhood stress and its implications for adult health and well-being. Of particular interest is the stress caused by child abuse, neglect, and repeated exposure to intimate partner violence (IPV). This publication provides practitioners, especially those working in violence prevention, with ideas about how to incorporate this information into their work.

Bonomi, A. E, et al. (2008). [Health care utilization and costs associated with childhood abuse](#). *Journal of General Internal Medicine*, 23(3), 294–299.

Physical and sexual childhood abuse is associated with poor health across the lifespan. However, the association between these types of abuse and actual health care use and costs over the long run has not been documented. This study examined long-term health care utilization and costs associated with physical, sexual, or both physical and sexual childhood abuse. Three thousand three hundred thirty-three women (mean age, 47 years) were randomly selected from the



membership files of a large integrated health care delivery system. Automated annual health care utilization and costs were assembled over an average of 7.4 years for women with physical only, sexual only, or both physical and sexual childhood abuse (as reported in a telephone survey), and for women without these abuse histories (reference group). Significantly higher annual health care use and costs were observed for women with a child abuse history compared to women without comparable abuse histories. The most pronounced use and costs were observed for women with a history of both physical and sexual child abuse. Total adjusted annual health care costs were 36% higher for women with both abuse types, 22% higher for women with physical abuse only, and 16% higher for women with sexual abuse only. Child abuse is associated with long-term elevated health care use and costs, particularly for women who suffer both physical and sexual abuse.

Gustafson, T. B., & Sarwer, D. B. (2004). [Childhood sexual abuse and obesity](#). *Obesity Reviews*, 5, 129–135.

The causes of the current obesity epidemic are multifactorial and include genetic, environmental, and individual factors. One potential risk factor may be the experience of childhood sexual abuse, which is remarkably common and is thought to affect up to one-third of women and one-eighth of men. A history of childhood sexual abuse is associated with numerous psychological sequelae including depression, anxiety, substance abuse, somatization, and eating disorders. Relatively few studies have examined the relationship between childhood sexual abuse and adult obesity. These studies suggest at least a modest relationship between the two. Potential explanations for the relationship have focused on the role of disordered eating, particularly binge eating, as well as the possible ‘adaptive function’ of obesity in childhood sexual abuse survivors. Nevertheless, additional research on the relationship between childhood sexual abuse and obesity is clearly needed, not only to address the outstanding empirical issues but also to guide clinical care.

Hillis, S. D. (2004). [The association between adverse childhood experiences and adolescent pregnancy, long-term psychosocial consequences, and fetal death.](#) *Pediatrics*, 113(2), 320-327.

Few reports address the impact of cumulative exposure to childhood abuse and family dysfunction on teen pregnancy and consequences commonly attributed to teen pregnancy. Therefore, we examined whether adolescent pregnancy increased as types of adverse childhood experiences (ACE score) increased and whether ACEs or adolescent pregnancy was the principal source of elevated risk for long-term psychosocial consequences and fetal death. A retrospective cohort study of 9159 women aged >18 years (mean 56 years) who attended a primary care clinic in San Diego, California in 1995–1997. Adolescent pregnancy, psychosocial consequences, and fetal death, compared by ACE score (emotional, physical, or sexual abuse; exposure to domestic violence, substance abusing, mentally ill, or criminal household member; or separated/divorced parent). Adolescent pregnancy was not associated with any of these adult outcomes in the absence of childhood adversity (ACEs: 0). The ACE score was associated with increased fetal death after first pregnancy; teen pregnancy was not related to fetal death. The relationship between ACEs and adolescent pregnancy is strong and graded. Moreover, the negative psychosocial sequelae and fetal deaths commonly attributed to adolescent pregnancy seem to result from underlying ACEs rather than adolescent pregnancy per se.

Kendall-Tackett, K. (2002). [The health effects of childhood abuse: Four pathways by which abuse can influence health.](#) *Child Abuse & Neglect*, 6/7, 215-230.

This paper describes four possible pathways by which childhood abuse relates to health problems in adults. Literature on the long-term effects of childhood abuse is organized in a health psychology framework describing behavioral, social, cognitive and emotional pathways. Key studies from the health psychology and behavioral medicine literature are included to demonstrate how these pathways relate to health. Childhood abuse puts people at risk of depression and PTSD, participating in harmful activities, having difficulties in relationships, and having negative beliefs and attitudes towards others. Each of these increases the likelihood of health problems, and they are highly related to each other. Childhood abuse is related to health via a complex matrix of

behavioral, emotional, social and cognitive factors. Health outcomes for adult survivors are unlikely to improve until each of these factors is addressed.

Arnow, B. A. et al. (1999). [Childhood sexual abuse, psychological distress, and medical use among women](#). *Psychosomatic Medicine*, 61,762-770.

This study examined the relationships between reported history of childhood sexual abuse (CSA), psychological distress, and medical utilization among 206 women aged 20 to 63 years in a health maintenance organization (HMO) setting. Participants were classified, using screening questionnaires and the revised Symptom Checklist 90, as 1) CSA-distressed, 2) distressed only, 3) CSA only, or 4) control participants. Medical utilization rates were generated from the computerized database of the HMO for 1) nonpsychiatric outpatient, 2) psychiatric outpatient, 3) emergency room (ER), and 4) inpatient admissions. The authors concluded that psychological distress is associated with higher outpatient medical utilization, independent of CSA history. History of CSA with concomitant psychological distress is associated with significantly higher ER visits, particularly for those with a history of physical abuse. History of CSA without distress is not associated with elevated rates of medical utilization. Screening for psychological distress, CSA, and physical abuse may help to identify distinct subgroups with unique utilization patterns.

Bibb, M. L., & Quirk, P. J. (Winter 1997-1998). [Abuse survivors face greater risk for developing eating disorders](#). *National Child Advocate*, 1(3), 1, 7.

Children who have been sexually abused are at an increased risk of developing eating disorders, and the authors discuss the development of eating disorders in CSA victims, as well as treatment and recovery. Therapeutic interventions must be flexible enough to address both the issue of sexual abuse and the eating disorder.

## **Mental Health**

Merrick, M. T., Ports, K. A., Ford, D. C., Afifi, T. O., Gershoff, E. T., & Grogan-Kaylor, A. (2017). [Unpacking the impact of adverse childhood experiences on adult mental health.](#) *Child Abuse & Neglect*, *69*, 10-19.

Exposure to childhood adversity has an impact on adult mental health, increasing the risk for depression and suicide. Associations between Adverse Childhood Experiences (ACEs) and several adult mental and behavioral health outcomes are well documented in the literature, establishing the need for prevention. The current study analyzes the relationship between an expanded ACE score that includes being spanked as a child and adult mental health outcomes by examining each ACE separately to determine the contribution of each ACE. Data were drawn from Wave II of the CDC-Kaiser ACE Study, consisting of 7465 adult members of Kaiser Permanente in southern California. Dichotomous variables corresponding to each of the 11 ACE categories were created, with ACE score ranging from 0 to 11 corresponding to the total number of ACEs experienced. Multiple logistic regression modeling was used to examine the relationship between ACEs and adult mental health outcomes adjusting for sociodemographic covariates. Results indicated a graded dose-response relationship between the expanded ACE score and the likelihood of moderate to heavy drinking, drug use, depressed affect, and suicide attempts in adulthood. In the adjusted models, being spanked as a child was significantly associated with all self-reported mental health outcomes. Over 80% of the sample reported exposure to at least one ACE, signifying the potential to capture experiences not previously considered by traditional ACE indices. The findings highlight the importance of examining both cumulative ACE scores and individual ACEs on adult health outcomes to better understand key risk and protective factors for future prevention efforts.

Cristóbal-Narváez, P., Sheinbaum, T., Ballespí, S., Mitjavila, M., Myin-Germeys, I., Kwapil, T. R., & Barrantes-Vidal, N. (2016). [Impact of adverse childhood experiences on psychotic-like symptoms and stress reactivity in daily life in nonclinical young adults.](#) *PloS one*, *11*(4), e0153557.

There is increasing interest in elucidating the association of different childhood adversities with psychosis-spectrum symptoms as well as the mechanistic processes involved. This study used experience sampling methodology to examine (i) associations of a range of childhood adversities with psychosis symptom domains in daily life; (ii) whether associations of abuse and neglect with symptoms are consistent across self-report and interview methods of trauma assessment; and (iii) the role of different adversities in moderating affective, psychotic-like, and paranoid reactivity to situational and social stressors. A total of 206 nonclinical young adults were administered self-report and interview measures to assess childhood abuse, neglect, bullying, losses, and general traumatic events. Participants received personal digital assistants that signaled them randomly eight times daily for one week to complete questionnaires about current experiences, including symptoms, affect, and stress. Self-reported and interview-based abuse and neglect were associated with psychotic-like and paranoid symptoms, whereas only self-reported neglect was associated with negative-like symptoms. Bullying was associated with psychotic-like symptoms. Losses and general traumatic events were not directly associated with any of the symptom domains. All the childhood adversities were associated with stress reactivity in daily life. Interpersonal adversities (abuse, neglect, bullying, and losses) moderated psychotic-like and/or paranoid reactivity to situational and social stressors, whereas general traumatic events moderated psychotic-like reactivity to situational stress. Also, different interpersonal adversities exacerbated psychotic-like and/or paranoid symptoms in response to distinct social stressors. The present study provides a unique examination of how childhood adversities impact the expression of spectrum symptoms in the real world and lends support to the notion that stress reactivity is a mechanism implicated in the experience of reality distortion in individuals exposed to childhood trauma. Investigating the interplay between childhood experience and current context is relevant for uncovering potential pathways to the extended psychosis phenotype.

St Clair, M. C., Croudace, T., Dunn, V. J., Jones, P. B., Herbert, J., & Goodyer, I. M. (2014). [Childhood adversity subtypes and depressive symptoms in early and late adolescence.](#) *Development and Psychopathology*, 27(3), 885-899.

Within a longitudinal study of 1,005 adolescents, we investigated how exposure to childhood psychosocial adversities was associated with the emergence of depressive symptoms between 14 and 17 years of age. The cohort was classified into four empirically determined adversity subtypes for two age periods in childhood (0–5 and 6–11 years). One subtype reflects normative/optimal family environments (n = 692, 69%), while the other three subtypes reflect differential suboptimal family environments (aberrant parenting: n = 71, 7%; discordant: n = 185, 18%; and hazardous: n = 57, 6%). Parent-rated child temperament at 14 years and adolescent self-reported recent negative life events in early and late adolescence were included in models implementing path analysis. There were gender-differentiated associations between childhood adversity subtypes and adolescent depressive symptoms. The discordant and hazardous subtypes were associated with elevated depressive symptoms in both genders but the aberrant parenting subtype only so in girls. Across adolescence the associations between early childhood adversity and depressive symptoms diminished for boys but remained for girls. Emotional temperament was also associated with depressive symptoms in both genders, while proximal negative life events related to depressive symptoms in girls only. There may be neurodevelopmental factors that emerge in adolescence that reduce depressogenic symptoms in boys but increase such formation in girls.

Sugaya, L., Hasin, D. S., Olfson, M., Lin, K. H., Grant, B. F., & Blanco, C. (2012). [Child physical abuse and adult mental health: A national study.](#) *Journal of Traumatic Stress*, 25(4), 384-392.

This study characterizes adults who report being physically abused during childhood, and examines associations of reported type and frequency of abuse with adult mental health. Data were derived from the 2000–2001 and 2004–2005 National Epidemiologic Survey on Alcohol and Related Conditions, a large cross-sectional survey of a representative sample (N = 43,093) of the U.S. population. Weighted means, frequencies, and odds ratios of sociodemographic correlates and prevalence of psychiatric disorders were computed. Logistic regression models were used to examine the strength of associations between child physical abuse and adult psychiatric disorders adjusted for sociodemographic characteristics, other childhood adversities, and comorbid



psychiatric disorders. Child physical abuse was reported by 8% of the sample and was frequently accompanied by other childhood adversities. Child physical abuse was associated with significantly increased adjusted odds ratios (AORs) of a broad range of DSM-IV psychiatric disorders (AOR = 1.16–2.28), especially attention-deficit hyperactivity disorder, posttraumatic stress disorder, and bipolar disorder. A dose-response relationship was observed between frequency of abuse and several adult psychiatric disorder groups; higher frequencies of assault were significantly associated with increasing adjusted odds. The long-lasting deleterious effects of child physical abuse underscore the urgency of developing public health policies aimed at early recognition and prevention.

Mills, R., Alati, R., O'Callaghan, M., Najman, J. M., Williams, G. M., Bor, W., & Strathearn, L. (2011). [Child abuse and neglect and cognitive function at 14 years of age: Findings from a birth cohort](#). *Pediatrics*, *127*(1), 4-10.

Objective—Evidence is steadily accumulating that a preventable environmental hazard, child maltreatment, exerts causal influences on the development of long-standing patterns of antisocial behavior in humans. The relationship between child maltreatment and antisocial outcome, however, has never previously been tested in a large-scale study in which official-reports (rather than family member reports) of child abuse and neglect were incorporated, and genetic influences comprehensively controlled for. Method—We cross-referenced official-report data on child maltreatment from the Missouri Division of Social Services (DSS) with behavioral data from 4,432 epidemiologically-ascertained Missouri twins from the Missouri Twin Registry (MOTWIN). We performed a similar procedure for a clinically-ascertained sample of singleton children ascertained from families affected by alcohol dependence participating in the Collaborative Study on the Genetics of Alcoholism (COGA, n=428) in order to determine whether associations observed in the general population held true in an “enriched” sample at combined inherited and environmental risk for antisocial development. Results—For both the twin and clinical samples, *additive* effects (not interactive effects) of maltreatment and inherited liability on antisocial development were confirmed, and were highly statistically significant. Conclusions—Child maltreatment exhibited causal influence on antisocial outcome when controlling for inherited liability in both the general population and in a clinically-ascertained sample. Official-report maltreatment data represents a critical resource for resolving competing hypotheses on genetic and environmental causation of

child psychopathology, and for assessing intervention outcomes in efforts to prevent antisocial development

Chen, L. P., Murad, M. H., Paras, M. L., Colbenson, K. M., Sattler, A. L., Goranson, E. N., ... & Zirakzadeh, A. (2010, July). [Sexual abuse and lifetime diagnosis of psychiatric disorders: systematic review and meta-analysis](#). In *Mayo Clinic Proceedings* (Vol. 85, No. 7, pp. 618-629). Elsevier.

The objective of this study was to assess the evidence for an association between sexual abuse and a lifetime diagnosis of psychiatric disorders. The authors performed a comprehensive search of nine databases from 1980-2008, limited to epidemiological studies. The search yielded 37 eligible studies, with 3,162,318 participants. There was a statistically significant association between sexual abuse and a lifetime diagnosis of anxiety disorder, depression, eating disorders, posttraumatic stress disorder, sleep disorders, and suicide attempts. Associations persisted regardless of the victim's sex or the age at which abuse occurred. There was no statistically significant association between sexual abuse and a diagnosis of schizophrenia or somatoform disorders. No longitudinal studies that assessed bipolar disorder or obsessive-compulsive disorder were found. Associations between sexual abuse and depression, eating disorders, and posttraumatic stress disorder were strengthened by a history of rape. Based on their review and meta-analysis, the authors concluded that a history of sexual abuse is associated with an increased risk of a lifetime diagnosis of multiple psychiatric disorders.

Spataro, J., Mullen, P. E., Burgess, P. M., Wells, D. L., & Moss, S. A. (2004). [Impact of child sexual abuse on mental health: prospective study in males and females](#). *British Journal of Psychiatry*, 184, 416-421.

The authors of this study were concerned with the lack of prospective studies and data on male victims of child sexual abuse. They examined the association between child sexual abuse in both boys and girls and subsequent treatment for mental disorder using a prospective cohort design. Children ( $n=1612$ ; 1327 female) ascertained as sexually abused at the time had their histories of mental health treatment established by data linkage and compared with the general population of the same age over a specified period. The authors found that both male and female victims of

abuse had significantly higher rates of psychiatric treatment during the study period than general population controls (12.4% v. 3.6%). Rates were higher for childhood mental disorders, personality disorders, anxiety disorders and major affective disorders, but not for schizophrenia. Male victims were significantly more likely to have had treatment than females (22.8% v.10.2%). The authors conclude that there is an association between child sexual abuse validated at the time and a subsequent increase in rates of childhood and adult mental disorders.

Molnar, B. E., Buka, S. L., & Kessler, R. C. (2001). [Child sexual abuse and subsequent psychopathology: Results from the national comorbidity survey.](#) *American Journal of Public Health, 91*(5), 753-760.

This study examined the relationship between child sexual abuse (CSA) and subsequent onset of psychiatric disorders, accounting for other childhood adversities, CSA type, and chronicity of the abuse. Retrospective reports of CSA, other adversities, and psychiatric disorders were obtained by the National Comorbidity Survey, a nationally representative survey of the United States (n = 5877). CSA was reported by 13.5% of women and 2.5% of men. When other childhood adversities were controlled for, significant associations were found between CSA and subsequent onset of 14 mood, anxiety, and substance use disorders among women and 5 among men. In a subsample of respondents reporting no other adversities, odds of depression and substance problems associated with CSA were higher. Among women, rape (vs molestation), knowing the perpetrator (vs strangers), and chronicity of CSA (vs isolated incidents) were associated with higher odds of some disorders. The authors concluded that CSA usually occurs as part of a larger syndrome of childhood adversities. Nonetheless, CSA, whether alone or in a larger adversity cluster, is associated with substantial increased risk of subsequent psychopathology.

## Crime

Morrissey, M. B., Courtney, D., & Maschi, T. (2012). [Sexual abuse histories among incarcerated older adult offenders: A descriptive study](#). In E. A. Kalfoglou & R. Faikoğlu (Eds.), *Sexual Abuse - Breaking the Silence* (pp. 21-30).

Cashmore, J. (2011). [The link between child maltreatment and adolescent offending: Systems neglect of adolescents](#). *Family Matters*, (89), 31.

This paper is concerned with the nexus between abuse and neglect and adolescent offending in the lives of some children and young people, and the lack of a coordinated response to these by both the child protection and juvenile justice systems

Gold, J., Sullivan, M. W., & Lewis, M. (2011). [The relation between abuse and violent delinquency: The conversion of shame to blame in juvenile offenders](#). *Child Abuse & Neglect*, 35(7), 459-467.

While the relationship between abusive parenting and violent delinquency has been well established, the cognitive and emotional processes by which this occurs remain relatively unidentified. The objective of this work is to apply a conceptual model linking abusive parenting © 2011. National Children's Advocacy Center. All rights reserved. Page 16 of 40 Adverse Effects/Economic Impact of Child Maltreatment: November 2015 Bibliography of Open-Source Publications to the conversion of shame into blaming others and therefore to violent delinquency. A retrospective study of 112 adolescents (90 male; 22 female; ages 12–19 years;  $M = 15.6$ ;  $SD = 1.4$ ) who were incarcerated in a juvenile detention facility pending criminal charges, completed measures of exposure to abusive and nonabusive discipline, expressed and converted shame, and violent delinquency. Findings tend to confirm the conceptual model. Subjects who converted shame (i.e., low expressed shame, high blaming others) tended to have more exposure to abusive parenting and showed more violent delinquent behavior than their peers who showed expressed shame. Subjects who showed expressed shame (i.e., high expressed shame, low blaming others) showed less violent delinquency than those who showed converted shame. Abusive parenting impacts delinquency directly and indirectly through the effects of shame that is converted. Abusive parenting leads to the conversion of shame to blaming others, which in turn leads to violent

delinquent behavior. For juvenile offenders, the conversion of shame into blaming others appears to contribute to pathological outcomes in relation to trauma. Translation of this work into clinical practice is recommended.

Duke, N. N., Pettingell, S. L., McMorris, B. J., & Borowsky, I. W. (2010). [Adolescent violence perpetration: Associations with multiple types of adverse childhood experiences.](#) *Pediatrics*, 125(4), e778-e786.

Adverse childhood experiences are associated with significant functional impairment and life lost in adolescence and adulthood. This study identified relationships between multiple types of adverse events and distinct categories of adolescent violence perpetration. Data are from 136 549 students in the 6th, 9th, and 12th grades who responded to the 2007 Minnesota Student Survey, an anonymous, self-report survey examining youth health behaviors and perceptions, characteristics of primary socializing domains, and youth engagement. Linear and logistic regression models were used to determine if 6 types of adverse experiences including physical abuse, sexual abuse by family and/or other persons, witnessing abuse, and household dysfunction caused by family alcohol and/or drug use were significantly associated with risk of adolescent violence perpetration after adjustment for demographic covariates. An adverse-events score was entered into regression models to test for a dose-response relationship between the event score and violence outcomes. All analyses were stratified according to gender. More than 1 in 4 youth © 2011. National Children's Advocacy Center. All rights reserved. Page 17 of 40 Adverse Effects/Economic Impact of Child Maltreatment: November 2015 Bibliography of Open-Source Publications (28.9%) reported at least 1 adverse childhood experience. The most commonly reported adverse experience was alcohol abuse by a household family member that caused problems. Each type of adverse childhood experience was significantly associated with adolescent interpersonal violence perpetration (delinquency, bullying, physical fighting, dating violence, weapon-carrying on school property) and self-directed violence (self-mutilatory behavior, suicidal ideation, and suicide attempt). For each additional type of adverse event reported by youth, the risk of violence perpetration increased 35% to 144%. Multiple types of adverse childhood experiences should be considered as risk factors for a spectrum of violence-related outcomes during adolescence. Providers and advocates should be aware of the interrelatedness and cumulative impact of adverse-event types. Study findings support broadening the current discourse on types of adverse events

when considering pathways from child maltreatment to adolescent perpetration of delinquent and violent outcomes.

Ford, J. D., Elhai, J. D., Connor, D. F., & Frueh, B. C. (2010). [Poly-victimization and risk of posttraumatic, depressive, and substance use disorders and involvement in delinquency in a national sample of adolescents.](#) *Journal of Adolescent Health, 46*(6), 545-552.

Adolescents exposed to multiple forms of psychological trauma (“poly-victimization,” Finkelhor et al. *Child Abuse Negl* 2007;31:7–26) may be at high risk for psychiatric and behavioral problems. This study empirically identifies trauma profiles in a national sample of adolescents to ascertain correlates of poly-victimization. Latent Class analyses and logistic regression analyses were used with data from the National Survey of Adolescents to identify trauma profiles and each profile's risk of posttraumatic stress disorder, major depressive disorder, substance use disorders, and delinquency involvement and deviant peer group relationships. Poly-victimization classes were also compared to classes with trauma exposure of lesser complexity. Six mutually exclusive trauma profiles (latent classes) were identified. Four classes were characterized by high likelihood of poly-victimization, including abuse victims (8%), physical assault victims (9%), and community violence victims (15.5%). Poly-victimization class members, especially abuse and assault victims, were more likely than do youth traumatized by witnessing violence or exposure to disaster/accident trauma to have psychiatric diagnosis and (independent of psychiatric diagnoses  
© 2011. National Children’s Advocacy Center. All rights reserved. Page 18 of 40 Adverse Effects/Economic Impact of Child Maltreatment: November 2015 Bibliography of Open-Source Publications or demographics) to be involved in delinquency with delinquent peers. Poly-victimization is prevalent among adolescents and places youth at high risk for psychiatric impairment and for delinquency. Moreover, poly-victimized youths' risk of delinquency cannot be fully accounted for by posttraumatic stress disorder, depression, or substance use problems, suggesting that adolescent healthcare providers should consider poly-victimization as a risk for behavioral and legal problems even when PTSD, depression, or addiction symptoms are not clinically significant.



Williams, J. H., Van Dorn, R. A., Bright, C. L., Jonson-Reid, M., & Nebbitt, V. E. (2010). [Child maltreatment and delinquency onset among African American adolescent males.](#) *Research on Social Work Practice, 20*(3), 253-259.

Child welfare and criminology research have increasingly sought to better understand factors that increase the likelihood that abused and neglected children will become involved in the juvenile justice system. However, few studies have addressed this relationship among African American male adolescents. The current study examines the relationship between child maltreatment (i.e., neglect, physical abuse, sexual abuse, and other/mixed abuse) and the likelihood of a delinquency petition using a sample of African American males (N = 2,335) born before 1990. Multivariable logistic regression models compared those with a delinquency-based juvenile justice petition to those without. Results indicate that African American males with a history of neglect, physical abuse, or other/mixed abuse were more likely to be involved in the juvenile justice system than those without any child maltreatment. Additionally, multiple maltreatment reports, a prior history of mental health treatment, victimization, and having a parent who did not complete high school also increased the likelihood of a delinquency petition. Implications for intervention and prevention are discussed.

Lansford, J. E. et al. (2007). [Early physical abuse and later violent delinquency: a prospective longitudinal study.](#) *Child Maltreatment, 12*(3), 233-245.

In this prospective longitudinal study of 574 children followed from age 5 to age 21, the authors examined the links between early physical abuse and violent delinquency and other socially relevant outcomes during late adolescence or early adulthood and the extent to which the child's race and gender moderate these links. Analyses of covariance indicated that individuals who had been physically abused in the first 5 years of life were at greater risk for being arrested as juveniles for violent, nonviolent, and status offenses. Moreover, physically abused youth were less likely to have graduated from high school and more likely to have been fired in the past year, to have been a teen parent, and to have been pregnant or impregnated someone in the past year while not married. These effects were more pronounced for African American than for European American youth and somewhat more pronounced for females than for males.

Widom, C. S. (1995). [Victims of childhood sexual abuse—later criminal consequences](#). National Institute of Justice. NCJ 151525. 8pp.

This Research in Brief reports the findings from an analysis of a specific type of maltreatment—childhood sexual abuse—and its possible association with criminal behavior later in life.

Gilfus, M. E. (1992). [From victims to survivors to offenders: Women's routes of entry and immersion into street crime](#). *Women and Criminal Justice*, 4(1), 63-89.

This study explore the patterns by which women enter into criminal activities by drawing upon in-depth life history interviews with a sample of 20 incarcerated women. The author constructs a conceptual framework for understanding the progression from victim to survivor to offender in the subjects' life histories. This framework shows that the best available options for escape from physical and sexual violence are often survival strategies which are criminal: i.e., running away from home, use of drugs, and the illegal street work required to survive as a runaway.

### **Risk-taking behaviors**

Campbell, J. A., Walker, R. J., & Egede, L. E. (2016). [Associations between adverse childhood experiences, high-risk behaviors, and morbidity in adulthood](#). *American Journal of Preventive Medicine*, 50(3), 344-352.

Adverse childhood experiences (ACEs) are associated with early mortality and morbidity. This study evaluated the association among ACEs, high-risk health behaviors, and comorbid conditions, as well as the independent effect of ACE components. Data were analyzed on 48,526 U.S. adults from five states in the 2011 Behavioral Risk Factor Surveillance System survey. Exposures included psychological, physical, and sexual forms of abuse as well as household dysfunction such as substance abuse, mental illness, violence, and incarceration. Main outcome measures included risky behaviors and morbidity measures, including binge drinking, heavy drinking, current smoking, high-risk HIV behavior, obesity, diabetes, myocardial infarction, coronary heart disease, stroke, depression, disability caused by poor health, and use of special equipment because of disability. Multiple logistic regression assessed the independent relationship between ACE score

categories and risky behaviors/comorbidities in adulthood, and assessed the independent relationship between individual ACE components and risky behaviors/comorbid conditions in adulthood controlling for covariates. A total of 55.4% of respondents reported at least one ACE and 13.7% reported four or more ACEs. An ACE score  $\geq 4$  was associated with increased odds for binge drinking, heavy drinking, smoking, risky HIV behavior, diabetes, myocardial infarction, coronary heart disease, stroke, depression, disability caused by health, and use of special equipment because of disability. In addition, the individual components had different effects on risky behavior and comorbidities. In addition to having a cumulative effect, individual ACE components have differential relationships with risky behaviors, morbidity, and disability in adulthood after controlling for important confounders

Jones, D. J., Lewis, T., Litrownik, A., Thompson, R., Proctor, L. J., Isbell, P., ... & Runyan, D. (2013). [Linking childhood sexual abuse and early adolescent risk behavior: The intervening role of internalizing and externalizing problems.](#) *Journal of Abnormal Child Psychology*, 41(1), 139-150.

A robust literature links childhood sexual abuse (CSA) to later substance use and sexual risk behavior; yet, relatively little empirical attention has been devoted to identifying the mechanisms linking CSA to risky behavior among youth, with even less work examining such processes in boys. With the aim of addressing this gap in the literature, the current study examined the indirect effect of childhood sexual abuse (CSA; from age 2 to 12) trajectory group on risky behavior at age 14 (alcohol use & sexual intercourse) via the intervening role of caregiver-reported internalizing and externalizing problems at age 12. Analyses were conducted with a subsample of youth ( $n = 657$  sexual intercourse;  $n = 667$  alcohol use) from the Longitudinal Studies of Child Abuse and Neglect (LONGSCAN), a multisite prospective study of youth at risk for maltreatment. For boys and girls, there was an indirect effect from CSA to sexual intercourse through externalizing problems. The same pattern emerged for alcohol use, but only for girls. Findings did not support an indirect path through internalizing problems for either boys or girls for either outcome. Findings suggest more focal targets for prevention efforts aimed at maintaining the health and safety of maltreated boys and girls during the adolescent transition.

Noll, J. G., Shenk, C. E., Barnes, J. E., & Haralson, K. J. (2013). [Association of maltreatment with high-risk internet behaviors and offline encounters](#). *Pediatrics*, *131*(2), e510-e517.

High-risk Internet behaviors, including viewing sexually explicit content, provocative social networking profiles, and entertaining online sexual solicitations, were examined in a sample of maltreated and nonmaltreated adolescent girls aged 14 to 17 years. The impact of Internet behaviors on subsequent offline meetings was observed over 12 to 16 months. This study tested 2 main hypotheses: (1) maltreatment would be a unique contributor to high-risk Internet behaviors and (2) high-quality parenting would dampen adolescents' propensity to engage in high-risk Internet behaviors and to participate in offline meetings. Online and offline behaviors and parenting quality were gleaned from 251 adolescent girls, 130 of whom experienced substantiated maltreatment and 121 of whom were demographically matched comparison girls. Parents reported on adolescent behaviors and on the level of Internet monitoring in the home. Social networking profiles were objectively coded for provocative self-presentations. Offline meetings with persons first met online were assessed 12 to 16 months later. Thirty percent of adolescents reported having offline meetings. Maltreatment, adolescent behavioral problems, and low cognitive ability were uniquely associated with high-risk Internet behaviors. Exposure to sexual content, creating high-risk social networking profiles, and receiving online sexual solicitations were independent predictors of subsequent offline meetings. High-quality parenting and parental monitoring moderated the associations between adolescent risk factors and Internet behaviors, whereas use of parental control software did not. Treatment modalities for maltreated adolescents should be enhanced to include Internet safety literacy. Adolescents and parents should be aware of how online self-presentations and other Internet behaviors can increase vulnerability for Internet-initiated victimization.

Danielson, C. K. et al. (2010). [Risky behaviors and depression in conjunction with—or in the absence of—lifetime history of PTSD among sexually abused adolescents.](#) *Child Maltreatment, 15*(1), 101-107.

While posttraumatic stress disorder (PTSD) is often considered the primary problematic outcome of child sexual abuse (CSA), a number of other, relatively understudied negative sequelae appear to be prevalent as well. The authors studied data from 269 adolescents with a CSA history from the National Survey of Adolescents-Replication Study to examine the prevalence of risky behaviors (i.e., problematic alcohol and drug use, delinquent behavior) and depression in this sample. The frequencies of these problems in youth with and without a history of PTSD also were examined. Results indicated that risky behaviors and depression were reported as or more frequently than PTSD. Among youth with a history of PTSD, depression and delinquent behavior were more common than among those without a history of PTSD. However, there were no differences between adolescents with and without a history of PTSD in reported problematic substance use. Findings highlight the need for comprehensive trauma-informed interventions for CSA-exposed adolescents.

Hillis, S. D., Anda, R. F., Felitti V. J., & Marchbanks, P. A. (2001). [Adverse childhood experiences and sexual risk behaviors in women: A retrospective cohort study.](#) *Family Planning Perspectives, 33*(5), 206-211.

Adverse childhood experiences such as physical abuse and sexual abuse have been shown to be related to subsequent unintended pregnancies and infection with sexually transmitted diseases. However, the extent to which sexual risk behaviors in women are associated with exposure to adverse experiences during childhood is not well-understood. A total of 5,060 female members of a managed care organization provided information about seven categories of adverse childhood experiences: having experienced emotional, physical or sexual abuse; or having had a battered mother or substance-abusing, mentally ill or criminal household members. Logistic regression was used to model the association between cumulative categories of up to seven adverse childhood experiences and such sexual risk behaviors as early onset of intercourse, 30 or more sexual partners and self-perception as being at risk for AIDS. Each category of adverse childhood experiences was associated with an increased risk of intercourse by age 15 with perceiving oneself as being at risk of AIDS and with having had 30 or more partners. After adjustment for the effects of age at

interview and race, women who experienced rising numbers of types of adverse childhood experiences were increasingly likely to see themselves as being at risk of AIDS: Those with one such experience had a slightly elevated likelihood, while those with 4–5 or 6–7 such experiences had substantially elevated odds. Similarly, the number of types of adverse experiences was tied to the likelihood of having had 30 or more sexual partners, rising from odds of 1.6 for those with one type of adverse experience and 1.9 for those with two to odds of 8.2 among those with 6–7. Finally, the chances that a woman first had sex by age 15 also rose progressively with increasing numbers of such experiences, from odds of 1.8 among those with one type of adverse childhood experience to 7.0 among those with 6–7. Among individuals with a history of adverse childhood experiences, risky sexual behavior may represent their attempts to achieve intimate interpersonal connections. Having grown up in families unable to provide needed protection, such individuals may be unprepared to protect themselves and may underestimate the risks they take in their attempts to achieve intimacy. If so, coping with such problems represents a serious public health challenge.

### **Multiple Adverse Effects**

Mersky, J. P., Topitzes, J., & Reynolds, A. J. (2013). [Impacts of adverse childhood experiences on health, mental health, and substance use in early adulthood: A cohort study of an urban, minority sample in the US](#). *Child Abuse & Neglect*, 37(11), 917-925.

Research has shown that adverse childhood experiences (ACEs) increase the risk of poor health related outcomes in later life. Less is known about the consequences of ACEs in early adulthood or among diverse samples. Therefore, we investigated the impacts of differential exposure to ACEs on an urban, minority sample of young adults. Health, mental health, and substance use outcomes were examined alone and in aggregate. Potential moderating effects of sex were also explored. Data were derived from the Chicago Longitudinal Study, a panel investigation of individuals who were born in 1979 or 1980. Main-effect analyses were conducted with multivariate logistic and OLS regression. Sex differences were explored with stratified analysis, followed by tests of interaction effects with the full sample. Results confirmed that there was a robust association between ACEs and poor outcomes in early adulthood. Greater levels of adversity were associated with poorer self-rated health and life satisfaction, as well as more frequent depressive symptoms,

anxiety, tobacco use, alcohol use, and marijuana use. Cumulative adversity also was associated © 2011. National Children’s Advocacy Center. All rights reserved. Page 25 of 40 Adverse Effects/Economic Impact of Child Maltreatment: November 2015 Bibliography of Open-Source Publications with cumulative effects across domains. For instance, compared to individuals without an ACE, individuals exposed to multiple ACEs were more likely to have three or more poor outcomes (OR range = 2.75–10.15) and four or more poor outcomes (OR range = 3.93–15.18). No significant differences between males and females were detected. Given that the consequences of ACEs in early adulthood may lead to later morbidity and mortality, increased investment in programs and policies that prevent ACEs and ameliorate their impacts is warranted.

Stambaugh, L.F., Ringeisen, H., Casanueva, C.C., Tueller, S., Smith, K.E., & Dolan, M. (2013). [Adverse childhood experiences in NSCAW](#). OPRE Report #2013-26, Washington, DC: Office of Planning, Research and Evaluation, Administration for Children and Families, U.S. Department of Health and Human Services.

More than half of the children in the NSCAW II sample report four or more adverse childhood experiences. This finding is from a brief that uses the second cohort of the National Survey of Child and Adolescent Well-Being (NSCAW II) to examine rates of adverse childhood experiences among children who have been reported for maltreatment to the child welfare system. It also compares this sample’s adverse experiences to those reported in the U.S. Centers for Disease Control and Prevention (CDC) Adverse Childhood Experiences Study (ACES). ACES is a study from the mid-1990s which surveyed over 17,000 adults and examined the association between adverse childhood experiences and later adult outcomes. The report examines the prevalence of the adverse experiences identified in ACES among NSCAW participants and compares rates between the two studies.

Finkelhor, D., Shattuck, A., Turner, H., & Hamby, S. (2012). [Improving the Adverse Childhood Experiences Study Scale](#). *JAMA Pediatrics*, 167(1), 70-75.

To test and improve upon the list of adverse childhood experiences from the Adverse Childhood Experiences (ACE) Study scale by examining the ability of a broader range to correlate with mental health symptoms. Nationally representative sample of children and adolescents. Telephone interviews with a nationally representative sample of 2030 youth aged 10 to 17 years who were



asked about lifetime adversities and current distress symptoms. Lifetime adversities and current © 2011. National Children’s Advocacy Center. All rights reserved. Page 26 of 40 Adverse Effects/Economic Impact of Child Maltreatment: November 2015 Bibliography of Open-Source Publications distress symptoms. The adversities from the original ACE scale items were associated with mental health symptoms among the participants, but the association was significantly improved (from  $R^2 = 0.21$  to  $R^2 = 0.34$ ) by removing some of the original ACE scale items and adding others in the domains of peer rejection, peer victimization, community violence exposure, school performance, and socioeconomic status. Our understanding of the most harmful childhood adversities is still incomplete because of complex interrelationships among them, but we know enough to proceed to interventional studies to determine whether prevention and remediation can improve long-term outcomes.

Jonson-Reid, M., Kohl, P. L., & Drake, B. (2012). [Child and adult outcomes of chronic child maltreatment](#). *Pediatrics*, 129(5), 839-845.

To describe how child maltreatment chronicity is related to negative outcomes in later childhood and early adulthood. The study included 5994 low-income children from St Louis, including 3521 with child maltreatment reports, who were followed from 1993–1994 through 2009. Children were 1.5 to 11 years of age at sampling. Data include administrative and treatment records indicating substance abuse, mental health treatment, brain injury, sexually transmitted disease, suicide attempts, and violent delinquency before age 18 and child maltreatment perpetration, mental health treatment, or substance abuse in adulthood. Multivariate analysis controlled for potential confounders. Child maltreatment chronicity predicted negative childhood outcomes in a linear fashion (eg, percentage with at least 1 negative outcome: no maltreatment = 29.7%, 1 report = 39.5%, 4 reports = 67.1%). Suicide attempts before age 18 showed the largest proportionate increase with repeated maltreatment (no report versus 4+ reports = +625%,  $P < .0001$ ). The doseresponse relationship was reduced once controls for other adverse child outcomes were added in multivariate models of child maltreatment perpetration and mental health issues. The relationship between adult substance abuse and maltreatment report history disappeared after controlling for adverse child outcomes. Child maltreatment chronicity as measured by official reports is a robust indicator of future negative outcomes across a range of systems, but this relationship may desist for certain adult outcomes once childhood adverse events are controlled.

Although primary and © 2011. National Children’s Advocacy Center. All rights reserved. Page 27 of 40 Adverse Effects/Economic Impact of Child Maltreatment: November 2015 Bibliography of Open-Source Publications secondary prevention remain important approaches, this study suggests that enhanced tertiary prevention may pay high dividends across a range of medical and behavioral domains.

Burke, N. J., Hellman, J. L., Scott, B. G., Weems, C. F., & Carrion, V. G. (2011). [The impact of adverse childhood experiences on an urban pediatric population](#). *Child Abuse & Neglect*, 35(6), 408-413.

The goal of this study was to investigate the adverse childhood experiences (ACEs) in youth in a low-income, urban community. Data from a retrospective chart review of 701 subjects from the Bayview Child Health Center in San Francisco are presented. Medical chart documentation of ACEs as defined in previous studies were coded and each ACE criterion endorsed by a traumatic event received a score of 1 (range = 0–9). This study reports on the prevalence of various ACE categories in this population, as well as the association between ACE score and two pediatric problems: learning/behavior problems and body mass index (BMI)  $\geq$  85% (i.e., overweight or obese). The majority of subjects (67.2%, N = 471) had experienced 1 or more categories of adverse childhood experiences (ACE<sub>m</sub>  $\geq$  1) and 12.0% (N = 84) had experienced 4 or more ACEs (ACE  $\geq$  4). Increased ACE scores correlated with increased risk of learning/behavior problems and obesity. There was a significant prevalence of endorsed ACE categories in this urban population. Exposure to 4 or greater ACE categories was associated with increased risk for learning/behavior problems, as well as obesity. Results from this study demonstrate the need both for screening of ACEs among youth in urban areas and for developing effective primary prevention and intervention models.

Anda, R. (2007). [The health and social impact of growing up with adverse childhood experiences: The human and economic costs of the status quo](#). In *conference in Anacortes, WA on June* (Vol. 4).

The common stressful and traumatic exposures affect t a constellation of experiences including: abuse (emotional, physical, sexual), neglect (emotional, physical), witnessing domestic violence, growing up with substance abuse (alcohol or other drug abuse) or mental illness in the household,

parental discord, or crime in the home. This document is a presentation made by Dr. Robert Anda, co-Principal Investigator for the ACE studies of the Centers for Disease Control and Prevention, at the 2007 Guest House Institute Summer Leadership Conference in Minneapolis, Minnesota.

Gilbert, R. et al. (2009). [Burden and consequences of child maltreatment in high-income countries](#). *Lancet*, 373, 68-81.

Child maltreatment remains a major public-health and social-welfare problem in high-income countries. Every year, about 4–16% of children are physically abused and one in ten is neglected or psychologically abused. During childhood, between 5% and 10% of girls and up to 5% of boys are exposed to penetrative sexual abuse, and up to three times this number are exposed to any type of sexual abuse. However, official rates for substantiated child maltreatment indicate less than a tenth of this burden. Exposure to multiple types and repeated episodes of maltreatment is associated with increased risks of severe maltreatment and psychological consequences. Child maltreatment substantially contributes to child mortality and morbidity and has long-lasting effects on mental health, drug and alcohol misuse (especially in girls), risky sexual behavior, obesity, and criminal behavior, which persist into adulthood. Neglect is at least as damaging as physical or sexual abuse in the long term but has received the least scientific and public attention. The high burden and serious and long-term consequences of child maltreatment warrant increased investment in preventive and therapeutic strategies from early childhood.

Child Welfare Information Gateway. (2008). [Long-term consequences of child abuse and neglect](#).

This factsheet provides an overview of some of the most common physical, psychological, behavioral, and societal consequences of child abuse and neglect, while acknowledging that much crossover among categories exists. This is an update on the document produced in 2005 by the National Clearinghouse on Child Abuse and Neglect Information.

Putnam, F. W. (2006). [The impact of trauma on child development](#). *Juvenile and Family Court Journal*, 57(1), 1-11.

A growing body of research links childhood experiences of abuse and neglect with serious life-long problems including depression, suicide, alcoholism and drug abuse, and major medical problems such as heart disease, cancer, and diabetes. Two basic processes, neurodevelopment and psychosocial development, are affected by early abuse and neglect. Scientists have begun to understand the mechanisms through which these adverse experiences alter child development and produce pernicious mental, medical, and social outcomes. These insights have opened opportunities to intervene to prevent maltreatment and to mitigate its effects. Future success depends on the greater dissemination and refinement of these interventions.

van der Kolk, B. A., Hopper, J., & Crozier, J. (2001). [Child abuse in America: Prevalence and consequences](#). *Journal of Aggression, Maltreatment & Trauma*, 20 pp.

Childhood abuse and neglect is a serious problem in the United States; each year, over three million children are reported abused and/or neglected. One million of these reports are substantiated; however, more than half of the confirmed cases are closed on the day of substantiation. Research has shown that a range of psychiatric symptoms and disorders in child- and adulthood are associated with early trauma, including depression, post-traumatic stress disorder, borderline personality disorder, substance use, suicidality, self-mutilation, somatization, sexual behavior problems, dissociative disorders, and learning disorders. Moreover, abusive childhood experiences have been associated with increased risks of violent offending and being a victim of violence. Childhood abuse and neglect is a major public health problem cannot only dramatically affect the quality of life of many individuals, but also is enormously expensive for society at large. This paper reviews both the prevalence of childhood abuse and neglect as well as its psychiatric and general health sequelae in child- and adulthood.

Felitti, V. J. et al. (1998). [Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: The Adverse childhood experiences \(ACE\) study.](#) *American Journal of Preventive Medicine*, 14(4), 245-258.

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. 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 was found.

### **General Economic**

Peterson, C., Florence, C., & Klevens, J. (2018). [The economic burden of child maltreatment in the United States, 2015.](#) *Child Abuse & Neglect*, 86, 178-183.

Child maltreatment incurs a high lifetime cost per victim and creates a substantial US population economic burden. This study aimed to use the most recent data and recommended methods to update previous (2008) estimates of 1) the per-victim lifetime cost, and 2) the annual US population economic burden of child maltreatment. Three ways to update the previous estimates were identified: 1) apply value per statistical life methodology to value child maltreatment mortality, 2) apply monetized quality-adjusted life years methodology to value child maltreatment morbidity, and 3) apply updated estimates of the exposed population. As with the previous estimates, the updated estimates used the societal cost perspective and lifetime horizon, but also accounted for victim and community intangible costs. Updated methods increased the estimated nonfatal child maltreatment per-victim lifetime cost from \$210,012 (2010 USD) to \$830,928 (2015 USD) and increased the fatal per-victim cost from \$1.3 to \$16.6 million. The estimated US population economic burden of child maltreatment based on 2015 substantiated incident cases (482,000 nonfatal and 1670 fatal victims) was \$428 billion, representing lifetime costs incurred annually. Using estimated incidence of investigated annual incident cases (2,368,000 nonfatal and 1670 fatal victims), the estimated economic burden was \$2 trillion. Accounting for victim and community intangible costs increased the estimated cost of child maltreatment considerably compared to previous estimates. The economic burden of child maltreatment is substantial and might off-set the cost of evidence-based interventions that reduce child maltreatment incidence.

The Perryman Group. (2014). [Suffer the little children: An assessment of the economic cost of child maltreatment](#). Waco, TX: Author.

Florence, C., Brown, D. S., Fang, X., & Thompson, H. F. (2013). [Health care costs associated with child maltreatment: Impact on Medicaid](#). *Pediatrics*, *132*(2), 312-318.

Data on child maltreatment were collected from the National Survey of Child and Adolescent Well-Being, a nationally representative sample of cases investigated or assessed by local Child Protective Services agencies between October 1999 and December 2000. Medicaid claims data for 2000 to 2003 were obtained from the Medicaid Analytic Extract (MAX). Children from the National Survey of Child and Adolescent Well-Being who had Medicaid were matched to the MAX data by Social Security number or birthdate, gender, and zip code. Propensity score matching was used to select a comparison group from the MAX data. Two-part regression models were used to estimate the impact of child maltreatment on expenditures. Data with individual identifiers were obtained under confidentiality agreements with the collecting agencies. Children who were identified as maltreated or as being at risk of maltreatment incurred, on average, Medicaid expenditures that were >\$2600 higher per year compared with children not so identified. This finding accounted for ~9% of all Medicaid expenditures for children. Child maltreatment imposes a substantial financial burden on the Medicaid system. These expenses could be partially offset by increased investment in child maltreatment prevention. Child maltreatment is a serious and prevalent public health problem in the United States. Responsible for substantial morbidity and mortality, maltreatment affects children's physical and mental health. Although many health impacts of child maltreatment have been documented, no claims-based study has quantified the impact of maltreatment on health service utilization and costs. This study presents systematic claims-based estimates of maltreatment impacts on utilization and costs for the Medicaid population.

Gelles, R. J., & Perlman, S. (2012). [Estimated Annual Cost of Child Abuse and Neglect](#). Chicago IL: Prevent Child Abuse America.

Gelles and Perlman's report details the terrible costs of child abuse and neglect. Our hope is to awaken the nation to the change we can make. Together we can prevent the abuse and neglect of our nation's children.

Fang, X., Brown, D. S., Florence, C. S., & Mercy, J. A. (2012). [The economic burden of child maltreatment in the United States and implications for prevention](#). *Child Abuse & Neglect*. 36(2), 156-165.

**Objectives:** To present new estimates of the average lifetime costs per child maltreatment victim and aggregate lifetime costs for all new child maltreatment cases incurred in 2008 using an incidence-based approach. **Methods:** This study used the best available secondary data to develop cost per case estimates. For each cost category, the paper used attributable costs whenever possible. For those categories that attributable cost data were not available, costs were estimated as the product of incremental effect of child maltreatment on a specific outcome multiplied by the estimated cost associated with that outcome. The estimate of the aggregate lifetime cost of child maltreatment in 2008 was obtained by multiplying per-victim lifetime cost estimates by the estimated cases of new child maltreatment in 2008. **Results:** The estimated average lifetime cost per victim of nonfatal child maltreatment is \$210,012 in 2010 dollars, including \$32,648 in childhood health care costs; \$10,530 in adult medical costs; \$144,360 in productivity losses; \$7,728 in child welfare costs; \$6,747 in criminal justice costs; and \$7,999 in special education costs. The estimated average lifetime cost per death is \$1,272,900, including \$14,100 in medical costs and \$1,258,800 in productivity losses. The total lifetime economic burden resulting from new cases of fatal and nonfatal child maltreatment in the United States in 2008 is approximately \$124 billion. In sensitivity analysis, the total burden is estimated to be as large as \$585 billion. **Conclusions:** Compared with other health problems, the burden of child maltreatment is substantial, indicating the importance of prevention efforts to address the high prevalence of child maltreatment.



Currie, J., & Spatz Widom, C. (2010). [Long-term consequences of child abuse and neglect on adult economic well-being](#). *Child Maltreatment*, 15(2), 111-120.

Child abuse and neglect represent major threats to child health and well-being; however, little is known about consequences for adult economic outcomes. Using a prospective cohort design, court substantiated cases of childhood physical and sexual abuse and neglect during 1967–1971 were matched with nonabused and nonneglected children and followed into adulthood (mean age 41). Outcome measures of economic status and productivity were assessed in 2003–2004 (N = 807). Results indicate that adults with documented histories of childhood abuse and/or neglect have lower levels of education, employment, earnings, and fewer assets as adults, compared to matched control children. There is a 14% gap between individuals with histories of abuse/neglect and controls in the probability of employment in middle age, controlling for background characteristics. Maltreatment appears to affect men and women differently, with larger effects for women than men. These new findings demonstrate that abused and neglected children experience large and enduring economic consequences.

Wang, C. T., & Holton, J. (2007). [Total estimated cost of child abuse and neglect in the United States: Economic impact study](#). (pp. 1-5). Chicago, IL: Prevent Child Abuse America.

The costs of responding to the impact of child abuse and neglect are borne by the victims and their families but also by society. This brief updates an earlier publication documenting the nationwide costs as a result of child abuse and neglect (Fromm, 2001). Similar to the earlier document, this brief places costs in two categories: direct costs, that is, those costs associated with the immediate needs of children who are abused or neglected; and indirect costs, that is, those costs associated with the long-term and/or secondary effects of child abuse and neglect. All estimated costs are presented in 2007 dollars. Adjustments for inflation have been conducted using the price indexes for gross domestic product published by the Bureau of Economic Analysis (<http://www.bea.gov>).

Rovi, S., Chen, P. H., & Johnson, M. S. (2004). [The economic burden of hospitalizations associated with child abuse and neglect](#). *American Journal of Public Health*, 94(4), 586-590.

This study assessed the economic burden of child abuse related hospitalizations, comparing inpatient stays coded with a diagnosis of child abuse or neglect with stays of other hospitalized children using the 1999 National Inpatient Sample of the Healthcare Costs and Utilization Project. Children whose hospital stays were coded with a diagnosis of abuse or neglect were significantly more likely to have died during hospitalization (4.0% vs 0.5%), have longer stays (8.2 vs 4.0 days), twice the number of diagnoses (6.3 vs 2.8), and double the total charges (\$19266 vs \$9513) than were other hospitalized children. Furthermore, the primary payer was typically Medicaid (66.5% vs 37.0%). Earlier identification of children at risk for child abuse and neglect might reduce the individual, medical, and societal costs.

Waters, H. et al. (2004). The economic dimensions of interpersonal violence. World Health Organization. <http://whqlibdoc.who.int/publications/2004/9241591609.pdf>

WHO's World report on violence and health (published in 2002) makes a strong case for violence prevention. It reviewed available scientific evidence. It showed the need to work at all levels of the ecological model - with individuals, families, communities and societies - and to draw upon the contributions of multiple sectors, such as justice, education, welfare, employment and health. It concluded that violence prevention is complex, but is possible. The present report, on the economic dimensions of interpersonal violence, strengthens the case for investing in prevention even further by highlighting the enormous economic costs of the consequences of interpersonal violence, and reviewing the limited but nonetheless striking evidence for the cost-effectiveness of prevention programs.

Prevent Child Abuse New York (2003). [The costs of child abuse and the urgent need for prevention](#).

This paper primarily summarizes prior research studies in the area of child abuse and maltreatment, many of which have demonstrated a powerful link between abuse as a child and harmful

consequences in later life. In addition, attention is given to the cost borne by New York State citizens to treat these consequences, some of which could be prevented by a greater investment of resources used to prevent child abuse.

Weeks, R., & Widom, C. S. (1998). [Early childhood victimization among incarcerated adult male felons](#). NIJ Research Preview, U.S. Department of Justice. Office of Justice Programs.

Using carefully developed methods for eliciting retrospective reports of childhood abuse and neglect, a new study of inmates in a New York prison found that 68 percent of the sample reported some form of childhood victimization and 23 percent reported experiencing multiple forms of abuse and neglect, including physical and sexual abuse. These findings provide support for the belief that the majority of incarcerated offenders have likely experienced some type of childhood abuse or neglect.

## **Outside U.S.**

Riem, M. M., & Karreman, A. (2019). [Childhood adversity and adult health: The role of developmental timing and associations with accelerated aging](#). *Child Maltreatment*, 24(1), 17-25.

Childhood adversity has been associated with poor adult health. However, it is unclear whether timing of adversity matters in this association and whether adversity is related to poorer age-related physical health status. A representative sample of the adult Dutch population (N = 3,586, age M = 54.94, age range = 18–92) completed surveys on health and diagnoses of age-related diseases. Information about weight and fat percentage was collected using weighing scales and childhood experiences were assessed retrospectively. Adversity was associated with higher body mass index and fat percentage, more physical problems, and high cholesterol, and this association was most pronounced in individuals with experiences of adversity during early adolescence. In addition, individuals with adversity more often reported physical problems or a medical diagnosis at a younger age. This study indicates that (1) timing of exposure to adversity matters in the

relationship between experienced childhood adversity and health and (2) adversity is associated with a higher prevalence of age-related diseases at earlier ages.

Oldehinkel, A. J., & Ormel, J. (2015). [A longitudinal perspective on childhood adversities and onset risk of various psychiatric disorders](#). *European Child & Adolescent Psychiatry*, 24(6), 641-650.

It is well-known that childhood adversities can have long-term effects on mental health, but a lot remains to be learned about the risk they bring about for a first onset of various psychiatric disorders, and how this risk develops over time. In the present study, which was based on a Dutch longitudinal population survey of adolescents TRAILS (N = 1,584), we investigated whether and how childhood adversities, as assessed with three different measures, affected the risk of developing an incident depressive, anxiety, or disruptive behavior in childhood and adolescence. In addition, we tested gender differences in any of the effects under study. The results indicated that depressive, anxiety and disruptive behavior disorders each had their own, characteristic, pattern of associations with childhood adversities across childhood and adolescence, which was maintained after adjustment for comorbid disorders. For depressive disorders, the overall pattern suggested a high excess risk of incidence during childhood, which decreased during adolescence. Anxiety disorders were characterized by a moderately increased incident risk during childhood, which remained approximately stable over time. Disruptive behavior disorders took an intermediate position. Of the three childhood adversities tested, an overall rating of the stressfulness of the childhood appeared to predict onset of psychiatric disorders best. To conclude, the risk of developing a psychiatric disorder after exposure to adversities early in life depends on the nature of the adversities, the nature of the outcome, and the time that has passed since the adversities without disorder onset. (Author Abstract)

Patterson, M. L., Moniruzzaman, A., & Somers, J. M. (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(1), 350.

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.

Kabiru, C. W., Beguy, D., Crichton, J., & Ezech, A. C. (2010). [Self-reported drunkenness among adolescents in four sub-Saharan African countries: Associations with adverse childhood experiences](#). *Child and Adolescent Psychiatry and Mental Health*, 4(17), 13 pages.

Consumption of alcohol is associated with acute and chronic adverse health outcomes. Given the paucity of studies that explore the determinants of alcohol use among adolescents in sub-Saharan Africa and, in particular, that examine the effects of adverse childhood experiences on alcohol use, the authors' objective was to see if indeed there was an association between experience of adverse childhood events and drunkenness among adolescents. Nationally-representative data from 9,819 adolescents aged 12-19 years from Burkina Faso, Ghana, Malawi, and Uganda were studied. Logistic regression models were employed to identify correlates of self-reported past-year drunkenness. Exposure to four adverse childhood experiences comprised the primary independent variables: living in a food-insecure household, living with a problem drinker, having been physically abused, and having been coerced into having sex. Controls for age, religiosity, current schooling status, the household head's sex, living arrangements, place of residence, marital status,

and country of survey were utilized. All analyses were conducted separately for males and females. Overall, 9% of adolescents reported that they had been drunk in the 12 months preceding the survey, and respondents who had experienced an adverse event during childhood were more likely to report drunkenness. In the multivariate analysis, only two adverse childhood events emerged as significant predictors of self-reported past-year drunkenness among males: living in a household with a problem drinker before age 10, and being physically abused before age 10. For females, exposure to family-alcoholism, experience of physical abuse, and coerced sex increased the likelihood of reporting drunkenness in the last 12 months. The association between adverse events and reported drunkenness was more pronounced for females. For both males and females there was a graded relationship between the number of adverse events experienced and the proportion reporting drunkenness. The authors concluded that there is an association between experience of adverse childhood events and drunkenness among adolescents in four sub-Saharan African countries. The complex impacts of adverse childhood experiences on development and behavior may have an important bearing on the effectiveness of interventions geared at reducing alcohol dependence among the youth.

Taylor, P., Moore, P., Pezzullo, L., Tucci, J., Goddard, C., & De Bortoli, L. (2008). [The cost of child abuse in Australia](#). Australian Childhood Foundation and Child Abuse Prevention Research Australia: Melbourne.

In this report, the costs to the economy and society of the abuse of children and young people aged 0 to 17 years are assessed, with five main types of child abuse covered — physical, emotional and psychological, sexual abuse, neglect and witness of (or knowledge of) family violence. This definition of child abuse is based on research by the Australian Childhood Foundation and Child Abuse Prevention Research Australia, Monash University.