



Published in final edited form as:

Child Abuse Negl. 2016 January ; 51: 313–322. doi:10.1016/j.chiabu.2015.08.017.

Adverse childhood experiences and sexual victimization in adulthood[★]

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Abstract

Understanding the link between adverse childhood experiences (ACEs) and sexual victimization (SV) in adulthood may provide important information about the level of risk for adult SV and sexual re-victimization among childhood sexual abuse (CSA) survivors. In the present paper, we explore the relationship between ACEs, including CSA, and SV in adulthood. Data from the CDC-Kaiser ACE Study were used to examine the effect of experiences of early adversity on adult SV. Adult HMO members ($n = 7,272$) undergoing a routine health exam provided detailed information about ACEs that occurred at age 18 or younger and their experiences of SV in adulthood. Analyses revealed that as ACE score increased, so did risk of experiencing SV in adulthood. Each of the ACE variables was significantly associated with adult SV, with CSA being the strongest predictor of adult SV. In addition, for those who reported CSA, there was a cumulative increase in adult SV risk with each additional ACE experienced. As such, early adversity is a risk factor for adult SV. In particular, CSA is a significant risk factor for sexual re-victimization in adulthood, and additional early adversities experienced by CSA survivors may heighten adult SV risk above and beyond the risk associated with CSA alone. Given the interconnectedness among various experiences of early adversity, adult SV prevention actions must consider how other violence-related and non-violence-related traumatic experiences may exacerbate the risk conferred by CSA on subsequent victimization.

Keywords

ACEs; Adverse childhood experiences; Child sexual abuse; Adult sexual victimization; Sexual re-victimization

Introduction

Research regarding the long-term effects of child maltreatment and other adverse childhood experiences (ACEs) has proliferated over the past two decades. This robust body of research documents a strong connection between early experiences and optimal health, wellness, and life opportunities across the life course (Anda et al., 2004; Felitti et al., 1998; Liu et al.,

[★]The findings and conclusions in this article are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

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2013). Additionally, children and adolescents exposed to early trauma, such as abuse and neglect, are at increased risk for experiencing violence across their life span with accumulating risk for poorer health and social outcomes (Wilkins, Tsao, Hertz, Davis, & Klevens, 2014). As such, understanding the overlapping causes of violence and why some individuals are at greater risk for experiencing violence across their life is important, because it can help us address and prevent violence in all its forms, across all the stages of life. In the present paper, we explore the relationship between adverse childhood experiences, including childhood sexual abuse (CSA), and sexual victimization (SV) in adulthood.

Sexual violence is a significant problem in the United States. According to the 2011 National Intimate Partner and Sexual Violence Survey (NISVS; Breiding et al., 2014), an estimated 19.3% of women and 1.7% of men in the United States have been raped during their lifetimes. An estimated 43.9% of women and 23.4% of men have experienced other forms of sexual violence during their lifetimes. Examples include being made to penetrate someone else, sexual coercion, unwanted sexual contact, and noncontact unwanted sexual experiences. Most female victims of rape (78.7%) experienced their first rape before the age of 25; 40.4% experienced their first rape before the age of 18 years (Breiding et al., 2014), and, more than one-quarter of male victims experienced their first rape when they were 10 years of age or younger (Black et al., 2011). In 2013 alone, a total of 60,956 child sexual abuse cases were substantiated in the United States (US Department of Health & Human Services, 2015). Among a nationally representative sample of children and youth, 6% of the total sample report having experienced a sexual offense and 1.4% experienced a sexual assault in the last year (Finkelhor, Turner, Shattuk, & Hamby, 2015). Rates were highest for girls aged 14–17 years, of whom 16.4% experienced a sexual offense and 4.6% experienced a sexual assault in the last year (Finkelhor et al., 2015). For youth in the oldest age category (i.e., 14–17 years old) lifetime exposure to sexual assault was 14.3% for girls and 6% for boys.

Not only is CSA prevalent, but it also has a significant impact on public health. CSA has been linked to poor psychological, social, and physiological outcomes across the lifespan (Dube et al., 2005). For example, children who experience CSA are at increased risk of experiencing poorer mental health outcomes, such as low self-esteem (Tyler, 2002), depression (Kendler et al., 2000), dissociation (Weiss, Longhurst, & Mazure, 1999), and a history of suicide attempts (Dube et al., 2005). Children who experience CSA are also at increased risk of engaging in risky health behaviors, such as alcohol and substance abuse (Bryer, Nelson, Miller, & Krol, 1987), and risky sexual behaviors (Fergusson, Horwood, & Lynskey, 1997; Steel & Herlitz, 2005; Van Dorn et al., 2005). In their 23-year longitudinal study, Trickett, Noll, and Putnam (2011) found that sexually abused females generally had poorer outcomes across a host of additional biopsychosocial factors, including earlier onset of puberty, cognitive deficits, hypothalamic–pituitary–adrenal attenuation, asymmetrical stress responses, high rates of obesity, more major illnesses and healthcare utilization, lower educational attainment, self-mutilation, physical and sexual re-victimization, premature deliveries, and teen motherhood. The host of poor psychological, social, and physiological outcomes associated with CSA are also widely documented risk factors for rape, intimate partner violence, and peer violence (Lalor & McElvaney, 2010; Messman-Moore & Long,

2002), and thus, victims of CSA are particularly vulnerable to future SV (Breitenbecher, 2001; Coid et al., 2001; Desai, Arias, Thompson, & Basile, 2002; Fergusson et al., 1997; Himelein, 1995; Lalor & McElvaney, 2010; Mandoki & Burkhart, 1989; Merrill et al., 1999; West, Williams, & Siegel, 2000; Widom & Kuhns, 1996).

Sexual re-victimization occurs when a survivor of sexual abuse, such as CSA, is sexually victimized again (i.e., re-victimized; Messman & Long, 1996). Re-victimization among CSA survivors has been studied among various populations, typically women (e.g., Arata, 2002; Briere & Runtz, 1987; Bryer et al., 1987; Fergusson et al., 1997; Gidycz, Coble, Latham, & Layman, 1993; Gidycz, Hanson, & Layman, 1995; Humphrey & White, 2000; Mayall & Gold, 1995; Merrill et al., 1999; Messman-Moore & Long, 2002; Messman-Moore & Long, 2000; Shields & Hanneke, 1988; Trickett et al., 2011; Urquiza & Goodlin-Jones, 1994; Wyatt, Guthrie, & Notgrass, 1992), and results indicate that CSA survivors are more likely to experience adult SV compared to non-victims (Fergusson et al., 1997; Wyatt et al., 1992). In fact, CSA is among the strongest predictors of continued victimization (e.g., Casey & Nurius, 2005; Classen, Palesh, & Aggarwal, 2005; Merrill et al., 1999; Siegel & Williams, 2003; Wolfe, Wekerle, Scott, Straatman, & Grasley, 2004). A meta-analysis conducted by Roodman and Clum (2001) concluded that between 15% and 79% of women with histories of CSA were subsequently raped as adults (effect size = 0.59). Humphrey and White (2000) reported that victimization that occurred before the age of 14 years almost doubled the risk of later adolescent victimization. Moreover, Barnes, Noll, Putnam, and Trickett (2009) found that females who experienced CSA had re-victimizations that were more physically violent than those reported by females without a history of CSA. The body of research regarding sexual re-victimization is fairly robust; however, less is known about how other early adversities, beyond CSA alone, contribute to one's risk for experiencing sexual victimization in adulthood.

The relationship between other types of early adversities and adult SV may provide additional insight into risk factors for adult SV and re-victimization, as well as inform subsequent prevention actions. There is some research linking early adversities to SV risk. For example, Merrick, Litrownik, Everson, and Cox (2008) found that maltreatment experiences other than sexual abuse, and the developmental time period in which they occurred, predicted sexual behavior problems (e.g., sexual intrusiveness, displaying private parts, boundary problems) that had been long assumed to be uniquely related to experiences of child sexual abuse. Similarly, Widom, Czaja, and Dutton (2008) found that across a number of types of traumas and victimization experiences, abused and neglected children were at increased risk of re-victimization, compared to matched controls, which suggests that re-victimization extends to children who experience physical abuse and neglect, even in the absence of sexual abuse.

These findings are not unlike those from the landmark CDC-Kaiser ACE study, which assessed the impact of ACEs, a measure of child maltreatment and other household challenges, including parental incarceration and household substance abuse, on a wide variety of health behaviors and outcomes in adulthood (Felitti et al., 1998). Studies that have utilized ACE data have found a strong, graded dose-response relationship between abuse, neglect, and other household challenges and myriad health and social outcomes (Felitti et

al., 1998), including perpetration and victimization of intimate partner violence (Whitfield, Anda, Dube, & Felitti, 2003), sexual promiscuity (Felitti et al., 1998), depressed affect (Chapman et al., 2004) and drug abuse (Dube et al., 2003). To date, data from the CDC-Kaiser ACE study have not been used to explore sexual victimization in adulthood.

Adverse childhood experiences (ACEs), including CSA, are prevalent and have a significant impact on population health (Felitti et al., 1998). A deeper understanding of the link between ACEs and SV in adulthood may provide important information about the level of risk for adult SV and sexual re-victimization among CSA survivors, and, thus, remains an important area of research. In the present paper, data from the CDC-Kaiser ACE Study were used to study ACEs and adult SV with the following aims:

1. Identify the relationship between ACE score and adult SV;
2. Determine the individual contribution of each ACE category on adult SV risk;
3. For participants who reported CSA, calculate the cumulative risk of experiencing additional ACEs on sexual re-victimization in adulthood.

Method

Participants

The participants for this study were adult members of a large healthcare maintenance organization in southern California seeking routine health checks at an outpatient clinic ($n = 7,272$). The sample comprised 74.12% Caucasian, 4.28% Black, 11.01% Hispanic, 8.04% Asian, and 2.54% other race/ethnicities; 54.17% were females; respondent ages ranged from 19.02 to 97.62 years ($M = 55.87$, $SD = 15.11$). Participant demographics and ACE prevalence are outlined in Table 1. Recruitment and participant demographics have been explained in detail elsewhere (Felitti et al., 1998).

Measures

Adverse Childhood Experiences—The ACE questionnaire (Felitti et al., 1998) consists of 28 items assessing exposure to 10 types of ACEs including abuse (i.e., emotional, physical, and sexual), neglect, (i.e., physical and emotional), and household challenges (i.e., household mental illness, household substance abuse, household physical violence, parental separation/divorce, incarcerated family members) prior to age 19. The preambles, item content, and response options for each item can be found in Table 2. These items were selected and adapted from the Wyatt (Wyatt, 1985) the Conflict Tactics Scales (CTS; Straus & Gelles, 1990) and the Childhood Trauma Questionnaire (CTQ; Bernstein et al., 1994), validated clinical measures of sexual history, violence, and traumatic childhood experiences, respectively. Dichotomous (Yes/No) exposure variables corresponding to each of the 10 ACE categories were created using the definitions below, which have been used extensively in previously published ACE Study manuscripts (e.g., Felitti et al., 1998):

Emotional Abuse—Exposure to emotional abuse was deemed present if the participant responded “often”, or “very often” to item 17 in Table 2, *Swear at you, insult you, or put*

you down? or “sometimes”, “often”, or “very often” to item 18, *Act in a way that made you afraid that you might be physically hurt?*

Physical Abuse—A participant was identified as having experienced physical abuse if he or she responded “often”, or “very often” to item 19 in Table 2, *Actually push, grab, shove, slap you or throw something at you?* or “sometimes”, “often”, or “very often” to item 20, *Hit you so hard that you had marks or were injured?*

Sexual Abuse—Four dichotomous (Yes/No) items adapted from the Wyatt Sex History Questionnaire (Wyatt, 1985) were used to assess sexual victimization during childhood. A person was determined to have experienced childhood sexual abuse responding in an affirmative response to one or more of these items – items 25, 26, 27, and 28 in Table 2.

Physical Neglect—The Physical Neglect subscale of the CTQ (Bernstein et al., 1994) was used to define the presence of childhood physical neglect. This subscale comprises 5 items that are rated on a 1 (never) to 5 (very often) Likert scale. The responses to items 8 and 11 (Table 2) were reverse coded to match the negative valence of the remaining items. The responses to all 5 items were then summed together to estimate a physical neglect score which ranges from 5 to 25. Individuals with a score of 10 or more fall in the moderate to extreme range. Individuals retrospectively reporting this level of childhood physical neglect were considered to be exposed to physical neglect.

Emotional Neglect—The Emotional Neglect subscale of the CTQ (Bernstein et al., 1994) was used to define the presence of childhood emotional neglect. This subscale also comprises 5 items that are rated on a 1 (never) to 5 (very often) Likert scale. The responses to these items were summed together to compute an emotional neglect score which ranges from 5 to 25. Individuals with a score of 15 or more fall in the moderate to extreme range. Individuals retrospectively reporting this level of childhood emotional neglect were considered to be exposed to emotional neglect.

Household Mental Illness—A “yes” response to either items 3 or 4 in Table 2, *Was anyone in your household mentally ill or depressed?* or *Did anyone in your household attempt to commit suicide?* indicated exposure.

Household Substance Abuse—Items 1 and 2 in Table 2 were used to assess whether the respondent lived with a household member who was *a problem drinker or alcoholic* or used *street drugs*. An affirmative response to either of these items indicated exposure to household substance abuse.

Household Physical Violence—Four dichotomous (Yes/No) items adapted from the CTS (Straus & Gelles, 1990) were used to assess the presence of household physical violence among the participant’s parents. An individual was determined to have been exposed to household physical violence if he or she responded in an affirmative response to one or more of these items – items 21–24 in Table 2.

Parental Separation/Divorce—A “yes” response to item 5 in Table 2, *Were your parents ever separated or divorced?*, indicated exposure.

Incarcerated Household Members—A “yes” response to item 6 in Table 2, *Did anyone in your household ever go to prison?*, indicated exposure.

ACE Score—As a measure of overall ACE exposure, a composite score was created for each participant by summing the 10 constructed ACE category variables. ACE score ranges in value from 0 to 10 corresponding to the total number of ACEs experienced by the participant.

Sexual Victimization—A single item included in the health history portion of the questionnaire was used to assess whether or not the individual had experienced sexual victimization (SV) in adulthood. The content of this dichotomous (Yes/No) item is as follows: *As an adult (age 19 or older), has anyone ever physically forced or overpowered you to have sexual contact? By sexual contact we mean their touching your sexual parts you touching their sexual parts, or sexual intercourse (oral, anal, or vaginal).*

Procedure

A detailed description of the ACE Study design and procedure has been published elsewhere (Felitti et al., 1998). More than 17,000 adult HMO members undergoing a routine health exam were recruited to participate in the study. During the week following their clinic visit, participants were mailed a questionnaire containing items aimed at collecting detailed information about their childhood experience of abuse, neglect, and household challenges. They were also asked to respond to questions about their current psychosocial functioning, experiences, and health-related behaviors in adulthood. Data collection for the study was conducted in two waves from 1995 to 1997 with approximately equal numbers of participants in each wave ($n = 8,708$ and $n = 8,629$, respectively). However, items assessing the degree to which the participant experienced childhood neglect were only included on the questionnaire during wave 2 of the study. As such, the data used in the present analyses are limited to include only participants in wave 2.

Data Analysis

Multiple logistic regression modeling was used to examine each of the aims outlined above. The following demographic information from participants was included in all models as adjustment factors: age, educational attainment, race and gender. All analyses were carried out using Mplus 7.2 statistical software (Muthén & Muthén, 1998–2002). A full information robust maximum likelihood estimator was employed to obtain parameter estimates and standard errors robust to non-normality and missing data under the assumption that missing data are at random conditional on the covariates.

Results

ACE Score and SV in Adulthood—A multiple logistic regression model was specified using self-reported SV in adulthood as the dichotomous outcome variable, ACE score as the

predictor of interest, and age, race/ethnicity, gender, and educational attainment as adjustment factors in the model. Results of this model, reflected in Fig. 1, indicated a graded dose–response relationship between ACE score and the likelihood of experiencing SV in adulthood. The odds of participants experiencing SV in adulthood increased with ACE score.

Associations with Individual ACEs—The associations between each ACE category and sexual victimization during adulthood were examined. Each of the ACE categories was significantly associated with SV during adulthood after adjusting for age, race/ethnicity, gender, and educational attainment. Individuals who reported experiencing CSA were 3.17 times more likely to experience SV in adulthood, making it the single largest risk factor among the 10 ACE types tested. As reported in Table 3, the magnitude of the adjusted odds ratios for the remaining ACE categories correspond to the following rank order: *Emotional Abuse, Emotional Neglect, Physical Abuse, Household Mental Illness, Physical Neglect, Incarcerated household member, Household Substance Abuse, Parental Separation/Divorce, and Household Physical Violence.*

Multiple Logistic ACE Model—The fully adjusted model included all 10 ACE indicators and the demographic factors as predictors of adult SV. Physical neglect, household physical violence, household substance abuse, and parental separation/divorce were not statistically significant predictors of adult SV when included simultaneously in the model with the other ACEs, and were therefore excluded from the model. Parameter estimates and adjusted odds ratios for the reduced multivariate model can be found in Table 3. CSA, household mental illness, having an incarcerated household member, emotional neglect, physical abuse, and emotional abuse were all related to increased likelihood of experiencing SV in adulthood. Although there was a slight decrease in the magnitude of the risk after adjusting for the other ACE types and demographic factors, CSA remained the largest risk factor for adult SV. An individual who experienced solely CSA was 2.37 times more likely to experience adult SV compared to those who were not exposed to CSA.

The positive regression coefficients (β) from the multivariate model (Table 3) further suggest that exposure to additional ACEs have a cumulative effect on the likelihood of experiencing adult SV. Multiplying the odds ratio for CSA by the odds ratio of additional ACEs yields their combined odds of subsequent adult SV. For example, the adjusted odds ratio for CSA is 2.37 and the adjusted odds ratio for Emotional Abuse is 1.39. Thus, the model predicts that after adjusting for demographic characteristics an individual who self-reported experiencing both CSA and Emotional Abuse would be 3.29 times (i.e., 2.37×1.39) more likely to experience adult SV compared to an individual reporting no history of CSA or Emotional Abuse. The 0.92 difference in the combined CSA and Emotional Abuse odds ratio (3.29), and the CSA only odds ratio (2.37) reflects the incremental increase in experiencing adult SV for someone who experienced CSA and emotional abuse.

Discussion

In the current paper, we examined the relationship between ACEs and adult SV. Data from the original CDC-Kaiser ACE study revealed that ACEs were prevalent among the studied

population and had an impact on numerous health outcomes later in life, as documented in previous research (Felitti et al., 1998; Whitfield et al., 2003; Chapman et al., 2004; Dube et al., 2003). In addition to previous findings, our analysis revealed a graded dose–response relationship between ACE score and the likelihood of experiencing SV in adulthood. For example, the model predicted that individuals reporting a single ACE have 1.77 times the risk of adulthood SV compared to individuals who report no ACEs, and the risk is 8.32 times greater for individuals reporting 5 or more ACEs compared to those with no ACEs. These results extend findings from previous studies linking early adversity to risk for future SV (Merrick et al., 2008; Widom et al., 2008), by demonstrating the cumulative effect of early adversity on adult SV risk. The more ACEs one experiences, the greater their odds of experiencing SV in adulthood.

In addition to a graded dose–response relationship between ACE score and adult SV, we provide information on the unique contribution of each ACE category to adult SV. Findings revealed that each of the 10 ACE categories was significantly associated with adult SV. CSA was the largest single risk factor for adult SV among the 10 ACE types (OR = 3.17), followed by emotional abuse, emotional neglect, physical abuse, household mental illness, physical neglect, incarcerated household member, household substance abuse, parental separation/divorce, and household physical violence. An individual who reported experiencing CSA was over 3 times more likely to experience SV in adulthood than someone who did not experience CSA. Our findings are similar to previous research suggesting that CSA is the largest risk factor for sexual re-victimization (Casey & Nurius, 2005; Merrill et al., 1999; Siegel & Williams, 2003; Wolfe et al., 2004). Additionally, the findings support that other adverse childhood experiences are also risk factors for adult SV and should be considered in SV prevention, especially because ACEs were found to have a cumulative effect on adult SV risk.

In an adjusted model, CSA, household mental illness, having an incarcerated household member, emotional neglect, physical abuse, and emotional abuse experienced at age 18 or younger were all related to increased likelihood of experiencing SV in adulthood. Although there was a slight decrease in the magnitude of the risk after adjusting for the other ACE types and demographic factors, CSA remained the largest risk factor for adult SV. While physical neglect, household physical violence, household substance abuse, and parental separation/divorce were not statistically significant predictors of adult SV and were excluded from the adjusted model, their relationship with adult health and social outcomes, including violence victimization should not be discounted. Our analyses revealed that physical neglect, household physical violence, household substance abuse, and parental separation/divorce had a significant association with adult SV when considered alone. However, their unique contribution to adult SV risk decreased when included in a model with all of the ACE categories, which suggests that the ACEs assessed in this study are closely linked to one another and frequently co-occur. The interrelatedness of ACE categories among the CDC-Kaiser sample has been observed and documented in previous literature, whereby individuals who reported CSA were at greater risk for experiencing physical abuse (OR = 2.4), emotional abuse (OR = 3.0), neglect (2.5), and household dysfunction (OR = 2.0–2.5; Dong et al., 2004).

Our model further demonstrated that there was a cumulative increase in risk for adult SV with each additional ACE experienced by CSA survivors. For example, an individual who reported CSA and six additional ACEs would carry an 8-fold increase in adult SV risk compared to someone who experienced CSA solely. Thus, it's not just that CSA is a significant risk factor for sexual re-victimization in adulthood, but other early adversities experienced by CSA survivors may heighten adult SV risk above and beyond the risk conferred by CSA alone.

It is important to consider the interconnections among CSA and other adversity when identifying and treating children exposed to sexual abuse, because findings indicate that adults who experience one type of ACE are likely to have suffered multiple other ACEs, and because our results highlight the link between CSA and the cumulative effect of additional ACEs on adult SV risk. The links between violence types and other early adversity should be incorporated into the design of future research and health services, because it may lend support for developing and strengthening integrated, comprehensive programs that can provide greater support for, and better treatment of, affected persons, which may lead to better health and life potential outcomes. More epidemiological research regarding risk and protective factors for ACEs is critical if we are to address and prevent violence and subsequent adverse outcomes for all children. Moreover, understanding the shared risk and protective factors of all forms of violence will contribute to a stronger and more streamlined public health infrastructure that can address and advance primary prevention of violence.

Healthcare services that intentionally account for childhood experiences can mitigate the impact that early experiences have on future health outcomes. Currently, the American Academy of Pediatrics' (AAP) promotes using an integrated eco-biodevelopmental framework to translate the impact of early experiences on adult health into pediatric policies and practices for health and wellbeing across the lifespan (Committee on Psychosocial Aspects of Child and Family Health, et al., 2012). The AAP has several pediatric recommendations that specifically focus on addressing and preventing early adversity, such as encouraging pediatricians to adopt a proactive leadership role in educating parents, child care providers, teachers, policy makers, stakeholders, and the general public about the long-term consequences of toxic stress resulting from early adversities, as well as the potential benefits of preventing adverse childhood experiences (Committee on Psychosocial Aspects of Child et al., 2012). Integrated health services that intentionally account for early childhood experiences, such as those proposed by AAP, could reduce SV risk in adulthood, as well as other health and wellbeing outcomes previously linked to early adversity.

This study has many strengths; however, several limitations need to be considered in the interpretation of the data. First, the study population consisted of adult HMO members from Southern California who may differ from other populations, which limits our ability to make generalizations. In addition, the data were collected from 1995 to 1997, making the data over 20 years old. Despite the age of the data, these data are among the most contemporary data to examine relationships between adverse childhood experiences and adult health and wellbeing outcomes, and remain of high quality and current interest. Moreover, the focus of our paper is on the relationships among CSA and other ACEs and how these early

adversities are associated with adult sexual victimization, independent of the era within which the ACEs occurred.

While the ACE score has been used in many studies as a reliable and valid measure of early childhood experiences (Chapman et al., 2004; Dube et al., 2003; Felitti et al., 1998; Whitfield et al., 2003), it does not provide information about the many dimensions of early adversity that impact outcomes (English, Bangdiwala, & Runyan, 2005), such as severity, age of onset, or chronicity of the adverse events. Moreover, the ACEs captured in the CDC-Kaiser study only capture certain experiences that occur in the home and do not represent a comprehensive list of early adversities that a child may experience. For example, Finkelhor, Shattuck, Turner, and Hamby (2013) have suggested that associations between ACEs and outcomes could be strengthened by including peer victimization, community violence, and socioeconomic status as ACEs, to name a few. It is important for scientists interested in developing prevention interventions to consider that many adverse events may contribute to adult SV, and that these adverse events can also have a cumulative effect with CSA on increasing risk of experiencing sexual re-victimization in adulthood. Despite limitations, this paper makes important contributions to the field of violence prevention.

In conclusion, this paper underscores the strong link between early adversity and adult SV. In light of the interconnectedness among various experiences of early adversity, adult SV prevention actions should carefully consider how early traumatic experiences, beyond CSA alone, may exacerbate the risk of CSA in later re-victimizations. By deepening our understanding of the links among various forms of violence, we can develop coordinated strategies that effectively combine resources and strategies to prevent multiple forms of violence at once, strengthening our public health impact, and preventing violence before it begins. It is important for practitioners and researchers to consider these linkages in their work, and to develop and strengthen integrated services that acknowledge and incorporate the associations between early experiences and health outcomes across the lifespan. We know that adverse experiences in childhood can lead to lifelong health issues and behavioral difficulties, but they can be prevented. Assuring that all children have safe, stable, nurturing relationships and environments may help people reach their full potential by preventing early adverse experiences before they occur and protecting against poor outcomes for children who have already experienced adversity.

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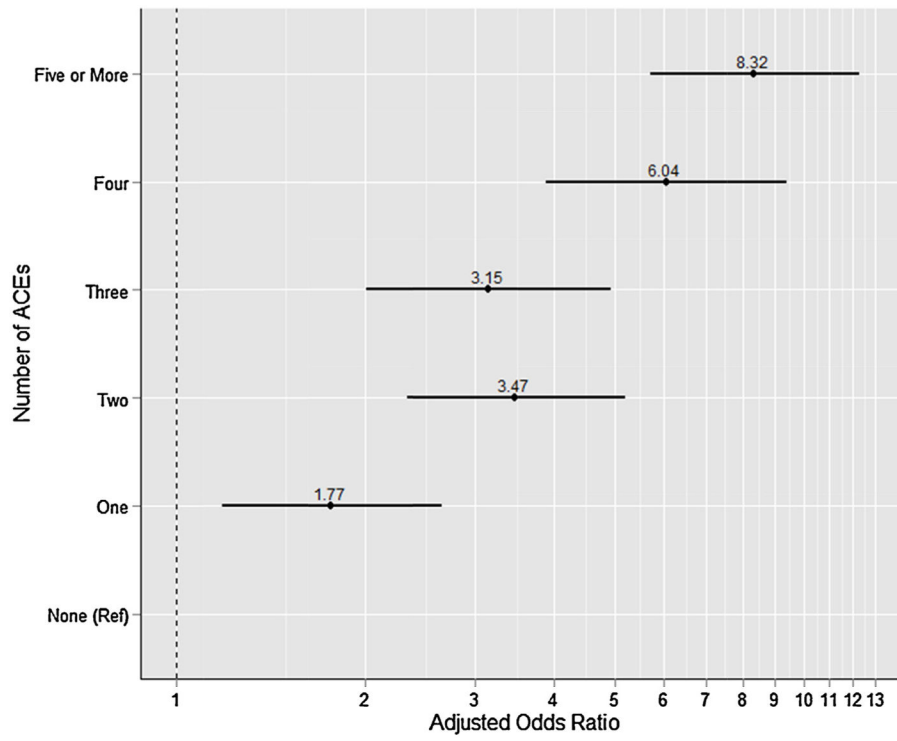


Fig. 1. Dose-response relationship of ACE exposure with adult sexual victimization.

Table 1

Demographic composition and ACE prevalence by gender.

	Women (n = 3,903)	Men (n = 3,369)	Total (n = 7,272)
Race/ethnicity			
White	2,893 (74.12)	2,586 (76.76)	5,479 (75.34)
Black	166 (4.25)	136 (4.04)	302 (4.15)
Hispanic	439 (11.25)	336 (9.97)	775 (10.66)
Asian	326 (8.35)	214 (6.35)	540 (7.43)
Other race or ethnicity	79 (2.02)	97 (2.88)	176 (2.42)
Education			
Less than high school	261 (6.69)	196 (5.82)	457 (6.28)
High school diploma or equivalent	657 (16.83)	396 (11.75)	1,053 (14.48)
Some college/technical school	1,651 (42.3)	1,308 (38.82)	2,959 (40.69)
College graduate	1,334 (34.18)	1,469 (43.6)	2,803 (38.55)
Adverse childhood experience			
Sexual abuse	929 (23.80)	573 (17.01)	1,502 (20.65)
Emotional abuse	461 (11.81)	249 (7.39)	710 (9.76)
Physical abuse	962 (24.65)	941 (27.93)	1903 (26.17)
Household mental illness	981 (25.13)	485 (14.4)	1466 (20.16)
Incarcerated household member	265 (6.79)	165 (4.90)	430 (5.91)
Emotional neglect	633 (16.22)	416 (12.35)	1,049 (14.43)
Physical neglect	324 (8.30)	359 (10.66)	683 (9.39)
Household physical violence	510 (13.07)	390 (11.58)	900 (12.38)
Household substance abuse	1,194 (30.59)	869 (25.79)	2,063 (28.37)
Parental separation/divorce	977 (25.03)	758 (22.50)	1,735 (23.86)
ACE score			
0	1238 (31.72)	1,149 (34.11)	2,387 (32.82)
1	965 (24.72)	926 (27.49)	1,891 (26.00)
2	586 (15.01)	557 (16.53)	1,143 (15.72)
3	385 (9.86)	309 (9.17)	694 (9.54)
4	261 (6.69)	163 (4.84)	424 (5.83)
5	186 (4.77)	123 (3.65)	309 (4.25)
6	116 (2.97)	71 (2.11)	187 (2.57)
7	80 (2.05)	37 (1.10)	117 (1.61)
8	63 (1.61)	22 (0.65)	85 (1.17)
9	20 (0.51)	10 (0.30)	30 (0.41)
10	3 (0.08)	2 (0.06)	5 (0.07)

Table 2

ACE items included in wave II of the CDC-Kaiser ACE Study.

Item	Preamble and content	ACE category
	<i>During your first 18 years of life:</i>	
1	Did you live with anyone who was a problem drinker or alcoholic? ^a	Household substance abuse
2	Did you live with anyone who used street drugs? ^a	Household substance abuse
3	Was anyone in your household depressed or mentally ill? ^a	Household mental illness
4	Did anyone in your household attempt to commit suicide? ^a	Household mental illness
5	Were your parents ever separated or divorced? ^a	Parental Separation/divorce
6	Did anyone in your household ever go to prison? ^a	Incarcerated household member
	<i>While you were growing up, during your first 18 years of life:</i>	
7	You didn't have enough to eat. ^c	Physical neglect
8	You know there was someone to take care of you and protect you. ^c	Physical neglect
9	Your parents were too drunk or high to take care of the family. ^c	Physical neglect
10	You had to wear dirty clothes. ^c	Physical neglect
11	There was someone to take you to the doctor if you needed it. ^c	Physical neglect
12	There was someone in your family who helped you feel important or special. ^c	Emotional neglect
13	You felt loved. ^c	Emotional neglect
14	People in your family looked out for each other. ^c	Emotional neglect
15	People in your family felt close to each other. ^c	Emotional neglect
16	Your family was a source of strength and support. ^c	Emotional neglect
	<i>Sometimes parents or other adults hurt children. While you were growing up, during your first 18 years of life, how often did a parent, stepparent, or adult living in your home:</i>	
17	Swear at you, insult you, or put you down? ^b	Emotional abuse
18	Act in a way that made you afraid that you might be physically hurt? ^b	Emotional abuse
19	Actually push, grab, shove, slap you or throw something at you? ^b	Physical abuse
20	Hit you so hard that you had marks or were injured? ^b	Physical abuse
	<i>Sometimes physical blows occur between parents. While you were growing up in your first 18 years of life, how often did your father (or stepfather) or mother's boyfriend do any of these things to your mother (or stepmother)?</i>	
21	Push, grab, slap or throw something at her? ^b	Household physical violence
22	Kick, bite, hit her with a fist, or hit her with something hard? ^b	Household physical violence
23	Repeatedly hit her over at least a few minutes? ^b	Household physical violence
24	Threaten her with a knife or a gun, or use a knife or gun to hurt her? ^b	Household physical violence
	<i>Some people, while growing up in their first 18 years of life, had a sexual experience with an adult or someone at least five years older than themselves. These experiences may have involved a relative family friend or stranger. During the first 18 years of life, did an adult or older relative, family friend or stranger ever:</i>	
25	Touch or fondle your body in a sexual way? ^a	Sexual abuse
26	Have you touch their body in a sexual way? ^a	Sexual abuse

Item	Preamble and content	ACE category
27	Attempt to have any type of sexual intercourse (oral, anal, or vaginal) with you? ^a	Sexual abuse
28	Actually have any type of sexual intercourse with you (oral, anal, or vaginal) with you? ^a	Sexual abuse

^aDichotomous scale – yes/no.

^bLikert scale – never, once or twice, sometimes, often, very often.

^cLikert scale – never true, rarely true, sometimes true, often true, very often true.

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Table 3
Adjusted bivariate and multivariate relationships among ACEs and adult sexual victimization.

ACE	N	%	Adult sexual victimization					
			Individual			Multivariate		
			β	Adjusted odds ratio	95% CI	β	Adjusted odds ratio	95% CI
Sexual abuse								
No (N = 5,770)	201	3.48	Ref.	1.00	–	Ref.	1.00	–
Yes (N = 1,502)	179	11.92	1.16	3.17	2.57–3.91	0.86	2.37	1.88–2.96
Emotional abuse								
No (N = 6,562)	280	4.27	Ref.	1.00	–	Ref.	1.00	–
Yes (N = 710)	100	14.08	1.13	3.10	2.46–3.90	0.33	1.39	1.01–1.89
Physical abuse								
No (N = 5,369)	214	3.99	Ref.	1.00	–	Ref.	1.00	–
Yes (N = 1,903)	166	8.72	0.95	2.59	2.11–3.17	0.36	1.43	1.10–1.84
Household mental illness								
No (N = 5,597)	209	3.60	Ref.	1.00	–	Ref.	1.00	–
Yes (N = 1,295)	171	11.66	0.94	2.55	2.07–3.13	0.54	1.72	1.37–2.17
Incarcerated household member								
No (N = 6,842)	327	4.78	Ref.	1.00	–	Ref.	1.00	–
Yes (N = 377)	53	12.33	0.82	2.28	1.66–3.09	0.41	1.50	1.06–2.10
Emotional neglect								
No (N = 6,223)	257	4.13	Ref.	1.00	–	Ref.	1.00	–
Yes (N = 1,049)	123	11.73	1.00	2.72	2.18–3.38	0.40	1.49	1.13–1.97
Physical neglect								
No (N = 6,589)	314	4.77	Ref.	1.00	–	–	–	–
Yes (N = 683)	66	9.66	0.93	2.53	1.92–3.32	–	–	–
Household physical violence								
No (N = 6,372)	304	4.77	Ref.	1.00	–	–	–	–
Yes (N = 900)	78	8.44	0.54	1.71	1.32–2.20	–	–	–
Household substance abuse								
No (N = 5,209)	206	3.95	Ref.	1.00	–	–	–	–

Adult sexual victimization							
ACE	N	%	Individual			Multivariate	
			β	95% CI	β	Adjusted odds ratio	95% CI
Yes (<i>N</i> = 2,063)	174	8.43	0.60	1.82	1.48–2.24		
Parental separation/divorce							
No (<i>N</i> = 5,537)	234	4.23	Ref.	1.00	–		
Yes (<i>N</i> = 1,735)	146	8.41	0.55	1.74	1.40–2.14		

Note. All estimates have been adjusted for age, race/ethnicity, gender, and educational attainment.