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Prevalence and correlates of child sexual abuse: a national study

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Abstract

Background: This study examines the prevalence, correlates, and psychiatric disorders of adults with history of child sexual abuse (CSA).
Methods: Data were derived from a large national sample of the US population. More than 34 000 adults 18 years and older residing in households were interviewed face-to-face in a survey conducted during the 2004-2005 period. Diagnoses were based on the Alcohol Use Disorder and Associated Disabilities Interview Schedule–*Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition,* version. 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 CSA and psychiatric disorders, adjusted for sociodemographic characteristics, risk factors, and other Axis I psychiatric disorders.
Results: The prevalence of CSA was 10.14% (24.8% in men and 75.2% in women). Child physical abuse, maltreatment, and neglect were more prevalent among individuals with CSA than among those without it. Adults with CSA history had significantly higher rates of any Axis I disorder and suicide attempts. The frequency, type, and number of CSA were significantly correlated with psychopathology.
Conclusions: The high correlation rates of CSA with psychopathology and increased risk for suicide attempts in adulthood suggest the need for a systematic assessment of psychiatric disorders and suicide risk in these individuals. The risk factors for CSA emphasize the need for health care initiatives geared toward increasing recognition and development of treatment approaches for the emotional sequelae CSA as well as early preventive approaches.

1. Introduction

In the United States, child sexual abuse (CSA) affects approximately 16% of men and 25% to 27% of women [1,2], with a broad range of prevalence in other countries around the world [3]. It is associated to poor outcomes including increased prevalence of psychiatric disorders [4-35] and risk of suicide, engagement in high-risk behaviors [18,36-39], and decreased health-related quality of life [1,35,40-42]. Reliable epidemiological data about the prevalence and characteristics of CSA and its psychological impact are needed to improve the health of affected individuals and their families and for the development of effective prevention and treatment interventions.

Child sexual abuse is associated with 47% of all childhood-onset psychiatric disorders and with 26% to 32% of adult-onset disorders [33,43]. Being raped, knowing the perpetrator, and higher frequency of the abuse are associated with increased odds of psychiatric disorders [44]. Psychological outcomes likely vary with the timing and type of abuse and whether it involves use of force [9,33,35,44]. Child sexual abuse often occurs in the context of a dysfunctional family environment, such as separation from parents, parental psychopathology, and other forms of child abuse including physical abuse and neglect [44]. For example, abuse involving physical penetration and abuse involving a father or stepfather is associated with greater long-term harm [35].

Clinical and epidemiological studies have demonstrated that CSA is strongly associated with the onset and persistence of adult mood and substance use disorders

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(SUDs) [4,6,9,13,18,19,21,29,34,35,43,45,46]. Individuals with history of CSA are also more likely to develop anxiety disorders, particularly posttraumatic stress disorder (PTSD), or experience psychotic symptoms following sexual abuse [23,32]. Despite this body of knowledge, fundamental questions about the epidemiology of CSA remain. The link between CSA and suicidal behavior is less well understood, as mixed results have been reported [25]. Specifically, little is known about the association of CSA with psychiatric disorders in adulthood and dose-response effects of CSA on psychiatric disorders [19,45,47]. Furthermore, there is scant research regarding the effect of CSA on the risk of psychiatric disorders in the general population as opposed to clinical samples, and whether that risk is uniform or varies by psychiatric disorder [1,3,6,9,34].

The current study builds on prior knowledge by assessing the psychiatric morbidity related to CSA in a nationally representative sample from the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC), which included psychometrically sound measures of a broad range of psychiatric disorders. Specifically, we sought to (1) assess the prevalence and sociodemographic correlates of CSA in the general population, (2) identify risk factors for developing psychiatric disorders among CSA survivors, (3) investigate the association of CSA with a broad range of psychiatric disorders, and (4) examine dose-response relationships between frequency of CSA and the prevalence of lifetime mental disorders.

2. Materials and methods

2.1. Sample

The NESARC [48,49] Waves 1 and 2 were the source of data for the present study. The NESARC target population at Wave 1 was the civilian noninstitutionalized population 18 years and older residing in households and group quarters. Blacks, Hispanics, and adults aged 18 to 24 years were oversampled at the design phase of the survey to obtain more reliable estimates for these groups, with data adjusted for oversampling and for household- and person-level nonresponse. Interviews were conducted by experienced professional lay interviewers with extensive training and supervision [48,49]. Interviewers had 5 years of experience working on census and other health-related surveys, and they completed a 5-day training session [1,46,50-52]. All procedures, including informed consent, received full ethical review and approval from the US Census Bureau and the US Office of Management and Budget. After excluding respondents who were ineligible for Wave 2 (eg, deceased), 34 653 respondents were reinterviewed; and sample weights were developed to additionally adjust for Wave 2 nonresponse. Weighted data were then adjusted to be representative of the civilian population of the United States on socioeconomic variables based on the 2000 Decennial Census [49].

2.2. Assessment

2.2.1. Sociodemographic measures

Sociodemographic measures included sex, race-ethnicity, nativity, age, education, marital status, place of residence, region of the country, employment status, personal and family income, and insurance type.

2.2.2. Diagnostic assessment

All psychiatric diagnoses were made according to *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV), Text Revision*, criteria [53] using the Alcohol Use Disorder and Associated Disabilities Interview Schedule–*DSM-IV* (AUDADIS-IV), Wave 2 version [54,55], a reliable and valid diagnostic interview designed to be used by trained interviewers. Extensive AUDADIS-IV questions covered *DSM-IV* criteria for alcohol and drug-specific abuse and dependence for 10 classes of substances. The good to excellent ($k = 0.70$-0.91) test-retest reliability of AUDADIS-IV substance use diagnoses is documented in clinical and general population samples [56,57]. Convergent, discriminant, and construct validities of AUDADIS-IV SUD criteria and diagnoses were good to excellent [58,59].

Mood disorders included *DSM-IV* major depressive disorder (MDD), bipolar I and II, and dysthymia. Diagnoses of MDD ruled out bereavement. Anxiety disorders included *DSM-IV* panic disorder, social anxiety disorder, specific phobias, generalized anxiety disorder (GAD), and PTSD. The AUDADIS-IV methods to diagnose these disorders are described in detail elsewhere [60-63].

Attention-deficit/hyperactivity disorder (ADHD) was assessed at Wave 2 of the NESARC. Consistent with *DSM-IV*, lifetime and childhood AUDADIS-IV diagnoses of ADHD required the respondent to meet the *DSM-IV* symptom thresholds. Subtypes were included as well, accordingly to the *DSM-IV* definition. Twenty symptom items operationalized the 18 ADHD criteria. Conduct disorder was assessed retrospectively through 20 items that yielded a Cronbach α of 0.72. All questions included in the AUDADIS-IV reflected CD *DSM-IV* conduct disorder criteria and the 4 dimensions of the disorder (aggression to people and animals, destruction of property, deceitfulness or theft, and serious violations of rules). All criteria had to be endorsed before age 15.

All respondents who had gambled 5 or more times in at least 1 year of their life were asked about the symptoms of *DSM-IV* pathological gambling. Consistent with *DSM-IV*, lifetime AUDADIS-IV diagnoses of pathological gambling required the respondent to meet at least 5 of the 10 *DSM-IV* criteria. Fifteen symptom items operationalized the 10 pathological gambling criteria.

The test-retest reliability and validity of AUDADIS-IV *DSM-IV* disorders are good to excellent [56,57,64-70]. Because of concerns over the validity of psychotic diagnoses in general population surveys as well as the length of the interview, possible psychotic disorders were assessed by asking the respondent if he or she was ever told by a

physician or other health professional that he or she had schizophrenia or a psychotic disorder.

The NESARC survey asked individuals the following questions located in the major depressive episode module: "During that time when your mood was at its lowest/you enjoyed or cared the least about things, did you: 1) have thoughts of death?; 2) think about committing suicide?; 3) attempt suicide?" We used the third question to assess a lifetime history of suicide attempt.

2.2.3. Child sexual abuse

Child abuse and trauma was assessed in Wave 2. All questions about adverse childhood events are related to respondents' first 17 years of life. Questions were adapted from the Adverse Childhood Events study [56,64,71-73] and were originally part of an extensive battery of questions from the Conflict Tactics Scale [74-76] and the Childhood Trauma Questionnaire [76,77]. Response categories for most scale items were from 1 = "never" to 5 = "very often." Response category values were summed across items to produce scales.

Child sexual abuse was defined by the 4 questions that the Adverse Childhood Events study used to assess unwanted sexual experiences before age 18 [56,64,71-73]: "Before you were 18 years old: 1) How often did an adult or other person touch or fondle you in a sexual way when you didn't want them to or you were too young to know what was happening?; 2) How often did an adult or other person have you touch their body in a sexual way when you didn't want them to or you were too young to know what was happening?; 3) How often did an adult or other person attempt to have sexual intercourse with you when you didn't want them to or you were too young to know what was happening?; and, 4) How often did an adult or other person actually have sexual intercourse with you when you didn't want them to or you were too young to know what was happening?" Responses to all 4 questions ranged from 1 = "never" to 5 = "very often." Individuals who responded never to all these questions were classified as not having a history of CSA. All other individuals were classified as having a history of CSA.

Because CSA is frequently associated with a dysfunctional family environment and other types of child abuse, such as physical abuse and neglect [78,79], the study incorporated measures of known risk factors for CSA. Those included (1) history of child physical abuse or neglect; (2) parental psychopathology, comprising parental alcohol and drug use, witnessing of domestic violence, parental incarceration, parental psychiatric problems, and parental suicide; and (3) low family support. History of physical abuse or neglect and parental psychopathology were originally part of the Conflict Tactics Scale [76]. To assess family support, all respondents were queried on 4 questions, rated on a 5-point Likert scale with 1 = "never true" and 5 = "very often true": "I felt there was someone in my family who wanted me to be a success," "There was someone in my family who helped me feel important," "Someone in my family believed in me," and "I felt part of a close-knit family" [1,34,44,74]. Individuals who answered 1 to 2 to all 4 questions were rated as having low family support. All 4 questions were originally part of the emotional neglect section of the Childhood Trauma Questionnaire [78].

2.3. Statistical analysis

Weighted cross-tabulations were used to calculate the prevalence of psychiatric disorders stratified by presence or absence of CSA history. A series of logistic regression analyses yielded odds ratios (ORs), indicating associations of sociodemographic characteristics and other risk factors, including other types of abuse and parental psychopathology as predictors and CSA as the outcome variable. A second set of logistic regressions examined CSA as predictor and each lifetime Axis I psychiatric disorder as the outcome. Separate analyses assessed dose-response relationships between number of types of CSA, frequency, and type of CSA and current psychiatric disorders, as well as lifetime psychiatric disorders. In all sets of analyses, respondents without CSA served as the referent group. To guard against the possibility of sociodemographic characteristics and childhood risk factors influencing the association between CSA and each psychiatric disorder, multiple logistic regressions were computed to yield adjusted odds ratios (AORs) by controlling for sociodemographic characteristics, other comorbid psychiatric disorders, and other potential risk factors, such as parental psychopathology, perceived family support, and other types and number of child abuse (eg, physical abuse or neglect).

Prevalence, frequency of types of CSA, as well as number of CSA experienced and specific types of CSA and their relationship to different types of psychiatric diagnoses were also computed. Because of the low number of cases and similarities between 2 categories of the variables of frequency of abuse ("fairly often" and "very often"), they were merged and named the variable "often." To estimate the independent effect of the different types of CSA, we examined the effect of each type of CSA on the risk of psychiatric disorders, adjusting for all other types of sexual abuse.

We consider 2 percentage estimates to be significantly different from each other if their 95% confidence intervals (CIs) do not overlap. Odd ratios are considered significant if their 95% CIs do not include 1. All standard errors and 95% CIs were estimated using SUDAAN [73] to adjust for the design effects of the NESARC.

3. Results

3.1. Sociodemographic characteristics

The weighted prevalence of sexual abuse before age 18 was 10.14%, of which 24.8% were men and 75.2% were women (Table 1). Compared with individuals with no history of CSA, individuals reporting CSA were more likely to be black or Native American than white; more

Table 1
Sociodemographic characteristics of individuals with and without a history of CSA

	CSA (n = 3786)		Non- CSA (n = 30431)		OR	(95% CI)
	%	(95% CI)	%	(95% CI)		
Sex						
Male	24.83	23.11-26.64	50.65	49.92-51.38	0.32	0.29-0.35
Female[a]	75.17	73.36-76.89	49.35	48.62-50.08	1.00	1.00-1.00
Race/ethnicity						
White[a]	69.51	66.61-72.26	71.17	67.91-74.23	1.00	1.00-1.00
Black	13.41	11.53-15.55	10.78	9.52-12.18	1.27	1.12-1.45
Asian	2.06	1.41-3.02	4.45	3.50-5.64	0.47	0.34-0.66
Native American	3.76	2.97-4.75	1.99	1.66-2.39	1.93	1.48-2.53
Hispanic	11.25	9.21-13.69	11.61	9.38-14.28	0.99	0.86-1.14
Nativity						
Born in the United States[a]	90.14	87.86-92.02	85.82	82.77-88.4	1.00	1.00-1.00
Born in a foreign country	9.86	7.98-12.14	14.18	11.60-17.23	0.66	0.57-0.77
Marital status						
Married or cohabiting[a]	59.33	57.45-61.19	64.39	63.36-65.39	1.00	1.00-1.00
Widowed/separated/divorced	24.19	22.62-25.84	18.16	17.61-18.72	1.45	1.31-1.60
Never married	16.48	15.04-18.02	17.46	16.53-18.42	1.02	0.91-1.15
Education						
<High school	13.15	11.85-14.57	14.02	13.12-14.96	0.89	0.78-1.00
High school graduate	21.41	19.62-23.31	24.08	23.16-25.03	0.84	0.75-0.94
Some college or higher[a]	65.44	63.20-67.63	61.90	60.73-63.06	1.00	1.00-1.00
Urbanicity						
Rural	16.75	15.12-18.53	16.24	15.14-17.40	1.04	0.92-1.17
Urban[a]	83.25	81.47-84.88	83.76	82.60-84.86	1.00	1.00-1.00
Region						
Northeast	18.12	15.42-21.17	17.72	15.51-20.16	1.06	0.91-1.23
Midwest	18.37	15.83-21.20	18.55	16.46-20.85	1.03	0.90-1.17
South	39.02	35.39-42.77	38.34	35.27-41.50	1.05	0.94-1.18
West[a]	24.50	21.97-27.21	25.39	23.57-27.31	1.00	1.00-1.00
Insurance						
Private[a]	74.12	72.27-75.89	78.01	76.77-79.20	1.00	1.00-1.00
Public	13.75	12.32-15.33	10.48	9.79-11.20	1.38	1.20-1.59
None	12.13	10.82-13.57	11.51	10.73-12.35	1.11	0.96-1.28

[a] Reference group.

likely to be widowed, separated, or divorced than married; and more likely to have public than private insurance. In addition, individuals with history of CSA were less likely to be men, be Asian, be foreign-born, or have completed high school education.

3.2. Risk factors of CSA

The prevalence of child physical abuse, maltreatment, and neglect was significantly higher among individuals with CSA than among those without it (Fig. 1). Furthermore, respondents with CSA had significantly higher rates of having had a parent with an SUD, witnessing domestic violence, or having had an absent parent before age 18 than respondents without a history of CSA. Child sexual abuse survivors had significantly lower levels of perceived family support than those without CSA.

3.3. Lifetime psychiatric disorders among individuals with and without CSA

Individuals with CSA were significantly more likely than those without CSA to have a psychiatric disorder sometime in their lifetime (OR = 2.98; 95% CI, 2.63-3.37) (Table 2). The most common disorders were nicotine dependence, MDD, PTSD, and specific phobia. In the unadjusted model, individuals with CSA were significantly more likely than those without CSA to have all lifetime Axis I disorders, except alcohol abuse and pathological gambling. Individuals with CSA also had higher rates of suicide attempts than those without CSA. The strongest associations were between suicide attempts and PTSD.

Adjusting for sociodemographic characteristics, risk factors, and other comorbid psychiatric disorders decreased the ORs between CSA and all disorders; but the associations remained significant for MDD, bipolar disorder, panic disorder, PTSD, ADHD, conduct disorder, and suicide attempts.

3.4. Twelve-month prevalence of psychiatric disorders among individuals with and without CSA

Those who reported a history of CSA were significantly more likely than those without CSA to have a psychiatric disorder in the past 12-months (OR = 2.71; 95% CI, 2.44-

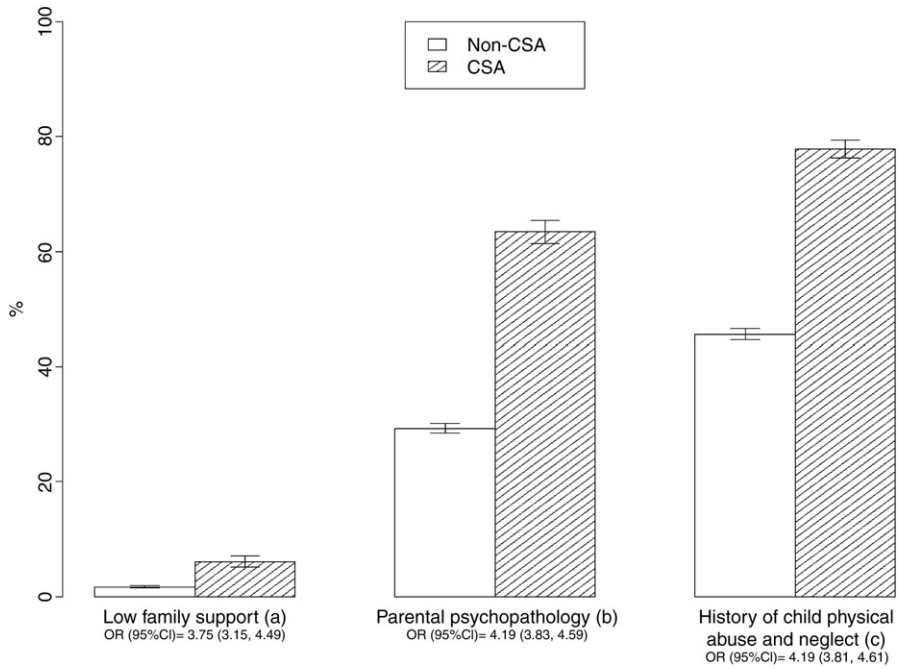

Fig. 1. Risk factors of individuals with and without a history of CSA. A, History of child physical abuse and neglect = symptoms of child physical abuse/maltreatment, and symptoms of child neglect. B, Parental psychopathology = before age 18 experienced parental alcohol use or drug use, witnessed domestic violence, parent went to prison, parent hospitalized for mental illness, parent committed suicide. C, Low family support (see variable definition in text.)

3.00) (Table 3). The most common disorders were nicotine dependence, bipolar disorder, panic disorder, social anxiety disorder, PTSD, and psychotic disorder. Furthermore, the risk of suicide attempt was higher among those with a history of CSA than those without it (OR = 7.97; 95% CI, 6.82-9.30).

Adjusting for sociodemographic characteristics, risk factors, and other comorbid psychiatric disorders decreased the ORs between CSA and all disorders; but the associations remained significant for nicotine dependence, bipolar disorder, panic disorder, social anxiety disorder, specific phobia, PTSD, psychotic disorder, and suicide attempts.

3.5. Relationship between frequency, types of CSA, and 12-month psychiatric disorders

After adjusting for sociodemographic characteristics, other types of sexual abuse, and number of types of sexual abuse, higher frequency of being touched by the perpetrator and having touched the perpetrator's body increased the risk of past 12-month mood, anxiety, and SUDs. A similar association was observed regarding lifetime history of suicide attempt. By contrast, higher frequency of attempted or completed intercourse was associated with increased risk of lifetime history of suicide attempt, but was not associated with increased odds of past 12-month mood, anxiety, or SUDs. Furthermore, there was a dose-response relationship between number of types of CSA and odds of 12-month mood, anxiety, or SUDs, as well as suicide attempts (Table 4).

Being touched by the perpetrator had the highest associations with all psychiatric diagnostic categories: any mood disorder (AOR = 2.40; 95% CI, 1.98-2.90) (Fig. 2A), any anxiety disorder (AOR = 2.43; 95% CI, 2.08-2.84) (Fig. 2B), any SUD (AOR = 1.29, CI: 1.09-1.53) (Fig. 2C), and any suicide attempt (AOR = 4.07; 95% CI, 3.02-5.48) (Fig. 2D). Intercourse attempt significantly increased the risk of having any mood disorder (AOR = 1.49; 95% CI, 1.13-1.97), any anxiety disorder (AOR = 1.78; 95% CI, 1.47-2.16), and any suicide attempt (AOR = 1.65; 95% CI, 1.16-2.35). By contrast, after adjusting for the effect of other types of CSA, touching the perpetrator's body did not significantly increase the risk any psychiatric disorder.

4. Discussion

In a large, nationally representative sample of US adults, approximately 1 in 10 individuals had experienced sexual abuse before age 18, in the range of previous epidemiological [33,34,38,44,80] and clinical studies [12,13,21]. The prevalence of CSA was higher among women and among individuals who were widowed, separated, or divorced. Child sexual abuse often co-occurred with child neglect, emotional and physical abuse, as well as parental psychopathology. Individuals with CSA were significantly more likely than those without CSA to meet criteria for a broad range of Axis I disorders and to have a history of suicide attempt. The frequency of the abuse had a dose-response relationship with the odds for psychopathology. The type of the abuse, on the other hand, did not have a strong association with psychopathology.

Table 2
Lifetime psychiatric disorders among individuals with and without history of CSA

	CSA (n = 3786)	Non- CSA (n = 30431)	OR	(95% CI)	AOR[a]	(95% CI)
	% Mean (SE)	% Mean (SE)				
Any psychiatric diagnosis	83.97 (0.83)	63.77 (0.65)	2.98	2.63-3.37	2.21	1.93-2.52
Any Axis I disorder	81.88 (0.87)	61.14 (0.70)	2.87	2.56-3.23	1.79	1.58-2.03
Any SUD	55.39 (1.15)	44.07 (0.80)	1.58	1.44-1.73	1.15	1.04-1.28
Nicotine dependence	34.19 (1.10)	21.87 (0.51)	1.86	1.69-2.04	1.12	1.00-1.25
Any AUD	40.53 (1.16)	33.94 (0.76)	1.33	1.21-1.46	0.96	0.85-1.07
Alcohol abuse	17.93 (0.85)	19.48 (0.53)	0.90	0.80-1.02	1.07	0.94-1.22
Alcohol dependence	22.60 (0.89)	14.47 (0.39)	1.73	1.55-1.93	1.11	0.97-1.27
Any drug use disorder	21.31 (0.83)	10.95 (0.33)	2.20	1.99-2.43	1.21	1.06-1.39
Drug abuse	16.18 (0.75)	9.46 (0.31)	1.85	1.64-2.08	1.08	0.93-1.26
Drug dependence	8.48 (0.61)	2.80 (0.15)	3.22	2.70-3.83	1.24	0.99-1.57
Any mood disorder	49.15 (1.00)	21.14 (0.37)	3.61	3.31-3.93	1.51	1.36-1.68
MDD	30.35 (0.96)	14.80 (0.29)	2.51	2.28-2.76	1.28	1.14-1.43
Dysthymia	8.07 (0.53)	2.88 (0.10)	2.96	2.53-3.47	1.19	0.97-1.46
Bipolar disorder	17.63 (0.79)	5.66 (0.18)	3.56	3.15-4.03	1.33	1.14-1.56
Any anxiety disorder	55.42 (1.07)	26.48 (0.47)	3.45	3.16-3.77	1.61	1.45-1.78
Panic disorder	18.17 (0.83)	6.16 (0.19)	3.38	3.00-3.82	1.23	1.06-1.44
Social anxiety disorder	15.39 (0.71)	6.02 (0.21)	2.84	2.52-3.20	1.02	0.87-1.19
Specific phobia	27.92 (0.92)	13.68 (0.36)	2.44	2.21-2.70	1.06	0.95-1.20
GAD	18.81 (0.82)	6.36 (0.21)	3.41	3.02-3.85	1.12	0.96-1.32
PTSD	28.34 (0.86)	7.33 (0.21)	5.00	4.53-5.52	2.05	1.82-2.31
Pathological gambling	0.59 (0.13)	0.38 (0.05)	1.57	0.96-2.57	0.68	0.36-1.27
Psychotic disorder	6.12 (0.47)	2.85 (0.18)	2.22	1.81-2.71	1.21	0.98-1.49
ADHD	7.28 (0.54)	1.95 (0.11)	3.96	3.25-4.81	1.86	1.45-2.38
Conduct disorder	2.2 (0.39)	0.90 (0.08)	2.47	1.64-3.70	2.13	1.36-3.35
Suicide attempt	14.32 (0.70)	2.05 (0.10)	7.97	6.82-9.30	2.60	2.13-3.17

[a] Adjusted for sociodemographic characteristics, risk factors, and other Axis I comorbid disorders.

Consistent with the findings of national and international surveys, CSA was more common among women than men [31,81], although rates of CSA among men were also high. The true sex distribution of CSA may be obscured by underdetection and underreporting among males, as attention from parents, teachers, pediatricians, and other childcare

Table 3
Twelve-month prevalence of psychiatric disorders among individuals with and without history of CSA

	CSA (n = 3786)	Non-CSA (n = 30431)	OR	(95% CI)	AOR	(95% CI)
	% Mean (SE)	% Mean (SE)				
Any psychiatric diagnosis	64.64 (1.11)	40.30 (0.52)	2.71	2.44-3.00	1.96	1.76-2.18
Any Axis I disorder	53.63 (1.11)	31.91 (0.45)	2.47	2.26-2.70	1.81	1.65-1.99
Any SUD	29.68 (1.13)	20.27 (0.80)	1.66	1.49-1.85	1.28	1.14-1.44
Nicotine dependence	21.93 (1.00)	13.02 (0.51)	1.88	1.67-2.11	1.27	1.11-1.45
Any AUD	11.85 (0.70)	9.46 (0.76)	1.29	1.12-1.48	1.07	0.91-1.26
Alcohol abuse	5.03 (0.41)	5.33 (0.53)	0.94	0.79-1.12	1.05	0.86-1.29
Alcohol dependence	6.82 (0.52)	4.13 (0.39)	1.70	1.44-2.01	1.19	0.98-1.45
Any drug use disorder	4.97 (0.49)	2.11 (0.33)	2.42	1.96-2.99	1.33	1.02-1.74
Drug abuse	3.14 (0.38)	1.55 (0.31)	2.07	1.58-2.70	1.29	0.95-1.76
Drug dependence	2.16 (0.36)	0.67 (0.15)	3.27	2.22-4.81	1.36	0.84-2.20
Any mood disorder	22.57 (0.82)	8.14 (0.37)	3.39	2.97-3.64	1.38	1.22-1.57
MDD	11.26 (0.62)	5.04 (0.29)	2.39	2.08-2.76	1.08	0.92-1.28
Dysthymia	1.79 (0.30)	0.64 (0.10)	2.83	1.98-4.04	1.12	0.71-1.77
Bipolar disorder	10.79 (0.62)	2.86 (0.18)	4.10	3.50-4.80	1.75	1.46-2.11
Any anxiety disorder	32.83 (0.96)	13.08 (0.47)	3.25	2.96-3.58	1.72	1.54-1.91
Panic disorder	7.80 (0.58)	1.98 (0.19)	3.38	3.43-5.12	1.61	1.25-2.09
Social anxiety disorder	7.04 (0.53)	2.00 (0.21)	3.71	3.09-4.45	1.41	1.11-1.79
Specific phobia	15.19 (0.74)	6.64 (0.36)	2.52	2.21-2.87	1.21	1.04-1.40
GAD	9.96 (0.62)	3.07 (0.21)	3.49	2.97-4.11	1.22	0.97-1.53
PTSD	13.06 (0.67)	3.48 (0.21)	4.16	3.63-4.78	1.78	1.51-2.10
Psychotic disorder	2.06 (0.30)	0.44 (0.18)	4.74	3.32-6.79	2.26	1.42-3.60
Suicide attempt	14.32 (0.70)	2.05 (0.10)	7.97	6.82-9.30	3.28	2.69-3.99

Adjusted odds ratios are adjusted for sociodemographic characteristics, risk factors, and other lifetime Axis I comorbid disorders.

Table 4
Dose-response relationship between number of types and frequency of CSA and 12-month psychiatric disorders

	Any mood disorder[a]			Any anxiety disorder[a]			Any SUD[a]			Any suicide attempt[b]		
	AOR	95% CI		AOR	95% CI		AOR	95% CI		AOR	95% CI	
Touched by perpetrator												
Never	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Almost never	1.28	0.99	1.65	1.40	1.11	1.76	1.19	0.95	1.50	1.96	1.40	2.73
Sometimes	1.68	1.21	2.35	1.90	1.42	2.54	1.59	1.16	2.19	2.74	1.74	4.31
Often	1.75	1.09	2.82	2.07	1.38	3.11	1.81	1.15	2.84	4.09	2.38	7.04
Touched perpetrator's body												
Never	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Almost never	1.20	0.89	1.62	1.23	0.94	1.60	1.16	0.89	1.51	1.53	1.03	2.27
Sometimes	1.54	1.09	2.18	1.32	1.51	1.09	1.38	0.96	1.98	1.68	1.07	2.64
Often	1.95	1.04	3.64	1.24	2.25	1.30	1.73	1.03	2.92	1.97	1.00	3.87
Intercourse attempt												
Never	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Almost never	1.55	1.19	2.01	1.80	1.46	2.22	1.35	1.04	1.75	1.73	1.27	2.36
Sometimes	1.47	1.01	2.13	1.62	1.19	2.21	1.01	0.70	1.47	1.73	1.09	2.76
Often	1.07	0.56	2.06	1.61	0.96	2.70	1.44	0.79	2.63	2.41	1.17	4.97
Intercourse												
Never	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Almost never	1.55	1.19	2.01	1.28	0.95	1.73	1.88	1.36	2.59	2.93	1.95	4.39
Sometimes	1.50	0.96	2.35	1.32	0.91	1.92	1.62	1.10	2.39	2.81	1.66	4.78
Often	1.11	0.59	2.08	1.10	0.63	1.90	1.07	0.60	1.88	2.47	1.33	4.58
	OR			OR			OR			OR		
Number of types of sexual abuse												
0	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1	2.85	2.40	3.40	2.71	2.34	3.13	1.43	1.21	1.70	3.58	1.44	2.72
2	2.83	2.34	3.42	3.18	2.70	3.74	1.46	1.20	1.71	4.53	1.59	3.01
3	3.84	3.05	4.84	4.60	3.81	5.56	2.10	1.67	2.63	9.15	2.45	5.21
4	4.19	3.48	5.04	5.22	4.33	6.29	2.01	1.67	2.43	11.89	2.63	4.60

Adjusted odds ratios are adjusted for sociodemographic characteristics, other types of sexual abuse, and number of types of sexual abuse.
[a] Mood, anxiety, and SUDs were measured as past 12 months.
[b] Suicide attempt was measured as lifetime.

professionals regarding CSA focuses primarily on girls [34,44,81-85]. Boys may be reluctant to disclose sexual abuse because of fear of punishment, stigma against homosexuality, and loss of self esteem; and they may consequently be drawn into the criminal justice or substance abuse treatment systems, contributing to underrepresentation of males with CSA in clinical and community epidemiological studies [86]. Some studies suggest that males may less often report their histories of CSA than females because of fear of stigma, vulnerability, and loss of their masculinity [87,88]. Despite these sources of potential underreporting in males, some evidence suggests that boys are sexually abused less often than girls [86]. Men are socialized to behave as sexual initiators and are more often in positions of power, which can sometimes lead to abuse [89,90]. Women are traditionally expected to show subordination to men, which may make them more vulnerable to abuse perpetrated by male authority figures [90]. Consistent with this interpretation, girls, but not boys, are at higher risk of experiencing sexual abuse if they have a stepfather [91]. Nevertheless, prevention and intervention programs should target both sexes.

Although no specific psychopathological syndrome has been described as sequelae from CSA in adulthood, our findings indicate that CSA was associated with higher probability of being widowed, separated, or divorced [38]. Survivors of CSA fear revictimization [92-95], encounter sexual difficulties, relationship dissatisfaction, and distrust of others, which may interfere with forming and maintaining intimate relations that often characterize marriage [4]. Disturbances in the child's attachment style may also help explain these relationship difficulties in adulthood [94-96]. Attachment style, emotional support, and healthy and positive relationships may play an important role in recovery from CSA [97].

Child sexual abuse was associated with a broad range of psychiatric disorders, particularly, PTSD, mood disorders, and ADHD. This pattern suggests that the association of CSA with psychiatric disorders includes general and disorder-specific components. Symptoms of children survivors of sexual abuse include feelings of guilt and academic and behavioral problems, increasing the risk for mood disorders [98,99]. Moreover, genetic characteristics may modulate children's exposure to environmental insults or their sensitivity to the insults once they experience them [100]. Gene-environment studies have reported interactions between specific genetic characteristics and childhood adversities with development of PTSD [101], antisocial behavior [102,103], externalizing disorders in general [104], and MDD [105]. A range of candidate genes, such as 5HTTLPR, MAOA, and DRD1–DRD4, and various others implicated in

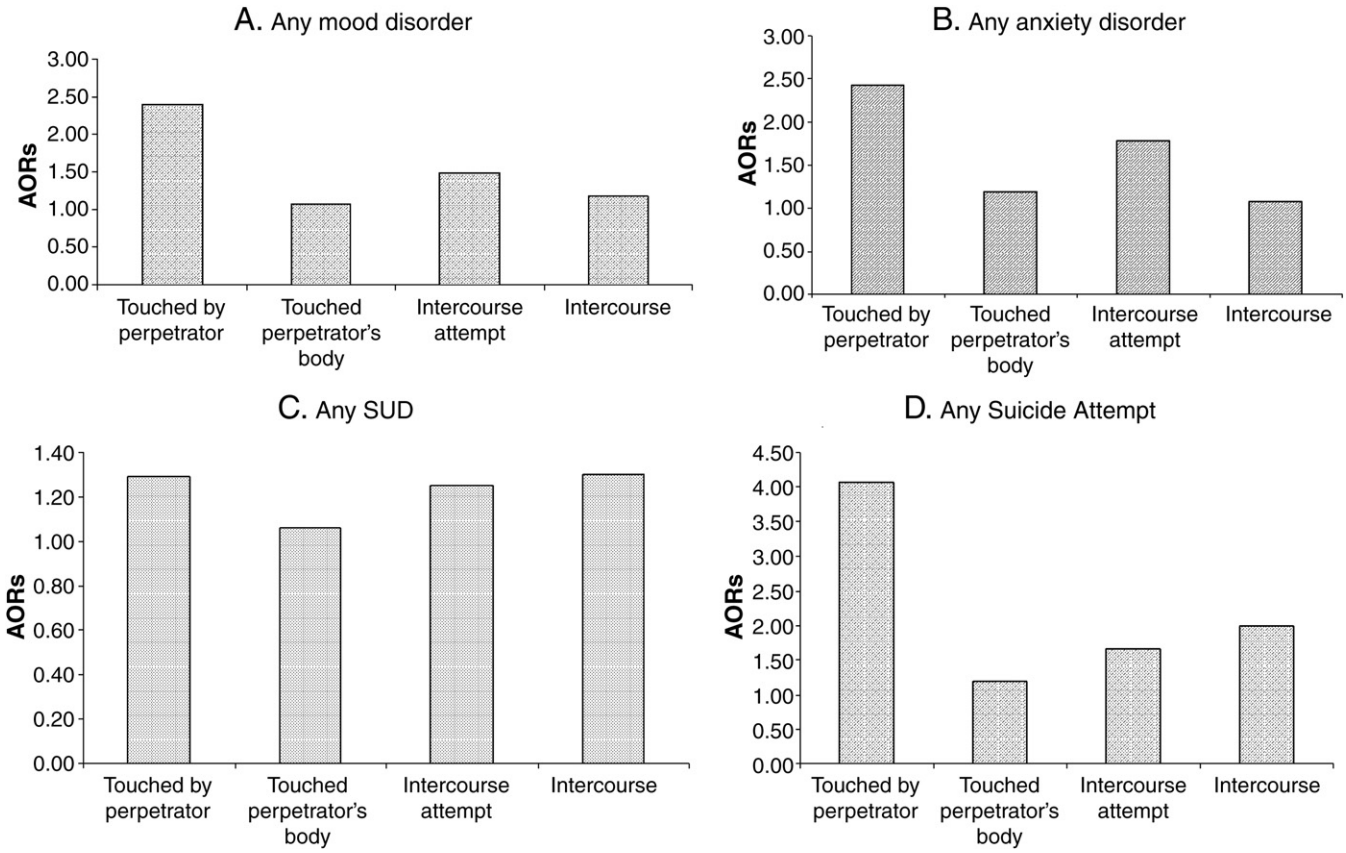

Fig. 2. A, B, C, and D, Relationship between type of CSA and current psychiatric disorders. A, Mood, anxiety, and SUDs were measured as past 12 months. B, Suicide attempt was measured as lifetime. Adjusted odds ratios are adjusted for other types of sexual abuse (with psychiatric disorders as outcome).

the central nervous system, have been implicated in psychiatric comorbidity [106]. When looking at the association between CSA and past year psychiatric disorders, we found that psychotic disorder has high risk as compared with the association between CSA and lifetime psychiatric diagnoses. These results shed light on the devastating long-term effects of CSA. Because survivors of CSA are at risk for revictimization, an explanation can be that accumulation of repeated abuses leads to higher risks of developing a more severe psychopathology.

Suicide attempts were also significantly elevated among individuals with CSA. This association persisted following adjustment for comorbid psychiatric disorders, indicating that CSA is associated with higher odds of suicide attempt even after taking into account the effect of psychiatric disorders. Child sexual abuse survivors often have feelings of isolation and stigma [107-109] and poor self-esteem [110], which may lead to suicidal behaviors when they are reactivated by similar situations in adulthood [111]. Amygdala abnormalities associated with severe early trauma can also predispose to impulsivity, impaired decision making, and suicidal behavior [112]. Disruptions in the amygdala and other parts of the limbic system and the level of support that a CSA survivor receives may be important determinants of long-term adjustment [113].

In accord with previous studies [110], the frequency of abuse was strongly associated with the odds of having a psychiatric disorder. We found the frequency of one type of abuse being strongly associated with developing psychopathology. We also found that frequency of attempted or completed intercourse was not associated with higher odds of psychopathology. This might suggest that some types of CSA, such as attempted or completed intercourse, are so severe that the consequences of a single occurrence are as severe as those of multiple occurrences. At the same time, we found that being touched by the perpetrator was highly associated with any psychiatric disorder, as opposed to having been raped. Thus, the experience of abuse may be more important for the survivor than the specific type of abuse, leading different types of abuse to generate similar stress. Reexperiencing the abuse may trigger anxiety and contribute to depressed mood or suicidal thoughts and behaviors [9,35,114]. Forms of abuse that may appear less severe can have serious consequences on adult mental health if they occur repeatedly, possibly related to enduring dysfunction in brain circuits activated by stress [115], or psychological changes leading to poorer emotional and impulse control regulation [113].

Our study has clinical and preventive implications. The initial effects of CSA include internalizing behaviors such as

sleep and eating disturbances, fears and phobias, depression, shame, guilt, anger, and hostility and externalizing behaviors such as school problems, truancy, running away, and inappropriate sexual behavior [113]. Therefore, clinical screening for CSA is important for early treatment to reduce the impact of psychological trauma. Children who have a diagnosis of conduct disorder or ADHD or who show a variety of externalizing behaviors could be screened by the school or the clinicians for the presence of history of CSA.

Existing brief screening questionnaires can be used in emergency departments, general pediatric clinics, and child mental health agencies and followed up with more comprehensive assessments among children with positive screens [116]. From a broader perspective, training in assessment and mandatory reporting procedures, standard data collection processes, adequate reimbursement, triage and coordination between health care professionals, social work, child protection agencies, law enforcement, and the child's parent or guardian are likely key aspects of successful public policy in this area.

Some psychological interventions have been shown in short-term clinical trials to ameliorate the consequences of CSA. Specifically, trauma-focused CBT with the child and nonoffending parent has demonstrated efficacy in adverse psychological effects of sexually abused children [117]. However, much remains to be learned about the optimal balance among different components of trauma-focused CBT, appropriate involvement of nonoffending parents in treatment, and effectiveness for younger child survivors and for boys [118]. Important questions also remain concerning the appropriate clinical approach to children who following sexual abuse present with few or no symptoms [119] but are nevertheless at high risk over time to deteriorate in their psychological functioning [113]. In addition to psychotherapy, school-based child education programs can help teach children CSA concepts and coping skills for self-defense. Home visitation programs may help to reduce child abuse and neglect by providing the knowledge, skills, and support and improving parenting skills [113].

Our study sheds light on the broad clinical picture that is likely to arise later in life among CSA survivors within the general population. It also reflects how certain and frequent psychopathological manifestations, such as suicidal behavior, may be independently linked to CSA. Treatment for adults survivors of CSA include psychopharmacology and psychotherapy to address their self-harmful behaviors, poor sense of self, anxiety disorders, and substance abuse and to reduce the possibility of revictimization. Psychotherapy with adult survivors of CSA should ideally integrate several techniques to address the patient's needs appropriately, as well as providing psychoeducation to the patient's partner into the effects of CSA trauma. Couples that include an individual who is a survivor of CSA are at increased risk for a variety of relationship problems, mental health problems, dysfunctional sexual relationships, or revictimization. Therefore, couples therapists need an awareness and understanding of the long-term impact of such trauma and to be familiarized with the specific interventions that might minimize the damaging effects on intimate relationships.

This study has the limitations common to most large-scale surveys. First, to limit respondent burden, the NESARC assessed CSA with only 4 questions. Several potential predictors (eg, support at the time of the abuse) and consequences (eg, sexual functioning, eating disorders) of CSA were not examined. Second, although the NESARC survey design included group quarters, some special populations, such as those younger than 18 years or respondents in jail or hospitalized at the time of the interview, were not included in the sample. Third, our results are based on data that require recall of lifetime traumatic events and symptoms subsequent to exposure to such trauma, and are subject to the possibility of recall bias. An extensive literature describes false memories related to traumatic events [120]. Fourth, because the exact timing of the abuse is unknown, it is possible that, in some cases, the onset of the disorder may have preceded the time of the abuse. However, the results of the 12-month prevalence analyses suggest that the influence of this potential bias is likely to be small.

In summary, the national prevalence of CSA is high; and it is associated with increased prevalence of psychiatric disorders and suicide attempts. Furthermore, higher odds of psychiatric disorders are associated with the frequency of the abuse. Our study has important clinical implications for pediatricians, psychiatrists, and other mental health professionals who work with children, as early detection and treatment of child abuse might help reduce the onset, persistence, or severity of a psychiatric disorder and ameliorate functional impairment. Interventions that prevent and treat CSA can greatly decrease the suffering of the survivors and contribute to improved mental health.

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