

Child Sexual Abuse and Subsequent Psychopathology: Results From the National Comorbidity Survey

ABSTRACT

Objectives. 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.

Methods. 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). Reports were analyzed by multivariate methods.

Results. 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.

Conclusions. 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. (*Am J Public Health*. 2001;91:753–760)

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In the past 2 decades, epidemiologic and clinical studies have identified negative sequelae associated with a history of child sexual abuse (CSA), especially psychopathology. CSA has been linked to depression across all age groups,^{1–11} generalized anxiety disorder,^{10,11} panic disorder,^{1,9} phobias,^{1,7} and especially posttraumatic stress disorder (PTSD).^{7,9,12–17} CSA has also been linked to substance problems and dependence.^{1,7,9–11,18–25} Although there have been several informative review articles,^{26–30} to our knowledge no previous studies have examined the associations between CSA and a range of mood, anxiety, and substance disorders in a nationally representative sample of individuals in the United States.

CSA is a major public health problem, with estimates from national probability samples ranging from 0% to 16% among men and 3% to 27% among women.^{16,24,31–35} Its measurement is complicated, given debate over case definitions, the stigmatizing nature of abuse experiences, and the controversial, private nature of the abuse event itself.³⁶

Studies show that CSA often co-occurs with other adverse family conditions, including marital conflict, separation from biological parents, family psychopathology, parental substance problems, and physical abuse.^{37,38} Some studies that have taken into account other adversities found that CSA still powerfully predicted psychopathology.^{39–41}

One suggested mechanism is that CSA causes disruptions in the development of a child's sense of self, leading to difficulty in relating to others, inability to regulate reactions to stressful events, and other interpersonal and emotional challenges that make psychiatric disorders more likely.²⁹ Since a diagnosis of PTSD requires a highly distressing event and reliving of the trauma through nightmares or uncontrollable thoughts, its links to CSA are easier to postulate. However, not everybody who experiences CSA develops PTSD. Recent research has been investigat-

ing potential pathways and risk factors for PTSD.^{13–15,17,42–44}

Psychiatric disorders take an enormous toll on those who suffer from them and on their families, their friends, and society as a whole.^{45–49} The National Comorbidity Survey (NCS) estimated the US prevalence of lifetime mood disorders at 19.3%, lifetime anxiety disorders (other than PTSD) at 24.6%,⁵⁰ lifetime PTSD at 7.8%,⁵¹ and lifetime substance abuse or dependence at 26.6%. Overall, the prevalence of any lifetime disorder was estimated at 48%.⁵⁰

The aim of this study was to examine the relation between CSA and psychopathology, using a nationally representative sample. We examined the impact of CSA on a range of lifetime psychiatric disorders as classified by the *Diagnostic and Statistical Manual of Mental Disorders, Revised Third Edition (DSM-III-R)*.⁵² We also obtained information on a wide range of other childhood adversities and thus examined CSA independent of other childhood traumas. Since these conditions often co-occur in the same families,^{39,40,53} their inclusion in this study is critical. Additionally, we explored whether type of sexual abuse, the relationship of the victim to the perpetrator, and chronic rather than isolated incidents put survivors at even higher risk of psychopathology.

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Methods

Data for the current study were collected between 1990 and 1992 by the NCS, the first nationally representative, general population survey of the United States to administer structured psychiatric interviews yielding *DSM-III-R* diagnoses. The NCS used stratified, multistage area probability sampling to select subjects from the noninstitutionalized civilian population aged 15 to 54 years, plus students in group housing, in the 48 contiguous states. The final sample consisted of 8098 participants, for a response rate of 82.4%. Informed consent was obtained from all respondents as well as from parents for those aged 15 to 17 years. Detailed descriptions of methods employed by the NCS have been published elsewhere.^{50,54}

Measures

All respondents were administered a modified version of the Composite International Diagnostic Interview (CIDI), a structured interview administered by nonclinician interviewers. International field trials of the CIDI by the World Health Organization^{55,56} showed good interrater and test-retest reliability. Diagnoses were shown to be valid except for mania⁵⁷ and acute psychotic disorder.⁵⁸ The CIDI yielded 14 *DSM-III-R* psychiatric diagnoses and information about the course of disorders, including ages at first occurrences of associated symptoms, which were used to calculate an age at onset for each diagnosis.

Risk factors were asked about in a second part of the survey, which was administered to all those with positive diagnoses in part 1, all respondents aged 15 to 24 years, and a random sample of the remaining respondents. The analyses in the current study use data from this subsample of 5877 participants.

Sexual abuse questions were imbedded in the section of the NCS measuring PTSD. Preliminary studies⁵⁹ were conducted to improve the accuracy of memory and to increase the reporting of PTSD traumas. Respondents were shown a list of 12 traumas and were asked about each by number (e.g., "Did you ever experience Event 1 on the list?") The item describing rape read: "You were raped. (Someone had sexual intercourse with you when you did not want to by threatening you or using some degree of force.)" The item describing molestation read: "You were sexually molested. (Someone touched or felt your genitals when you did not want them to.)" Those who reported rape or molestation were asked how old they were the first time this happened, and whether it was an isolated event or was chronic. They were asked whether (1)

a relative, (2) a step-relative, (3) someone else they knew, or (4) a stranger perpetrated the first event. We define respondents who reported that their first experience of rape or molestation occurred before 18 years of age as having experienced CSA.

Measures of parental psychopathology came from the Family History Research Diagnostic Criteria Interview,⁶⁰ with the exception of parental generalized anxiety disorder, which came from a similar instrument.⁶¹ Measures of verbal and physical violence came from the Conflict Tactics Scales.⁶²

Statistical Analyses

All analyses were conducted with SAS.⁶³ Discrete time-event survival analysis^{64,65} was used to model the occurrence and timing of outcomes, so that only psychiatric disorders that occurred after the first CSA event are predicted by the models. Separate data sets were created for each disorder. Data were rearranged into a person-year format, where each individual was assigned a person-year for every year of life that he or she was at risk for a disorder. These person-years become the unit of analysis in each model. The person-year data set contains observations representing each year of life through the interview age for individuals who do not develop the disorder. Among those individuals who report a disorder, person-years are assigned for each year through the age they reported that the disorder began, and the remaining person-years between the age the disorder began and the interview age are censored, or not included in the data set. Logistic regression⁶⁶ was used with these new data sets. Indicator variables are included that model the underlying baseline hazard function, by representing the log odds that a person will develop the outcome in a particular year, given that he or she "survived" previous years. Coefficients are equivalent to discrete time survival coefficients; after exponentiation, they are interpreted as odds ratios.

Control variables for childhood adversities other than sexual abuse were created by the SAS VARCLUS procedure, a variable-reduction method that reduces the number of variables by grouping them on the basis of a covariance matrix into nonoverlapping clusters that can be interpreted as unidimensional.⁶³ A total of 19 adversities yielded the following clusters that were used as 7 indicator variables of other childhood adversities: (1) mother's verbal or physical abuse toward the respondent; (2) father's verbal or physical abuse toward the respondent; (3) parents' verbal or physical abuse of each other; (4) mother's psychopathology (depression, anxiety disorder); (5) father's psychopathology;

(6) mother's substance abuse problems and antisocial behavior; and (7) father's substance abuse problems and antisocial behavior. To examine the effects of the victim's relationship to the perpetrator and chronicity of abuse, separate person-year data sets were created that used only data from respondents who reported CSA.

Separate analyses were conducted for females and males throughout this study. Because research suggests that there are sex differences in vulnerability to negative life events,^{36,67} it was expected that results would be different enough to warrant separate models. Indeed, when models with data from both sexes were attempted, multiple interaction terms were significant between sex and the predictors and the control variables under study. Such results would have been much more difficult to describe and interpret than separate results for women and men.

Weights were used in all analyses to (1) approximate a national population distribution,⁶⁸ (2) account for nonresponse, and (3) account for variations in probability of selection both between and within households. Standard errors were calculated with jackknife repeated replications.⁶⁹

Results

Estimated prevalences of child rape and molestation are reported in Table 1. Separate estimates are presented by gender for first incidents of either isolated or chronic abuse before age 18, as well as by category of perpetrator. The overall prevalence was higher for females (13.5%) than for males (2.5%) ($\chi^2_1 = 237, P = .001$). Most perpetrators were known to the respondents. Child rape was more likely to be an isolated event than a chronic one, and molestation was equally isolated and chronic.

Mood, Anxiety, and Substance Disorders

Table 2 displays the lifetime prevalence of 17 psychiatric outcomes among those reporting and those not reporting CSA and the results of discrete time survival analyses. These survival models predicted 1 disorder at a time, each model controlling for age cohort, race, divorced parents, parental psychopathology, parental verbal and physical abuse, parental substance use problems and dependence, and the log odds of the outcome for each year at risk. Among those sexually abused, the prevalence of lifetime psychiatric disorders was higher than among those who did not report CSA. For example, the percentage of women with lifetime alcohol

TABLE 1—Prevalence of Reported Child Sexual Abuse in the National Comorbidity Survey^a

	Females (n=2921), % (SE)	Males (n=2945), % (SE)
Molestation	10.5 (0.8)	2.3 (0.4)
Isolated event	5.1 (0.5)	1.2 (0.3)
Occurred repeatedly	5.4 (0.6)	1.1 (0.3)
Perpetrated by:		
Relative	5.2 (0.5)	0.5 (0.1)
Step-relative	1.5 (0.2)	0.1 (0.1)
Acquaintance	3.1 (0.4)	1.3 (0.3)
Stranger	1.0 (0.2)	0.4 (0.2)
Rape	5.0 (0.4)	0.6 (0.2)
Isolated event	3.6 (0.5)	0.3 (0.1)
Occurred repeatedly	1.4 (0.3)	0.3 (0.2)
Perpetrated by:		
Relative	1.1 (0.2)	0.1 (0.05)
Step-relative	0.4 (0.1)	0.1 (0.1)
Acquaintance	2.7 (0.4)	0.2 (0.1)
Stranger	0.9 (0.2)	0.2 (0.1)
Sexual abuse (either molestation or rape)	13.5 (0.9)	2.5 (0.4)
Isolated event	8.0 (0.6)	1.4 (0.3)
Occurred repeatedly	6.1 (0.6)	1.2 (0.3)
Experienced both an isolated event and a repeated event	0.8 (0.2)	0.1 (0.1)
Perpetrated by:		
Relative	5.8 (0.6)	0.6 (0.1)
Step-relative	1.8 (0.3)	0.2 (0.1)
Acquaintance	5.1 (0.6)	1.4 (0.3)
Stranger	1.8 (0.2)	0.5 (0.2)

^aRetrospective reports of first incidents occurring prior to age 18.

dependence was 15.6% among those reporting CSA, compared with 7.6% among those not reporting CSA; the equivalent percentages among men were 38.7% and 19.2%. Among women, significant associations were found between CSA and 14 of 17 subsequent lifetime mood, anxiety, and substance disorders in multivariate discrete time-event survival models. Among men, 5 subsequent disorders were associated with CSA.

All of the models had some significant adversity cluster variables; most commonly, it was mother's psychopathology (significant in 30 of the 34 models displayed in Table 2). Physical and verbal abuse between parents and father's psychopathology were each significant in 11 of 34 models. Parental substance abuse and antisocial behavior were significant only for substance-related outcomes. Interaction terms were tested between CSA and each of the childhood adversity clusters, but out of 38 interactions tested, only 1 was significant—a number less than expected by chance at the $P < .05$ level.

Stratified analyses were conducted to further examine the relationship between CSA and psychiatric disorders independent of other adversities. Figure 1 presents the prevalence of childhood rape and molestation for males and females in relation to the number of other adversities reported. The prevalence of CSA

TABLE 2—Multivariate Associations^a Between Child Sexual Abuse (CSA) and Onset of Lifetime Psychiatric Disorders, and Lifetime Prevalence of Psychiatric Disorders Among Both Those Who Reported and Those Who Did Not Report CSA

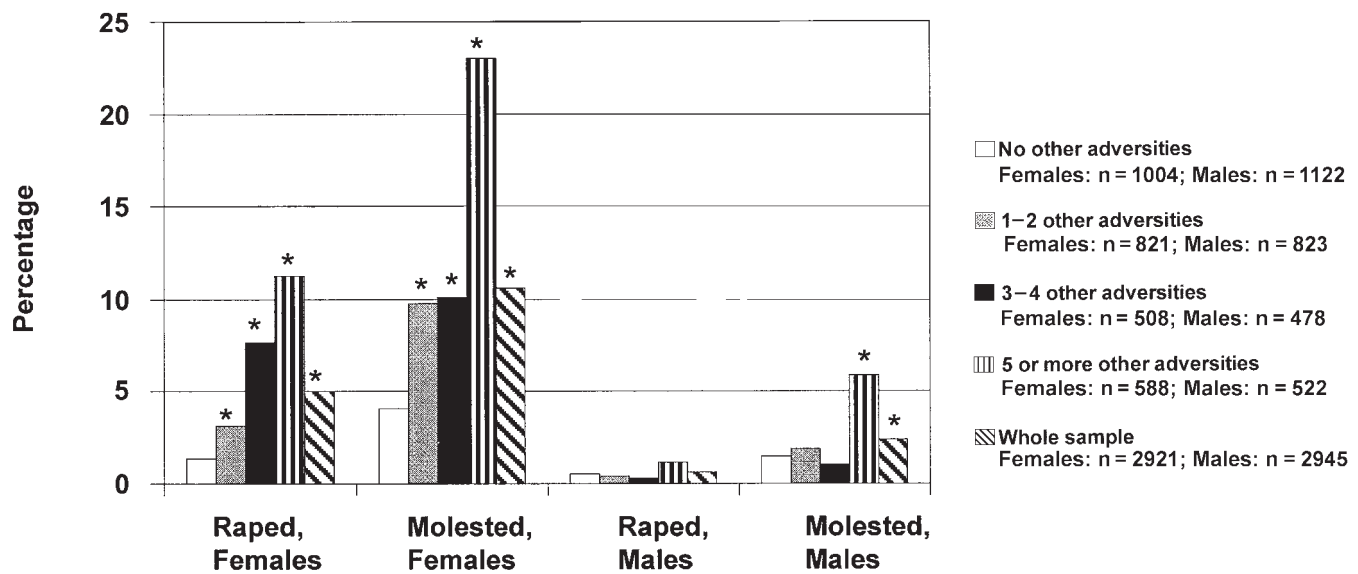
	Females With Disorder			Males With Disorder		
	Did Not Report CSA, %	Reported CSA, %	Odds Ratio (95% CI)	Did Not Report CSA, %	Reported CSA, %	Odds Ratio (95% CI)
Mood disorders						
Depression	19.2	39.3	1.8 (1.4, 2.3)*	11.4	30.3	1.8 (0.9, 3.7)
Dysthymia	7.2	15.7	1.9 (1.3, 2.8)*	4.5	12.5	1.5 (0.7, 3.0)
Mania	0.2	1.4	9.1 (1.4, 59.0)*	0.4	0	NA
Anxiety disorders						
Agoraphobia	7.7	15.8	1.4 (1.0, 2.1)*	4.4	3.4	0.7 (0.2, 2.5)
Generalized anxiety disorder	5.9	10.7	1.4 (0.9, 2.0)	3.3	10.7	0.9 (0.5, 1.6)
Panic attack	9.0	17.1	1.5 (1.1, 2.1)*	4.3	4.2	0.7 (0.3, 1.9)
Panic disorder	4.2	9.0	1.4 (1.0, 2.1)*	1.9	2.6	0.8 (0.2, 2.7)
Posttraumatic stress disorder	5.7	39.1	10.2 (7.1, 14.5) ^{a,b}	3.8	29.1	5.3 (2.3, 12.4)*
Simple phobia	14.6	21.8	1.3 (0.9, 1.9)	6.6	12.3	1.1 (0.5, 2.5)
Social phobia	14.5	24.2	1.4 (1.0, 2.1)*	11.0	20.9	1.6 (0.7, 3.7)
Substance disorders						
Alcohol problems	18.2	33.9	1.5 (1.1, 2.0)*	37.0	57.7	1.5 (0.9, 2.4)
Alcohol dependence	7.6	15.6	1.5 (1.0, 2.2)*	19.2	38.7	1.7 (1.0, 2.9)*
Severe alcohol dependence	3.2	7.4	1.1 (0.6, 2.0)	7.3	20.2	1.5 (0.8, 3.0)
Drug problems	10.1	27.6	2.3 (1.7, 3.0)*	17.9	41.1	1.9 (1.1, 3.4)*
Drug dependence	4.7	14.1	2.0 (1.3, 3.1) ^{a,b}	8.5	26.5	2.0 (1.0, 4.3)*
Severe drug dependence	3.3	9.8	1.9 (1.3, 3.0)*	5.4	16.4	1.6 (0.8, 3.4)
Any disorder	48.9	78.0	2.3 (1.8, 2.9)*	51.1	82.2	2.3 (1.5, 3.6)*

Note. NA = not enough cases of disorder among those sexually abused to analyze. CI = confidence interval.

^aDiscrete time-event survival models controlled for age cohort, race, divorced parents, parental psychopathology, parental verbal and physical abuse, parental substance use problems and dependence, and the log odds of the outcome for each year at risk.

^bThe parameter estimate for rape was significantly higher than the estimate for molestation when they were entered as separate predictors.

* $P < .05$.



Note. Asterisk denotes significant difference ($P < .05$) compared with the stratum with no other adversities.

FIGURE 1—Percentage of females and males reporting childhood rape and molestation in strata defined by the number of other childhood adversities reported.

was significantly higher in each stratum of females reporting other adversities compared with the stratum reporting none. Among males, the prevalence of molestation was significantly higher in the stratum reporting 5 or more adversities than in the stratum reporting none.

Discrete time survival models were rerun for those respondents who reported no other adversities. Among females, the odds of depression in this subgroup were 3.8 (95% confidence interval [CI]=2.0, 7.3), the odds of alcohol problems were 2.3 (95% CI=1.1, 4.9), and the odds of drug problems were 4.5 (95% CI=1.5, 13.2). These values were almost double those from the whole sample shown in Table 2. The discrete time survival models were also rerun for those respondents who reported 5 or more adversities; odds ratios were very similar to those in the full sample (e.g., odds of depression among females were 1.7 [95% CI=1.2, 2.3], odds of drug problems among females were 2.0 [95% CI=1.3, 3.2]). For both females and males, the odds of PTSD in this subsample were more than 8 times higher for sexually abused respondents (for females, odds ratio [OR]=8.1 [95% CI=5.0, 13.0]; for males, OR=8.3 [95% CI=3.3, 21.0]).

Consequences of Type and Chronicity of Abuse

For 2 of the outcomes (PTSD and drug dependence among women), odds ratios dif-

fered significantly for the 2 types of CSA measured in this study. This finding supports the hypothesis that child rape has worse sequelae than does child molestation.

Table 3 contains results of an analysis of the effects of the victim's relationship to the perpetrator and of whether CSA was an isolated incident or was chronic. Lack of statistical power limited this analysis to females. Child rape perpetrated by step-relatives and acquaintances resulted in higher odds of PTSD than did child rape perpetrated by strangers when chronicity was controlled for. When the victim's relationship to the perpetrator was controlled for, chronic molestation was significantly associated with mood disorders and PTSD, and chronic rape was significantly associated with anxiety disorders other than PTSD.

Discussion

Although different definitions of sexual abuse have been used across studies, it is important to compare our findings with those from other nationally representative samples. The CSA prevalence rate among females of 13.5% reported here falls in the middle of rates determined by 6 other national studies, which range from 2.9% to 27%. The National Survey of Children reported prevalences of nonvoluntary intercourse ranging from 2.9% among the youngest Black females to 12.7% among

20-year-old White females.³¹ In one study of adults, Finkelhor et al. estimated the prevalence of CSA at 27%³²; in a second study of children, the prevalence among girls aged 10 to 16 years was reported to be 3.2%.³³ The longitudinal National Women's Study estimated lifetime rape at 13% (with 61% of rapes having occurred before 18 years of age) and molestation or attempted sexual assault at 14.3%.^{16,34} Wiltsnack et al. estimated CSA at 21.4%.²⁴ The National Violence Against Women Survey estimated lifetime completed rape among women at 14.8%.³⁵

Our estimate of the prevalence of CSA among males is 2.5%, which is at the low end of the range of 0% to 16% found in 4 of the studies mentioned above that surveyed males. The National Survey of Children estimated prevalences of nonvoluntary intercourse ranging from 0% among the youngest (<14 years) Black males to 6.1% among Black males aged 18 to 20 years.³¹ In the studies by Finkelhor et al. mentioned above, 16% of men³² and 0.6% of boys aged 10 to 16 years³³ reported having experienced CSA. The National Violence Against Women Survey estimated lifetime completed rape of men to be 2.1%.³⁵

Our prevalence estimates, applied to 1990 US census⁷⁰ estimates of the number of people aged 15 to 54 living in the 48 contiguous states, translate to approximately 9.6 million females and 1.8 million males reporting sexual abuse before 18 years of age. These esti-

TABLE 3—Among Females Reporting Child Sexual Abuse, Multivariate Associations^a Between Perpetrator of Abuse, Chronicity of Abuse, and Psychiatric Disorders

	Any Mood Disorder		Any Anxiety Disorder ^b		Posttraumatic Stress Disorder		Any Substance Disorder	
	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Molestation								
By relative	0.9	0.5,1.5	0.7	0.4,1.2	1.2	0.7,2.2	0.9	0.4,1.9
By step-relative	0.6	0.3,1.4	0.9	0.4,2.0	1.2	0.5,3.4	0.6	0.2,1.2
By other acquaintance	1.4	0.8,2.4	1.0	0.6,1.9	0.9	0.5,1.8	1.1	0.6,1.9
By stranger	1.0	(reference)	1.0	(reference)	1.0	(reference)	1.0	(reference)
Chronic abuse	1.6	1.1,2.3*	1.5	0.9,2.6	2.0	1.2,3.3*	1.5	0.8,2.6
Isolated incident	1.0	(reference)	1.0	(reference)	1.0	(reference)	1.0	(reference)
Rape								
By relative	0.6	0.2,1.7	0.8	0.3,1.9	2.1	0.7,6.5	0.5	0.2,1.6
By step-relative	1.1	0.3,4.0	0.6	0.1,2.8	6.5	1.8,23.5*	0.6	0.1,2.8
By other acquaintance	1.6	0.9,3.1	1.4	0.7,2.9	6.3	3.7,10.7*	1.2	0.6,2.6
By stranger	1.0	(reference)	1.0	(reference)	1.0	(reference)	1.0	(reference)
Chronic abuse	2.2	0.8,6.5	2.7	1.1,6.8*	1.5	0.6,3.7	1.6	0.5,4.5
Isolated incident	1.0	(reference)	1.0	(reference)	1.0	(reference)	1.0	(reference)

Note. OR=odds ratio; CI=confidence interval.

^aDiscrete time-event survival models controlled for age cohort, race, divorced parents, other childhood adversities, and the log odds of the outcome for each year at risk.

^bOther than posttraumatic stress disorder.

**P*<.05.

mates can be generalized to the household population in those 48 states, but they do not include people who were residing in treatment programs, jails, or prisons or who were homeless at the time of data collection. Because studies conducted in each of these marginalized populations have shown higher rates of CSA than in the general population,^{18,71–74} our estimates are likely to be underestimates of the total number of girls and boys at risk for CSA in the United States.

Compared with lifetime estimates of psychiatric disorders in the United States as reported by the NCS, the prevalence of disorders among those reporting CSA was much higher. For example, the percentage of women with lifetime depression was 39.3% among those reporting CSA, compared with 21.3% in the general population.⁵⁰ Especially striking are the results for any mood, anxiety, or substance disorder: 78% of the women and 82% of the men reporting CSA met criteria for at least 1 lifetime disorder. This can be compared with the finding that 48.5% of women and 51.2% of men in the NCS met criteria for any lifetime disorder.⁷⁵

The results of the current study support previous findings of a strong relationship between CSA and psychopathology, among both men and women. We found this evidence in a large, random sample of the US population that was representative of the household population aged 15 to 54 years residing in the 48 contiguous states. Some studies show that chronic CSA perpetrated by a close relative or other trusted acquaintance has more severe

long-term consequences than isolated incidents perpetrated by strangers.^{76,77} We also found support for this hypothesis, although we were able to investigate it only among women.

Many childhood adversities have been shown to be associated with poor mental health outcomes.⁷⁸ All of the adversities in this study were also associated with CSA, which may confound the noted relationship between CSA and psychopathology. After such potential confounders were adjusted for, there was still a strong, independent, statistically significant relationship between CSA and the majority of mood, anxiety, and substance disorders. Parental psychopathology, especially among mothers, was the most significant family adversity, a finding warranting further investigation of this factor as a potential mechanism.

We found additional evidence that CSA is associated with psychopathology when it is not an element of a larger syndrome of family adversities. Analyses limited to the group reporting no other childhood adversities resulted in almost twice the odds for some disorders compared with the results from the whole sample. Although this subsample is no longer nationally representative, this finding implies that CSA occurring in relatively healthy families still has negative psychiatric consequences. The impact of CSA may be particularly profound among such persons, where CSA may represent a significant and unexpected betrayal by trusted adults. Furthermore, in the group of respondents reporting 5 or more

other adversities, where we might expect the high number of other traumatic experiences to obscure the importance of CSA, there was still a statistically significant relation with psychopathology.

There are still unanswered research questions about mechanisms linking CSA to psychopathology. Cole and Putnam⁷⁹ postulate that self-definition, integration, and self-regulation of affect and impulse control are jeopardized by sexual abuse occurring during major developmental transitions from infancy to middle adulthood. For example, abuse that occurs during preschool years may disrupt ego development and thus have a profound and pervasive negative effect on the development of adult personality. Additionally, if an adolescent has to rely on denial and dissociation to cope with abuse, Cole and Putnam point out, the risk for severe psychopathology is high. Others suggest that CSA, which is threatening by nature, may interfere in a developing child's sense of security and ability to trust others, leading to increased anxiety and emotional distress. Guilty feelings may also play a role; survivors of CSA often report self-blame and difficulty trusting others.²⁹

Strengths and Limitations

A potential source of bias in this study is the accuracy of retrospective recall. Memory studies with survivors of CSA have shown that there are people who, when questioned as adults, do not recall even clearly substan-

tiated CSA events.^{80,81} Substantial stigmatization is involved in reporting rape or molestation, especially among men. There is little evidence, however, that people overreport these experiences and substantial evidence of underreporting, especially among men.⁸⁰ Thus, we have most likely underestimated the prevalence among the household population in this study, which could lead to possibly under- or overestimating observed associations. Our assessments of rape and molestation were more comprehensive than those used in some studies, but research suggests that the questions might have elicited higher prevalences by including specific sexual acts.³⁶ Furthermore, although the CIDI has been shown to be reliable and valid, there still might be respondents who did not accurately report the presence or timing of their symptoms. This bias is potentially nonrandom if those who were sexually abused recalled more psychiatric symptoms than those who were not abused, or if those in treatment for psychiatric problems were more likely to recall abuse. The number of men who reported CSA was relatively small (n=75), which limited the statistical power in some of the analyses. We are also limited in our ability to determine causality, given that the data are cross-sectional and nonexperimental.

This is the first study, to our knowledge, that was able to assess the relationship between CSA and such a comprehensive range of mood, anxiety, and substance disorders in a large, representative sample of the United States. Another strength of this study was our ability to examine the role of 19 other adverse childhood experiences, using both multivariate and stratified analyses. However, there are other negative family factors that we did not control for that may confound the relation, such as child neglect, social isolation, a history of CSA among parents, and parental personality disorders.

Implications and Future Research

We found compelling evidence that CSA is associated with a substantial increased risk of psychopathology, whether or not it occurs as part of a larger syndrome of childhood adversities. The results of this study suggest the need for public health prevention programs both to reduce the prevalence of CSA and to develop efficacious treatments. Public health practitioners should note, however, that it is not only high-risk families with a constellation of adversities that should be targeted. We have shown that CSA that occurs in relatively healthy families can also be damaging. Thus primary prevention approaches targeting all children and families as being potentially at risk should be continued and rigorously eval-

uated. These programs should go beyond group-based personal safety instruction to include perpetrator prevention strategies and parenting workshops. Additionally, evaluations should ensure that primary prevention efforts are not doing harm.

It is also time for a better understanding of why CSA is related to subsequent psychopathology and what mechanisms are at work that make CSA stand apart from other childhood adversities. This knowledge will help both prevention practitioners and those treating CSA survivors. From an epidemiologic perspective, the results of this study suggest that the prevention of CSA may also be an important strategy for reducing psychopathology. □

Contributors

B.E. Molnar planned the study, analyzed the data, and wrote the paper. S.L. Buka and R.C. Kessler suggested data analyses, helped to interpret the results, edited several drafts of the manuscript, and provided invaluable mentoring on all aspects of the study.

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References

1. Burnam MA, Stein JA, Golding JM, et al. Sexual assault and mental disorders in a community population. *J Consult Clin Psychol*. 1988; 56:843–850.
2. Yama MF, Tovey SL, Fogas BS. Childhood family environment and sexual abuse as predictors of anxiety and depression in adult women. *Am J Orthopsychiatry*. 1993;63:136–141.
3. Koverola C, Pound J, Heger A, Lytle C. Relationship of child sexual abuse to depression. *Child Abuse Negl*. 1993;17:393–400.
4. Cheasty M, Clare AW, Collins C. Relation between sexual abuse in childhood and adult depression: case-control study. *BMJ*. 1998;316: 198–201.

5. Boudewyn AC, Liem JH. Childhood sexual abuse as a precursor to depression and self-destructive behavior in adulthood. *J Trauma Stress*. 1995;8:445–459.
6. Portegijs PJM, Jeuken FMH, van der Horst FG, Kraan HF, Knottnerus JA. A troubled youth: relations with somatization, depression and anxiety in adulthood. *Fam Pract*. 1996;13: 1–11.
7. Silverman AB, Reinherz HZ, Giaconia RM. The long-term sequelae of child and adolescent abuse: a longitudinal community study. *Child Abuse Negl*. 1996;20:709–723.
8. Levitan RD, Parikh SV, Lesage AD, et al. Major depression in individuals with a history of childhood physical or sexual abuse: relationship to neurovegetative features, mania, and gender. *Am J Psychiatry*. 1998;155:1746–1752.
9. Winfield I, George LK, Swartz M, Blazer DG. Sexual assault and psychiatric disorders among a community sample of women. *Am J Psychiatry*. 1990;147:335–341.
10. Fergusson DM, Horwood LJ, Lynskey MT. Childhood sexual abuse and psychiatric disorder in young adulthood, II: psychiatric outcomes of childhood sexual abuse. *J Am Acad Child Adolesc Psychiatry*. 1996;35:1365–1374.
11. McCauley J, Kern DE, Kolodner K, et al. Clinical characteristics of women with a history of childhood abuse: unhealed wounds. *JAMA*. 1997;277:1362–1368.
12. Rowan AB, Foy DW, Rodriguez N, Ryan S. Post-traumatic stress disorder in a clinical sample of adults sexually abused as children. *Child Abuse Negl*. 1994;18:51–61.
13. Wolfe DA, Sas L, Wekerle C. Factors associated with the development of posttraumatic stress disorder among child victims of sexual abuse. *Child Abuse Negl*. 1994;18:37–50.
14. Widom CS. Posttraumatic stress disorder in abused and neglected children grown up. *Am J Psychiatry*. 1999;156:1223–1229.
15. Giaconia RM, Reinherz HZ, Silverman AB, Pakiz B, Frost AK, Cohen E. Traumas and post-traumatic stress disorder in a community population of older adolescents. *J Am Acad Child Adolesc Psychiatry*. 1995;34:1369–1380.
16. Resnick HS, Kilpatrick DG, Dansky BS, Saunders BE, Best CL. Prevalence of civilian trauma and posttraumatic stress disorder in a representative national sample of women. *J Consult Clin Psychol*. 1993;61:984–991.
17. Briggs L, Joyce PR. What determines post-traumatic stress disorder symptomatology for survivors of childhood sexual abuse? *Child Abuse Negl*. 1997;21:575–582.
18. Windle M, Windle RC, Scheidt DM, Miller GB. Physical and sexual abuse and associated mental disorders among alcoholic inpatients. *Am J Psychiatry*. 1995;152:1322–1328.
19. Miller BA, Downs WR, Testa M. Interrelationships between victimization experiences and women's alcohol use. *J Stud Alcohol Suppl*. 1993;11:109–117.
20. Klassen AD, Wilsnack SC. Sexual experience and drinking among women in a US national survey. *Arch Sex Behav*. 1986;15:363–392.
21. Kilpatrick DG, Acierno R, Resnick HS, Saun-

- ders BE, Best CL. A 2-year longitudinal analysis of the relationships between violent assault and substance use in women. *J Consult Clin Psychol*. 1997;65:834–847.
22. Fendrich M, Mackesy-Amiti ME, Wislar JS, Goldstein PJ. Childhood abuse and the use of inhalants: differences by degree of use. *Am J Public Health*. 1997;87:765–769.
 23. Stewart SH. Alcohol abuse in individuals exposed to trauma: a critical review. *Psychol Bull*. 1996;120:83–112.
 24. Wilsnack SC, Vogeltanz ND, Klassen AD, Harris TR. Childhood sexual abuse and women's substance abuse: national survey findings. *J Stud Alcohol*. 1997;58:264–271.
 25. Brown GR, Anderson B. Psychiatric morbidity in adult inpatients with childhood histories of sexual and physical abuse. *Am J Psychiatry*. 1991;148:55–61.
 26. Cahill C, Llewelyn SP, Pearson C. Long-term effects of sexual abuse which occurred in childhood: a review. *Br J Clin Psychol*. 1991;30:117–130.
 27. Browne A, Finkelhor D. Impact of child sexual abuse: a review of the research. *Psychol Bull*. 1986;99:66–77.
 28. Beitchman JH, Zucker KJ, Hood JE, daCosta GA, Akman D, Cassavia E. A review of the long-term effects of child sexual abuse. *Child Abuse Negl*. 1992;16:101–118.
 29. Briere JN, Elliott DM. Immediate and long-term impacts of child sexual abuse. *Future Child*. 1994;4:54–69.
 30. Sheldrick C. Adult sequelae of child sexual abuse. *Br J Psychiatry Suppl*. 1991;10:55–62.
 31. Moore KA, Nord CW, Peterson JL. Nonvoluntary sexual activity among adolescents. *Fam Plann Perspect*. 1989;21:110–114.
 32. Finkelhor D, Hotaling G, Lewis IA, Smith C. Sexual abuse in a national survey of adult men and women: prevalence, characteristics and risk factors. *Child Abuse Negl*. 1990;14:19–28.
 33. Finkelhor D, Dziuba-Leatherman J. Children as victims of violence: a national survey. *Pediatrics*. 1994;94:413–420.
 34. Kilpatrick DG, Edmunds CN, Seymour AK. *Rape in America: A Report to the Nation*. Arlington, Va: National Victim Center; 1992.
 35. Tjaden P, Thoennes N. *Prevalence, Incidence, and Consequences of Violence Against Women: Findings From the National Violence Against Women Survey*. Washington, DC: National Institute of Justice and Centers for Disease Control and Prevention; 1998.
 36. Finkelhor D. Current information on the scope and nature of child sexual abuse. *Future Child*. 1994;4:31–53.
 37. Fergusson DM, Lynskey MT, Horwood LJ. Childhood sexual abuse and psychiatric disorder in young adulthood, I: prevalence of sexual abuse and factors associated with sexual abuse. *J Am Acad Child Adolesc Psychiatry*. 1996;35:1355–1364.
 38. Fleming J, Mullen P, Bammer G. A study of potential risk factors for sexual abuse in childhood. *Child Abuse Negl*. 1997;21:49–58.
 39. Mullen PE, Martin JL, Anderson JC, Romans SE, Herbison GP. Childhood sexual abuse and mental health in adult life. *Br J Psychiatry*. 1993;163:721–732.
 40. Mullen PE, Martin JL, Anderson JC, Romans SE, Herbison GP. The long-term impact of the physical, emotional, and sexual abuse of children: a community study. *Child Abuse Negl*. 1996;20:7–21.
 41. Briere J, Runtz M. Differential adult symptomatology associated with three types of child abuse histories. *Child Abuse Negl*. 1990;14:357–364.
 42. Deykin EY, Buka SL. Prevalence and risk factors for posttraumatic stress disorder among chemically dependent adolescents. *Am J Psychiatry*. 1997;154:752–757.
 43. Bromet E, Sonnega A, Kessler RC. Risk factors for DSM-III-R posttraumatic stress disorder: findings from the National Comorbidity Survey. *Am J Epidemiol*. 1998;147:353–361.
 44. Breslau N, Chilcoat HD, Kessler RC, Davis GC. Previous exposure to trauma and PTSD effects of subsequent trauma: results from the Detroit Area Survey of Trauma. *Am J Psychiatry*. 1999;156:902–907.
 45. Murray CJL, Lopez AD. Global mortality, disability, and the contribution of risk factors: Global Burden of Disease Study. *Lancet*. 1997;349:1436–1442.
 46. Greenberg PE, Stiglin LE, Finkelstein SN, Berndt ER. The economic burden of depression in 1990. *J Clin Psychiatry*. 1993;54:405–418.
 47. Greenberg PE, Sistrisky T, Kessler RC, et al. The economic burden of anxiety disorders in the 1990s. *J Clin Psychiatry*. 1999;60:427–435.
 48. Badger LW, Rand EH. Mood disorders. In: Williams JBW, Ell K, eds. *Advances in Mental Health Research: Implications for Practice*. Washington, DC: NASW Press; 1998:49–117.
 49. Harwood H, Fountain D, Livermore G. *The Economic Costs of Alcohol and Drug Abuse in the United States, 1992*. Rockville, Md: National Institute on Drug Abuse and National Institute on Alcohol Abuse and Alcoholism; 1998.
 50. Kessler RC, McGonagle KA, Zhao S, et al. Lifetime and 12-month prevalence of DSM-III-R psychiatric disorders in the United States. Results from the National Comorbidity Survey. *Arch Gen Psychiatry*. 1994;51:8–19.
 51. Kessler RC, Sonnega A, Bromet E, Hughes M, Nelson CB. Posttraumatic stress disorder in the National Comorbidity Survey. *Arch Gen Psychiatry*. 1995;52:1048–1060.
 52. *Diagnostic and Statistical Manual of Mental Disorders, Revised Third Edition*. Washington, DC: American Psychiatric Association; 1987.
 53. Paveza GJ. Risk factors in father–daughter child sexual abuse: a case–control study. *J Interpersonal Violence*. 1988;3:290–306.
 54. Kessler RC. Building on the ECA: the National Comorbidity Survey and the children's ECA. *Int J Methods Psychiatr Res*. 1994;4:81–94.
 55. Kessler RC, Wittchen H-U, Abelson JM, et al. Methodological studies of the Composite International Diagnostic Interview (CIDI) in the US National Comorbidity Survey (NCS). *Int J Methods Psychiatr Res*. 1998;7:33–55.
 56. Wittchen HU, Robins LN, Cottler LB, Sartorius N, Burke JD, Regier D. Cross-cultural feasibility, reliability and sources of variance in the Composite International Diagnostic Interview (CIDI): the multicentre WHO/ADAMHA field trials. *Br J Psychiatry*. 1991;159:645–653, 658.
 57. Kessler RC, Rubino DR, Holmes C, Abelson JM, Zhao S. The epidemiology of DSM-III-R bipolar I disorder in a general population survey. *Psychol Med*. 1997;27:1079–1089.
 58. Kendler KS, Gallagher TJ, Abelson JM, Kessler RC. Lifetime prevalence, demographic risk factors, and diagnostic validity of nonaffective psychosis as assessed in a US community sample. The National Comorbidity Survey. *Arch Gen Psychiatry*. 1996;53:1022–1031.
 59. Kessler RC, Sonnega A, Bromet E, Hughes M, Nelson CB, Breslau N. Epidemiologic risk factors for trauma and PTSD. In: Yehuda R, ed. *Risk Factors for Posttraumatic Stress Disorder*. Washington, DC: American Psychiatric Press; 1999:23–59.
 60. Endicott J, Andreasen N, Spitzer RL. *Family History Research Diagnostic Criteria*. New York, NY: Biometrics Research, New York State Psychiatric Institute; 1978.
 61. Kendler KS, Silberg JL, Neale MC, Kessler RC, Heath AC, Eaves LJ. The family history method: whose psychiatric history is measured? *Am J Psychiatry*. 1991;148:1501–1504.
 62. Straus MA. Measuring intrafamily conflict and violence: the Conflict Tactics (CT) Scales. *J Marriage Fam*. 1979;41:75–88.
 63. SAS Institute Inc. *SAS Procedures Guide, Version 6*. 3rd ed. Cary, NC: SAS Institute Inc; 1990:705.
 64. Willett JB, Singer JD. Investigating onset, cessation, relapse, and recovery: why you should, and how you can, use discrete time survival analysis to examine event occurrence. *J Consult Clin Psychol*. 1993;61:952–965.
 65. Singer JD, Willett JB. It's about time: using discrete-time survival analysis to study duration and the timing of events. *J Educ Stat*. 1993;18:155–195.
 66. Hosmer DW, Lemeshow S. *Applied Logistic Regression*. New York, NY: John Wiley & Sons Inc; 1989:307.
 67. US Dept of Health and Human Services. *National Health Interview Survey: 1989*. Hyattsville, Md: National Center for Health Statistics; 1992.
 68. Kessler RC, McLeod JD. Sex differences in vulnerability to undesirable life events. *Am Sociol Rev*. 1984;49:620–631.
 69. Kish L, Frankel MR. Balanced repeated replications for standard errors. *J Am Stat Assoc*. 1970;65:1071–1094.
 70. *1990 US Census Data, Database C90STF3C1*. Washington, DC: US Bureau of the Census; 1990.
 71. Browne A. Family violence and homelessness: the relevance of trauma histories in the lives of homeless women. *Am J Orthopsychiatry*. 1993;63:370–384.
 72. Bryer JB, Nelson BA, Miller JB, Krol PA. Child sexual and physical abuse as factors in adult psychiatric illness. *Am J Psychiatry*. 1987;144:1426–1430.

73. Molnar BE, Shade SB, Kral AH, Booth RE, Watters JK. Suicidal behavior and sexual/physical abuse among street youth. *Child Abuse Negl.* 1998;22:213–222.
74. Richie B. *Compelled to Crime: The Gender Entrapment of Battered Black Women.* New York, NY: Routledge; 1996.
75. Kessler RC, Abelson JM, Zhao S. The epidemiology of mental disorders. In: Williams JBW, Ell K, eds. *Advances in Mental Health Research: Implications for Practice.* Washington, DC: NASW Press; 1998:3–24.
76. Kendall-Tackett KA, Williams LM, Finkelhor D. Impact of sexual abuse on children: a review and synthesis of recent empirical studies. *Psychol Bull.* 1993;113:164–180.
77. Silk KR, Lee S, Hill EM, Lohr NE. Borderline personality disorder symptoms and severity of sexual abuse. *Am J Psychiatry.* 1995;152:1059–1064.
78. Kessler RC, Davis CG, Kendler KS. Childhood adversity and adult psychiatric disorder in the US National Comorbidity Survey. *Psychol Med.* 1997;27:1101–1119.
79. Cole PM, Putnam FW. Effect of incest on self and social functioning: a developmental psychopathology perspective. *J Consult Clin Psychol.* 1992;60:174–184.
80. Widom CS, Morris S. Accuracy of adult recollections of childhood victimization, part 2: childhood sexual abuse. *Psychol Assess.* 1997;9:34–46.
81. Williams LM. Recall of childhood trauma: a prospective study of women's memories of child sexual abuse. *J Consult Clin Psychol.* 1994;62:1167–1176.