ORIGINAL ARTICLE

The Association of Sexual Assault and Attempted Suicide Within the Community

Jonathan R. T. Davidson, MD; Dana C. Hughes, RN, PhD; Linda K. George, PhD; Dan G. Blazer, MD, PhD

Background: Lifetime community rates of attempted suicide were compared between those who reported a history of sexual assault and a control group without such a history.

Methods: The 2918 respondents in the Duke University Epidemiological Catchment Area Study were placed into groups with reported sexual assault (n=67) and those with no known history of such (n=2851). Multivariate and bivariate procedures were used to examine the relation between sexual assault and attempted suicide.

Results: Subjects reporting a history of sexual assault were more likely to be female, younger, and to report higher rates of lifetime suicide attempt and posttraumatic stress symptoms; no differences were found in the number of chronic medical disorders, major depression, substance abuse or substance dependence, or panic attacks. Nine (14.9%) of the 67 index group subjects reported a suicide attempt, 4 of whom reported their first sexual assault as occurring before age 16 years. A sexual assault history was associated with increased prevalence of lifetime suicide attempt after controlling for sex, age, education, posttraumatic stress symptoms, and psychiatric disorder. Findings were similar in the female-only subsample (n=1778). For women, the odds of attempting suicide was 3 to 4 times greater when the first reported sexual assault occurred prior to age 16 years compared with age 16 years or older.

Conclusions: Sexual assault is associated with an increased lifetime rate of attempted suicide. In women, a history of sexual trauma before age 16 years is a particularly strong correlate of attempted suicide.

(Arch Gen Psychiatry. 1996;53:550-555)

SEXUAL TRAUMA has been associated with impaired social, interpersonal, and sexual functioning; increased rates of attempted suicide; and psychiatric morbidity in adult life.[1-11] In a community-based sample, we have previously[1,2] found increased rates of attempted suicide in individuals meeting criteria for the full posttraumatic stress disorder diagnosis, as well as those with subthreshold symptoms of posttraumatic stress. This finding, which was not explained by the presence of lifetime major depression, stimulated further interest in the relations between psychological trauma and suicide attempts. Previous investigators[13-15] have shown that suicidality may be influenced by a variety of factors including sex, age, marital status, education, race, and physical and psychiatric illnesses, particularly major depression, substance abuse, and panic disorders. Thus, a study that finds a significant association between any single variable and suicide attempt must be interpreted in the context of whether other known correlates of suicidality explain the observed association.

In this article, we examine the association between a history of sexual assault and the lifetime occurrence of attempted suicide in an adult community-based population living in the Piedmont region of North Carolina. The primary question addresses whether a history of sexual assault retains its association with suicidality if the effects of other known correlates of suicidality and symptoms associated with a traumatic event are controlled. The secondary question concerns whether age at first reported sexual assault (eg, age <16 years vs 16+ years) is related to risk of suicidality after controlling for other correlates.

See Subjects and Methods on next page

From the Departments of Psychiatry and Behavioral Sciences (Drs Davidson, George, and Blazer) and Sociology (Dr George), and School of Nursing (Dr Hughes), Duke University Medical Center, Durham, NC.

SUBJECTS AND METHODS

SUBJECTS

The data were drawn from 2918 adult community respondents in North Carolina who participated in Wave I and Wave II of the National Institute of Mental Health Epidemiological Catchment Area survey conducted by Duke University.[16-18] Subjects who lived within a 5-county area were selected via a multistage sampling design.[16-18] Elderly residents (ages 60 years and older) were oversampled. Of all individuals selected for the community survey, 79% participated in the Wave I survey (3921 household residents; 502 institutionalized individuals). Seventy-nine percent of the Wave I household residents participated in the follow-up survey 1 year later (n=3115). In addition to the 806 household respondents who refused to be interviewed at Wave II, 197 subjects were dropped from this report for a variety of reasons (available on request). This yielded a sample of 2918 household respondents with complete data on the variables of interest.

Dropouts exhibited greater likelihood of being younger, less well educated, and unmarried and more frequently attempted suicide and experienced panic attacks.

METHODS

Data Collection

Data were obtained in a 2-hour structured face-to-face interview, which included the Diagnostic Interview Schedule–Version III.[19]

Respondents were asked about demographic characteristics, history of sexual assault, history of suicide attempt, posttraumatic stress symptoms, substance abuse or substance dependency, depression, anxiety, and chronic medical disorders.

Lifetime history of suicide attempt was the dependent variable of interest in this study. Although recency of suicide attempt was asked, age at first suicide attempt was not.

Reported sexual assault was the primary independent variable of interest. Subjects were asked as to the occurrence of sexual assault by means of the following question or statement: One event which people often report as a serious one in their lives is that of being sexually assaulted. Have you ever been in a situation in which you were pressured into doing more sexually than you wanted to do, that is, a situation in which someone pressured you, against your will, into forced contact with the sexual parts of your body or their body?

Subjects were asked their age at the first forced sexual contact as well as the number of forced sexual contacts before age 16 years and at age 16 years or older. The 2918 respondents selected for this study were separated into 2 groups: those who reported a history of sexual assault (n=67) and those without a known history of sexual assault (n=2851).

Because it is important to determine if sexual assault itself or only the symptoms associated with a traumatic event explain the relation between sexual trauma and suicidality, we controlled for the presence of posttraumatic stress symptoms in the multivariate models examined. Subjects were asked as to the occurrence of trauma-related symptoms, according to the following 9 questions, each of which was prefaced by the following statement:

Did you ever see something that frightened you so much or had something so frightening happen to you that you

1. . . . kept seeing it over again, just as you began to fall asleep, or would suddenly act as if you were in the middle of it all over again?
2. . . . were jumpy and easily startled even by a small noise?
3. . . . felt you had to stay on guard and wouldn't let yourself get involved in other things?
4. . . . wouldn't let yourself fall asleep or had trouble sleeping?
5. . . . had trouble concentrating?
6. . . . had much less feeling for the people you normally cared about?
7. . . . afterwards, lost interest in activities that meant a lot to you before?
8. . . . felt ashamed of still being alive after it was over?
9. . . . avoided doing anything that would remind you of it?

Subjects' Categorization

Respondents with posttraumatic stress symptoms were categorized into above or below threshold. Symptoms were

Continued on next page

RESULTS

Sixty-seven respondents (2.9%) reported lifetime sexual assault: 21 (1%) before age 16 years and 44 (1.8%) at or beyond 16 years of age. Age at first assault was unavailable in 2 instances. Of the male subjects in the study, only 5 (0.6%) reported having been sexually assaulted, whereas among women, 62 (4.8%) reported such an assault. The total number of times victims were pressured into sexual contact ranged from 1 time (60%) to 40 or more times (5%). Twelve victims reported 3 or more incidents. Data were missing on this question for 8 victims.

Bivariate associations between sexual assault history and demographic characteristics are shown in **Table 1**. Respondents with a history of sexual assault were more likely to be female and in the 25- to 44- and 45- to 64-year-old age groups. Differences between the 2 groups were not statistically significant with respect to ethnicity, marital status, or level of education.

Bivariate associations between history of sexual assault and comorbidity are shown in **Table 2**. Respondents with a history of sexual assault, compared with those without, reported higher rates of suicide attempt (14.9% vs 1.4%) and posttraumatic stress symptoms (45.2% vs 14.3%). Differences between the 2 groups were statistically significant for both the subthreshold and suprathreshold trauma symptoms. However, differences were not statistically significant on the prevalence rates of chronic medical disability, major depression, substance

threshold if at least 1 of the symptoms had either been reported to a physician, resulted in taking medication, or interfered with activities. Cases were considered below threshold if none of these held true, but at least 1 posttraumatic stress symptom had been endorsed during the subject's lifetime. The subthreshold trauma and suprathreshold trauma symptom variables were derived, respectively, by summing the number of trauma-related symptoms that respondents in each of the 2 subgroups reported experiencing during their lifetime. The subthreshold and suprathreshold trauma symptom variables were used in the bivariate analysis. A single dummy variable was created for the presence of both subthreshold and suprathreshold posttraumatic stress symptoms for the regression models, as the number of respondents in the suicide attempt group (n=42) limited the total number of independent variables that should be entered into a single logistic regression model to ensure stability of the parameter coefficients in the model.

Other independent variables examined in this study were known correlates of suicidality.[13-15] The demographic variables examined were sex, chronological age (ages, 18-24, 25-44, 45-64, and 65+ years), years of completed education (0-11, 12, and 13-17+ years), race (white vs nonwhite), and marital status (married vs not married). Age and education were analyzed as categorical variables in the crosstabulation analyses and as continuous variables in the multivariate logistic regression models.

Chronic physical illness was also examined, by assigning a value of 1 to each of 13 conditions if the respondent reported being bothered at least a little by the condition and a value of 0 if the respondent was not bothered by the condition or did not have it.

Lifetime psychiatric comorbidity was evaluated with respect to 4 disorders associated with suicidality: major depression, alcohol abuse or dependence, other drug abuse or dependence, and panic attacks. In the multivariate logistic models in which we controlled for alcohol and other drug abuse or dependence, the disorders were combined into a single variable, as we were restricted to a limited number of independent variables that we could enter into the model. In our preliminary analyses, panic disorder was not associated with attempted suicide, which, we thought, resulted from the low number of positive cases. We therefore substituted panic attacks for panic disorder to see if there was an association between panic attacks and sexual assault or suicide attempt.

Data Analysis

The χ^2 test was used to assess bivariate associations between group membership (sexual assault vs no sexual assault) and demographic characteristics, psychiatric comorbidity, medical comorbidity, and suicide attempt. Lifetime history of suicide attempt was then regressed on the selected independent variables in a series of logistic regression models, so we could determine if history of sexual assault entered as a dummy variable was associated with suicide attempt when known correlates of suicidality including sex, age, education, posttraumatic stress symptoms, and 1 of the following 4 comorbid conditions: major depression, substance abuse or dependence (alcohol and/or other drug), panic attacks, or chronic medical disability were examined. In each model, the interaction between sexual assault and the comorbid condition was also entered as an independent variable.

The general rule of thumb suggests there be a minimum of 5 to 6 respondents per parameter estimate in the model and that the total number of suggested respondents not exceed the number of respondents in the smaller of the 2 groups composing the dependent variable. Although we entered 7 independent variables into each of the regression models, we feel certain that the stability of the models was not compromised as the results were similar across the 2 samples, ie, all respondents and female-only group and across the models for the 4 comorbidity conditions.

Data were weighted to adjust for (1) the unequal probability of selection in the initial survey, (2) the oversample of elderly, (3) demographic characteristics of the geographical region sampled according to the 1980 US Census Report, and (4) attrition at Wave II Epidemiological Catchment Area.[17] Given the likelihood of underestimation of SEs for respondent items in complex multistage sampling designs, all statistically significant associations were reanalyzed with the design effect taken into consideration.[20,21] Only those factors that maintained their statistically significant association are reported as significant in this study. Weighting the data and correcting for the design effects allowed us to generalize to the adult population living in the sampling area. In this study, unless otherwise stated, raw numbers are taken from unweighted data, whereas percentages are derived from weighted data.

abuse or dependence (alcohol and/or other drug), and panic attacks.

Bivariate associations between the demographic and comorbidity variables with a lifetime history of suicide attempt were also examined (data not shown). Respondents in the suicide attempt group were more likely to be female (90.4% vs 53.9%; χ^2=12.4, df=1, P<.01) and younger (ages 18-24 years, 29.4% vs 14.8%; ages 25-44 years, 59.5% vs 42.3%; ages 45-64 years, 7.8% vs 27.5%; and ages 65+ years, 3.3% vs 15.4%; χ^2=12.2, df=3, P<.01).

Respondents with a history of suicide attempt differed from those with no history, were statistically different on 2 of the comorbidity variables: suprathreshold trauma symptoms (42.0% vs 7.5%; χ^2=7.3, df=1, P<.01) and major depression (36.1% vs 3.5%; χ^2=6.8, df=1, P<.01). Respondents in these 2 groups were not significantly different on race, marital status, education, subthreshold trauma symptoms, chronic medical disability, substance abuse or dependence, or panic attacks.

Almost one third (30.2%) of the index group, 2 of whom were male, indicated that their first assault occurred before age 16 years. The mean±SD age at first reported sexual assault was considerably younger in those who had attempted suicide than in those who had not (12.6±7.24 years [range, 6-32 years] vs 18.1±6.95 years [range, 5-57 years]; F=6.81, P=.01).

We assessed the association between history of sexual assault and suicidality controlling for posttraumatic stress symptoms and other known demographic and comorbidity correlates of suicidality. Given the limited num-

Table 1. Demographic Characteristics of Subjects With and Without Lifetime History of Sexual Assault (SA)

Characteristic	Subjects, Weighted %: With SA (n=67)*	Subjects, Weighted %: Without SA (n=2851)	χ^2	df
Female	90.4	53.5†	27.6	1
White	55.8	44.2	0.7	1
Married	59.8	62.2	0.1	1
Education, y				
<12	17.9	35.8		
12	29.8	29.4	5.8	2
>12	52.3	34.8		
Age, y				
18-24	19.6	15.0		
25-44	66.5	42.2†	19.3	3
45-64	12.6	27.4		
65+	1.3	15.4		

*First sexual assault at age less than 16 years (n=21) and at age 16 years or older (n=44); for 2 cases, age at first sexual assault missing.
†P<.001.

Table 2. Comorbidity for Subjects With and Without Lifetime History of Sexual Assault (SA)

Characteristic	Subjects, Weighted %: With SA (n=67)*	Subjects, Weighted %: Without SA (n=2851)	χ^2	df
Suicide attempt	14.9	1.4†	4.0	1
Trauma symptoms	45.2	14.3‡	9.9	1
Trauma symptoms subthreshold	19.3	6.7*†	4.7	1
Trauma symptoms suprathreshold	25.9	7.6‡	6.7	1
Chronic medical disability	32.8	28.7	0.3	1
Major depression	12.4	3.8	2.3	1
Substance abuse/dependency: alcohol and/or drug	15.5	9.9	0.9	1
Alcohol abuse/dependency	12.0	9.4	0.2	1
Drug abuse/dependency	3.56	1.0	1.1	1
Panic attacks	7.1	3.5	0.8	1

*First sexual assault at age less than 16 years (n=21) and at age 16 years or older (n=44); for 2 cases, age at first sexual assault missing.
†P<.05.
‡P<.01.

ber of suicide attempters, we were restricted on the number of variables that we could enter into the regression model. We believed that it was imperative to enter sex, age, and education into each of the models examined. Because we wanted to examine the differential contribution of the sexual assault event vs symptoms associated with trauma, we entered the latter as a dummy variable. Finally, we controlled for comorbid conditions as well as their interaction with reported sexual assault. However, only 1 comorbid disorder or condition and its interaction with history of sexual assault was entered into a single model. Thus, 4 logistic regression models were examined with the full sample of respondents and again for female-only subsample.

The regression of suicide attempt on reported sexual assault controlling for sex, age, education, post-traumatic stress symptoms, major depression is shown in **Table 3**. Respondents with a history of sexual assault were 6 times more likely to report a suicide attempt controlling for other variables in the model. Depression was associated with increased odds for reporting a suicide attempt. The interaction of major depression and sexual assault history was not statistically significant (odds ratio [OR] = 0.6, 95% confidence interval [CI] = 0.06-6.7). Findings were similar for the full sample and the female-only subsample.

Results were similar in both total sample and female-only subsample when panic attacks and substance abuse or dependence were the comorbidity variables entered into the model: for attempted suicide in association with panic attacks, OR=6.66 (95% CI=2.25-18.70, P<.02) and OR=6.86 (95% CI=2.37-19.66, P<.001), respectively; and for substance abuse or dependence, OR=7.40 (95% CI=2.32-23.49, P<.001) and OR=7.03 (95% CI=2.30-21.48, P<.001), respectively. The association between chronic medical disorder and suicide attempt was not significant.

Another set of models examined the female-only subsample to determine if a history of first sexual assault before age 16 years was related to an increased OR for attempting suicide. Findings for the demographics, post-traumatic stress symptoms, the comorbidity variable, and its interaction with sexual assault were similar to those reported for the female-only subsample in Table 3. With major depression in the model, the OR for a suicide attempt when a victim's first sexual assault occurred before age 16 years compared with age 16 years or older was 12.43 (95% CI=2.86-54.05, P<.001) vs 3.06 (95% CI=0.07-13.33, P=.13). With substance abuse or dependence in the model, the OR for attempted suicide when first sexual assault reportedly occurred before age 16 years compared with age 16 years or older was 13.2 (95% CI=3.48-50.04, P<.001) vs 3.78 (95% CI=1.06-13.52, P=.04). Finally, when panic attacks was the comorbid disorder entered into the model, the OR for a first sexual assault before age 16 years compared with age 16 years or older was 11.94 (95% CI=3.22-44.40, P<.001) vs 3.67 (95% CI=1.01-13.38, P=.05).

COMMENT

Our study has shown a clear association between reported sexual trauma and reported suicide attempt, an association that hitherto has not been well established by means of community-based studies, with 1 exception,[13] in which 1 in 5 victims of sexual assault was found to have made a suicide attempt. In our study, the association between sexual assault and attempted suicide remains statistically significant after controlling for the effects of other potential risk factors. A strikingly increased risk for suicide attempt was found in women whose first sexual assault occurred before age 16 years. While major depression, substance abuse or dependence, and panic attacks are all separately associated with an increased odds of suicide attempt, sexual assault remained significantly associated with suicidal behavior.

Table 3. Association of Attempted Suicide With History of Sexual Assault Controlling for Demographic Characteristics, Posttraumatic Stress Symptoms, and Major Depression*

Characteristic	OR (95% CI)	
	All Respondents (n=2918)	Females Only (n=1778)
Female: 1, yes	6.84† (1.39-33.37)	...
Age: younger, higher score; OR per year	1.08‡ (1.03-1.12)	1.07‡ (1.03-1.12)
Education: fewer years, higher score; OR per year	1.35‡ (1.18-1.55)	1.32‡ (1.17-1.49)
Major depression: 1, yes	12.17† (4.23-35.11)	14.59‡ (4.85-43.71)
Trauma symptoms: 1, yes	2.81† (1.21-6.51)	2.89† (1.24-6.70)
Ever sexually assaulted: 1, yes	5.89† (1.71-20.18)	6.36‡ (1.81-22.30)

**The interaction between major depression and history of sexual assault was not statistically significant for either sample. OR indicates odds ratio; CI, confidence interval.*

†P<.02.

‡P<.001.

Our findings are of importance to practitioners, given that suicide attempts are associated with increased health service utilization (eg, emergency department and hospitalization services) and, in 10% of cases,[13] eventually associated with a completed suicide. Victims of sexual assault also visit health care providers more often for physical and mental health symptoms.[22] In assessing suicide potential, it may be important to ask about earlier sexual assault.

With so few male individuals reporting sexual assault, we cannot speak to the importance of gender with respect to sexual assault and suicidality. Others[23,24] have reported that women who experience early sexual abuse exhibit low self-esteem, self-blame, difficulties with trust, and symptoms of depression. Further studies are needed to determine whether gender is related to the symptomatic sequelae of sexual abuse.

Although we believe that the association between sexual trauma and suicide attempt is not an artifact of the analysis, there are some limitations to the study, as follows.

1. Deletion of respondents with incomplete data could have biased our findings. We argue, however, that the impact of dropping out these respondents reduced, rather than increased, the strength of the association that we would have found between sexual assault and suicidality. We base this on the fact that differences between respondents included in, and excluded from, the study were found on only 1 of the comorbidity variables. If dropouts had been retained, panic attacks would possibly have been an even more significant risk factor for suicide attempt. This, however, seems unlikely given the strength of the OR for panic attacks observed for both the full sample and the female-only subsample.

2. A more serious limitation is our inability to elicit the age at suicide attempt; thus, we do not know whether sexual assault preceded a suicide attempt. It is more probable that the victims of sexual trauma whose first sexual assault occurred before age 16 years did not attempt suicide until after age 16 years. Kilpatrick and colleagues[3] noted that when suicide attempts occurred in rape victims, they generally followed the trauma.

3. Sexual trauma may have been underreported, which would mean that some subjects were classified as false negatives. We do not know the impact this may have on our findings. In Los Angeles, Calif, Sorenson et al[25] reported a 16.7% lifetime rate of any sexual assault in women and 9.4% in men. These are substantially higher than the rates of sexual assault in our sample. Whether there are regional differences in readiness to report trauma or whether other factors in the Los Angeles sample, such as race and location, account for the differences is difficult to establish.

4. The greater importance of the traumatic event compared with the presence of posttraumatic stress symptoms may be caused by differential recall between the event itself and symptoms thereof. Possibly, subjects had a stronger recall of the trauma than the ensuing symptoms. There is also the possibility that younger women are better able to recall and/or disclose incidents of sexual trauma than their older counterparts, thereby explaining the observed age difference between the groups. We found that victims of sexual assault were younger, as did Sorenson et al.[8] On the other hand, Mullen et al[5] found that age did not distinguish subjects with childhood sexual abuse histories vs those without. Others[26-28] have noted that younger women report more childhood sexual assault. Both different methods of inquiry and regional differences should be taken into account before concluding whether cohort effects exist.

5. Systematic assessment of personality disorders was not undertaken, and it remains possible that the association between sexual assault and suicide attempt is explained by Axis II comorbidity.

6. All data are based on self-report and therefore lack external corroboration as to authenticity.

7. Subject response is clearly shaped by the form in which the questions are presented. The Epidemiological Catchment Area Study was not designed specifically to assess the relation between suicide attempts and sexual trauma.

Notwithstanding the above limitations, we believe that our study demonstrates that sexual trauma is associated with lifetime suicide attempt, that this association is not explained by other risk factors, and that it is particularly strong in women who reported a sexual assault before age 16 years. The immensely damaging effect of such an event cannot be stressed too strongly, particularly in individuals with other vulnerability factors, such as family dysfunction, genetic or familial vulnerability to psychopathological states, and other developmental problems. We need to maintain awareness that a relation does exist between suicide attempt and sexual trauma and that this is not confined merely to treatment seeking clinical samples, but that it holds true in community samples as well. Our data do not inform as to which came first, and subsequent work could well be directed at tracing the path that links sexual trauma and attempted suicide.

Accepted for publication January 12, 1996.

This study was supported by grants U01MH35386 (Dr Blazer) and R01MH43756 (Dr George) from the Public Health Service, Washington, DC.

Reprints: Jonathan R. T. Davidson, MD, Department of Psychiatry, Anxiety and Traumatic Stress Program, Box 3812, Duke University Medical Center, Durham, NC 27710.

REFERENCES

1. Kolb LC. Chronic posttraumatic stress disorder implications of recent epidemiological and neuropsychological studies. *Psychol Med.* 1989;10:821-824.
2. Kolb LC. Posttraumatic stress disorder in Vietnam veterans. *N Engl J Med.* 1976;6:641-642.
3. Kilpatrick DG, Best CL, Veronen LJ, Amick AE, Villeponteux LA, Ruff GA. Mental health correlates of criminal victimization: a random community survey. *J Consult Clin Psychol.* 1985;53:866-873.
4. Wyatt GE. The sexual abuse of Afro-American and white American women in childhood. *Child Abuse Negl.* 1985;9:50-59.
5. Mullen PE, Martin JL, Anderson JC, Romans GE, Herbison GP. Childhood sexual abuse and mental health in later life. *Br J Psychiatry.* 1993;163:721-732.
6. 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.
7. Siegel JM, Sorenson SB, Golding JM, Burnam MA, Stein JA. The prevalence of childhood sexual assault: the Los Angeles Epidemiological Catchment Area Project. *Am J Epidemiol.* 1987;126:1141-1153.
8. Sorenson SB, Stein JA, Siegel JM, Golding JM, Burnam MA. The prevalence of adult sexual assault: the Los Angeles Epidemiological Catchment Area Project. *Am J Epidemiol.* 1987;126:1154-1164.
9. Sheldrick C. Adult sequelae of child sexual abuse. *Br J Psychiatry.* 1991;158 (suppl 10):55-62.
10. Burnam MA, Stein JA, Golding JM, Siegel JM, Sorensen SB, Forsythe AB, Telles CA. Sexual assault and mental disorders in a community population. *J Consult Clin Psychol.* 1988;56:843-850.
11. Mullen PE, Romans-Clarkson SE, Walton VA, Herbison GP. Impact of sexual and physical abuse on women's mental health. *Lancet.* 1988;941-845.
12. Davidson JRT, Hughes DC, Blazer DG, George LK. Posttraumatic stress disorder in the community: an epidemiological study. *Psychol Med.* 1991;21:713-721.
13. Stevenson JM. Suicide. In: Talbott JA, Hales RE, Yudofsky SC, eds. *Textbook of Psychiatry.* Washington, DC: American Psychiatric Press; 1988:1021-1035.
14. Weissman MM, Klerman GL, Markowitz JS, Ouellette R. Suicidal ideation and suicide attempts in panic disorder and attacks. *N Engl J Med.* 1989;321:1209-1214.
15. Johnson J, Weissman MM, Klerman GL. Panic disorder, comorbidity, and suicide attempts. *Arch Gen Psychiatry.* 1990;47:805-808.
16. Blazer DG, George LK, Landerman RG, Pennybacker M, Melville ML, Woodbury M. Manton KG, Jordan K, Locke B. Psychiatric disorders. *Arch Gen Psychiatry.* 1985;42:651-656.
17. Eaton WW, Kessler LG, eds. *Epidemiological Field Methods in Psychiatry: The NIMH Epidemiological Catchment Area Program.* Orlando, Fla: Academic Press Inc; 1985.
18. Blazer DG, Swartz M, Woodbury M, Manton KG, Hughes DC, George LK. Depressive symptoms and depression diagnoses in a community population. *Arch Gen Psychiatry.* 1988;45:1078-1084.
19. Robins LN, Helzer JE, Croughland JL, Williams JBW, Spitzer RL. *NIMH Diagnostic Interview Schedule–Version III.* Rockville, Md: National Institutes of Mental Health; 1981. Public Health Service (PHS) publication PHS ADM-T-42-3.
20. Kessler LG, Folsom R, Royall R, Forsythe A, McEvoy L, Holzer CE, Rae DS, Woodbury M. Parameter and variance estimation. In: Eaton WW, Kessler LG, eds. *Epidemiological Field Methods in Psychiatry: The NIMH Epidemiological Catchment Area Program.* Orlando, Fla: Academic Press Inc; 1985:327-348.
21. Shah BV, Folsom R, Harrell RE, Dillard CN. *RTI Logit: Procedure for Logistic Regression on Survey Data.* Research Triangle Park, NC: Research Triangle Institute; 1987.
22. Golding JM, Stein JA, Siegel JM, Burnam MA, Sorensen SB. Sexual assault history and use of health and mental health services. *Am J Commun Psychol.* 1988;16:625-644.
23. Mullen PE, Romans-Clarkson SE, Martin JL, Anderson JD. The long-term effects of sexual assault on women's mental health. *N Z Med J.* 1989;102:633-634.
24. Mullen PE, Martin JL, Anderson JC, Romans SE, Herbison GP. The effect of child sexual abuse on social interpersonal and sexual freedom in adult life. *Br J Psychiatry.* 1994;165:35-47.
25. Sorenson SB, Siegel JM, Golding JM, Stein JA. Repeated sexual victimization. *Violence Victims.* 1991;6:299-308.
26. Bagley C, Ramsay R. Sexual abuse in childhood: psychosocial outcomes and implications for social work practice. *J Soc Work Hum Sexual.* 1986;4:33-47.
27. Russell DEH. *Sexual Exploitation: Rape Child Sexual Abuse, and Work Place Harassment.* Beverly Hills, Calif: Sage Publications; 1984.
28. Siegel JM, Golding JM, Stein JA, Burnam MA, Sorensen SB. Reactions to sexual assault: a community study. *J Interpers Violence.* 1990;6:229-246.

Correction

Reprint Address Missing. In the article titled "Enhanced Sensitivity of Pituitary β-Endorphin to Ethanol in Subjects at High Risk of Alcoholism" (1996;53:250-257), the address for reprints was omitted. Correspondence and requests for reprints should be directed to Christina Gianoulakis, PhD, Douglas Hospital Research Centre, 6875 LaSalle Blvd, Verdun, Quebec, Canada H4H 1R3. The ARCHIVES regrets the error.