

Health-Related Quality of Life and Symptom Profiles of Female Survivors of Sexual Abuse

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Objectives: To determine the association between severity of sexual abuse and psychiatric or medical problems in a sample of female patients from primary care medical settings and to assess the relationship between sexual abuse severity and health-related quality of life before and after controlling for the effects of a current psychiatric or medical diagnosis.

Design: Structured interview and self-report questionnaire.

Setting: Three family practice outpatient clinics.

Subjects: A total of 252 women selected by somatization status using a screen for unexplained physical symptoms.

Main Outcome Measures: Patient assessment after administering the Medical Outcomes Study 36-item Short-Form Health Survey and self-report medical problems questionnaire; the quality-of-life scale developed by Andrews and Withey; *Diagnostic and Statistical Manual of Mental Disorders, Third Edition, Revised*, diagnoses and symptom counts from the Diagnostic Interview Schedule; the Dissociative Experiences Scale; and the modified Dissociative Disorders Interview Schedule.

Results: A history of sexual abuse is associated with substantial impairment in health-related quality of life and a greater number of somatized symptoms ($P < .001$), medical problems ($P < .01$), and psychiatric symptoms and diagnoses ($P < .001$). In regression analyses, sexual abuse severity was a significant predictor of high scores on 6 of the 8 subscales of the Medical Outcomes Study Short-Form Health Survey ($P < .05$) and all of the quality-of-life subscales developed by Andrews and Withey ($P < .01$), with average decrements of up to 0.41 SDs for moderately abused women and 0.56 SDs for severely abused women. Furthermore, sexual abuse severity remained a significant predictor of high scores on the subscales mental health ($P < .05$), social functioning ($P < .05$), and quality of life ($P < .05$), even after adjusting for the presence of several common psychiatric diagnoses.

Conclusions: Female primary care patients with a history of sexual abuse have more physical and psychiatric symptoms and lower health-related quality of life than those without previous abuse. In addition, a linear relationship exists between the severity of sexual abuse and impairment in health-related quality of life, both before and after controlling for the effects of a current psychiatric diagnosis.

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ESTIMATES OF previous sexual victimization are variable, but it is generally thought that about 1 in 4 women in North America were molested in childhood and that 1 in 5 are survivors of adult sexual assault.¹⁻²³ Sexual victimization can affect many areas of a person's life: interpersonal, professional, physical, mental, and spiritual. The long-term effects of sexual trauma have been studied in some detail in college students,^{1,5,7,10} professional women,³ medical patients,^{24,25} psychiatric patients,²⁶⁻²⁹ and other groups.³⁰ Sequelae of sexual abuse include anxiety, depression, somatization, hypochondriasis, eating disorders, dissociation, sexual dysfunction, substance abuse, suicidality, self-mutilation,

repeated victimization, increased risk for sexually transmitted diseases (including the acquired immunodeficiency syndrome), relational difficulties, traumatic bonding, and identity disturbances.^{2,13,16,18,19,29,31-40}

In this decade, several studies have been done of the prevalence of sexual abuse among women in primary care medical settings.¹²⁻²³ Prevalence rates reported in these studies range from 17%¹⁵ to 46%²² for any lifetime sexual victimization, 13%¹⁷ to 29%²³ for adult rape or attempted rape,

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SUBJECTS AND METHODS

SAMPLE SELECTION

The data presented here are taken from the Somatization in Primary Care project, a 5-year study funded by the National Institute of Mental Health. The sample consisted of 252 women from 3 family practices in or near Mobile, Ala. Men were included in the original sample but not in this portion of the study. The screening and enrollment window for this study covered about 13 months, from February 1, 1991, through June 12, 1992. All patients who presented for care for any reason during the screening days were asked by a female interviewer assigned to the practice to complete a screening questionnaire for unexplained physical symptoms, an 11-item instrument developed for this study. Patients with 2 or more "positive" items on the screen were invited to enroll in the study, along with a random sample of those with less than 2 symptoms who met age and race criteria. Fourteen percent of the patients screened were not enrolled in the study because of refusal, the unavailability of the patient, or other difficulties. Those who agreed to participate were scheduled for an enrollment interview in their physician's office or in their homes. Each enrollee completed the full National Institute of Mental Health Diagnostic Interview Schedule (DIS), version III-R,⁴⁵ administered by trained female interviewers. This instrument was developed for use in research studies and community surveys to evaluate subjects for 19 major psychiatric diagnoses according to *Diagnostic and Statistical Manual of Mental Disorders, Revised Third Edition (DSM-III-R)* criteria.⁴⁶ On the basis of DIS results, enrollment proceeded until there were enough subjects to fill 3 approximately equal groups: 1 with 13 or more unexplained physical symptoms from the somatization section of the DIS (somatization disorder), 1 with 6 to 12 unexplained symptoms (somatizers), and a group with fewer than 6 symptoms (controls), with frequency matched to the combined age or race distribution of the first 2 groups. Thus, we acquired a representative sample from each practice, weighted toward high somatization.

INSTRUMENTS AND MEASURES USED IN ANALYSIS

The DIS⁴⁵ was used to assess subjects for major depression, panic disorder, generalized anxiety disorder, post-traumatic stress disorder (PTSD), dysthymia, somatiza-

tion disorder, alcohol abuse or dependence, and bulimia. In addition to the DIS, the enrollment interview included demographic data, self-reported medical problems, health status, and quality of life. After enrollment, 4 follow-up interviews were conducted at 6-month intervals. The only data included in this report from follow-up interviews were obtained from 2 dissociation questionnaires^{47,48} administered by mail in the third follow-up interview. Each instrument is described below.

Medical problems were assessed in a 1-page self-report questionnaire used in the Medical Outcomes Study.⁴⁹ Medical problems included high blood pressure, high serum glucose levels or diabetes mellitus, heart attack within the past year, current angina, arthritis, back problems, lung problems (asthma, chronic bronchitis, or emphysema), or gastrointestinal tract disorder (ulcers, chronically inflamed bowel, enteritis, or colitis).

All 4 levels of Wilson and Cleary's model of HRQL⁴² were evaluated in this study. Patient-reported symptom status was obtained from the DIS and will be addressed separately, in conjunction with discussions of medical and psychiatric problems. The usual formulations of HRQL include functional status, general health perceptions, and quality of life. These were measured using the Medical Outcomes Study 36-item Short-Form Health Survey (SF-36)⁵⁰ and a quality-of-life scale.⁵¹

The SF-36 is a standardized health survey with the following 8 subscales: physical functioning, role of physical health, bodily pain, health perception, vitality, social functioning, role of emotional health, and role of mental health, in addition to change in health from 1 year ago. The SF-36 is useful in distinguishing between healthy adults and those with a number of medical and psychiatric conditions and in discerning unique patterns of impairment and predictive relationships within and among patient groups.^{43,44} The SF-36 is psychometrically adequate for diverse ethnic and cultural groups and in cross-cultural comparisons.^{50,52} Internal reliability coefficients for the SF-36 subscales range from 0.65 to 0.94.⁵⁰ Construct validity is evidenced by relatively high correlations between the SF-36 subscales and other health measures such as the Duke Health Profile (0.51 for mental health),⁵³ the Functional Status Questionnaire (0.73 for physical functioning),⁵⁴ and the shortened Arthritis Impact Measurement Scales (0.60 for physical functioning and 0.82 for mental health).⁵⁴

The other component of HRQL, the quality-of-life scale developed by Andrews and Withey,⁵¹ measures the subjects' level of satisfaction with their current lives. The specific subset of questions used for this study is the same as

and 16%¹⁸ to 40%²³ for childhood sexual abuse. In 1 study,¹⁴ 22% of the women in a primary care practice had experienced multiple forms of childhood abuse.

Long-term health sequelae of abuse among general medical patients include more medical problems,^{16,19,20} higher medical use,²¹ more physical symptoms,^{18,21} lower health status,²¹ and more surgical procedures.¹⁹ Higher levels of somatization, more health risk behaviors, and many social and psychiatric problems also have been reported.^{16,18,20} Childhood abuse (sexual, physical, or both) has been associated with attempted or completed suicide,^{14,18} panic,¹³ and a greater chance of having a partner with a substance abuse problem.¹⁹ The frequency and

severity of certain symptoms—dissociation, anxiety, depression, sleep problems, and sexual problems—may be related in a linear way to the cumulative severity of sexual abuse.^{16,18,31} Although several studies have described sexual abuse survivors who are primary care patients, most research on the long-term health status of abuse survivors in this population is "first wave," ie, characterized by relatively simple design and methods.⁴¹

In recent years, the assessment of health outcomes has expanded to include patients' subjective assessments. Wilson and Cleary⁴² describe a conceptual model of measures of health on a continuum of social and psychological complexity of 5 levels, beginning with bio-

those used by Smith et al⁵⁵ in their study of patients with somatization disorder. Test-retest reliability for the quality-of-life subscales from a number of settings has been adequate, averaging about 0.70, with median validity coefficients also about 0.70.⁵⁶ Subscales include a global assessment in which subjects were asked to rate how they viewed their lives overall from best to worst, an affect assessment in which they were asked how they felt about their lives using 10 opposing adjectives and a specific-areas assessment that addressed their level of satisfaction with personal accomplishments, health, family, job, and others.

Dissociation was measured by 2 self-report instruments in the third follow-up interview. The Dissociative Experiences Scale (DES)⁴⁷ is a 28-item scale in which respondents are asked to judge how much of the time (percentage) they have certain experiences. The scale score is the average of the responses to all the items and can range from 0 to 100. The DES was developed as a clinical and research tool to help quantify dissociative experiences, specifically in clinical populations. Designed as a trait measure of dissociation, the DES is fairly stable over time, as reflected in test-retest reliability coefficients of 0.79, 0.84, and 0.96, respectively, in 3 different studies.^{47,57,58} Construct validity for the DES is evidenced by high scores for patients diagnosed clinically with disorders in which a high level of dissociation is expected, such as dissociative identity disorder (formerly multiple personality disorder), dissociative disorder not otherwise specified, and PTSD, and low scores in other groups.^{47,57,58} The other measure of dissociation, the modified Dissociative Disorders Interview Schedule (DDIS),³⁷ consists of 14 items based on the criteria for several dissociative disorders from the *DSM-III-R*. The overall instrument was intended for use in making specific diagnoses, but we used the total number of dissociative symptoms as an indicator of the possible presence and severity of dissociative disorders in general. Interrater reliability for the DDIS for patients with multiple personality disorder is 0.68.⁴⁸ The correlation coefficient between the 2 measures in our study is given in the "Results" section.

Sexual abuse was measured by a questionnaire based on the work of Russell.^{8,9} Other studies evaluating a history of sexual abuse have been based on Russell's questionnaire.¹¹ The sexual abuse questionnaire and a genogram-based family history were in the form of a clinical interview and not amenable to psychometric evaluation. Both were administered at the end of the enrollment assessment. This format would guard against contamination of other data by the sensitive material addressed in the last 2 sections of the enrollment evaluation. Childhood sexual abuse was

coded using the severity scale developed by Russell as a guideline. Moderate childhood sexual abuse included intentional sexual kissing, genital or breast contact, or simulated intercourse before age 14 years by a person at least 2 years older and up to age 17 years by a person related to the subject. Severe childhood sexual abuse was defined as attempted or completed sexual intercourse, fellatio, cunnilingus, or anilingus against the wishes of the subject through age 17 years. For this study, sexual assault during adulthood was coded present if the woman experienced rape or attempted rape at age 18 years or older. Noncontact abuse or harassment was considered "mild" and was included with "none" in the severity rating. Information as to the duration and frequency of abuse, age at onset, number of perpetrators, and relationship of the perpetrator was elicited. The subject was also asked about physical abuse in childhood, and this was coded as 1 if present or 0 if absent.

STATISTICAL ANALYSIS

Statistical analysis was performed using a commercially available software package (Statistical Package for the Social Sciences, Version 7.0, SPSS, Inc, Chicago, Ill). Prevalence estimates were obtained by the method of direct adjustment.⁵⁹ Categorical data were analyzed by χ^2 tests. Multivariate analysis of variance was used first for continuous data, followed by Student-Newman-Keuls post hoc analyses for pairwise differences. To answer the question of whether sexual abuse is associated with a lower HQRL (functional status, health perceptions, and quality of life) beyond that seen in the common psychiatric and physical disorders associated with abuse, linear regression methods were used. All dependent variables were standardized before analysis. In this final analysis, we regressed the subscale scores of the SF-36 and quality-of-life instruments first against demographic variables (age, race, and Hollingshead social class⁶⁰), medical problems (diabetes mellitus, cardiovascular, musculoskeletal, gastrointestinal tract, and pulmonary problems), and current psychiatric diagnoses (major depressive episode or dysthymia, generalized anxiety disorder or panic disorder, and somatization disorder), using stepwise regression techniques, with an α to enter of .20. Then, sexual abuse severity (none or mild, moderate, or severe) was added to the predictors in the model to determine if it resulted in a significant additional reduction in the residual variance. As a final step, a current diagnosis of PTSD was added to the model to determine whether the effects of sexual abuse severity on HRQL were explained by including this diagnosis. Data were given as mean \pm SD.

logical and physiological factors (level 1) and progressing on a causal pathway to patient-reported symptom status (level 2), functional status (level 3), general health perceptions (level 4), and overall quality of life (level 5). The first level consists of standard clinical and laboratory data and diagnoses. The last 3 can be thought of as belonging to a multidimensional construct referred to in recent literature as health-related quality of life (HRQL). Symptom status is an intervening variable, affected to some extent by the presence or absence and severity of disease, idiosyncratic characteristics of the individual, and external factors in the environment. Symptom status is sometimes included in HRQL assessments. A number of

instruments have been developed and tested during the past few years to measure various aspects of health status and well-being from a patient's viewpoint. Subjective health status is an important determinant of the demand for medical and mental health services, and many conditions have been shown to be associated with a profound impairment in HRQL.^{43,44} To our knowledge, the relationship between sexual abuse and HRQL has not been explored in depth. In this study, HRQL is assessed multidimensionally at 4 levels: symptom status, functional capacity, health perceptions, and quality of life.

This report deals with 3 areas of focus regarding the sexual abuse of women who are primary care patients.

Table 1. Adjusted Prevalences of Sexual Victimization*

Practice	Any Childhood Sexual Abuse	Severe Childhood Sexual Abuse	Adult Sexual Assault	Any Moderate or Severe Sexual Victimization
1	42 (42.2)	28 (21.3)	13 (12.3)	46 (46.1)
2	28 (32.4)	17 (17.2)	11 (10.5)	34 (39.5)
3	34 (28.5)	20 (14.1)	16 (16.8)	42 (38.5)

*Data are given as number (percentage).

Table 2. Sexual Abuse (SA) by Age at Onset and Severity

SA Severity and Age at Onset, y*	No.	Total, No. (%)
None/mild	130	130 (51.6)
Moderate		
0-6	3	38 (15.1)
7-13	32	
14-17	3	
Severe		
0-6	22†	84 (33.3)
7-13	32	
14-17	12	
Adult only	18	

*None/mild includes noncontact abuse. Moderate includes intentional sexual kissing or touching of buttocks, thigh, leg, or clothed breasts or genitals; forcible or nonforcible genital contact, including touching or manual penetration; and forcible or nonforcible breast contact (unclothed) or simulated intercourse. Severe includes, in children or adolescents, forcible, nonforcible, or attempted sexual intercourse against their wishes and forcible, nonforcible, or attempted fellatio, cunnilingus, anilingus, or anal intercourse. In adults, it includes rape or attempted rape.

†One subject reported onset in childhood at moderate level, but severe abuse later on.

First, we report the prevalence of sexual abuse in a sample of family practice patients. Second, we hypothesize that there is a relationship between sexual abuse severity and medical or psychiatric problems. Finally, we hypothesize that sexual abuse severity is inversely related to HRQL, before and after controlling for the effects of current psychiatric or medical diagnoses.

RESULTS

PREVALENCE OF SEXUAL ABUSE

The final sample of subjects consisted of about an equal number of patients from each of the 3 primary care practices and about an equal number in each somatization group: controls, $n = 83$; somatizers, $n = 85$; and somatization disorder, $n = 84$. To fill the somatizer and somatization disorder groups, a random sample of patients was screened from each practice (525, 459, and 1062, respectively). We calculated practice prevalences for categories of sexual victimization (**Table 1**) by means of direct adjustment,⁵⁹ using the distribution of screen scores for each practice to approximate the makeup of the practice population. The prevalence of sexual victimization ranged from 39% to 46% in the 3 clinics. Thus, between one third and one half of the women seen by physicians in these family practice set-

Table 3. Sexual Abuse (SA) Severity by Duration, Number of Perpetrators, Incest, and Childhood Physical Abuse*

SA Severity† and Onset	No. of Subjects	Repeated or Ongoing Abuse	Multiple Perpetrators	Incest	Childhood Physical Abuse
None/mild	130	NA	NA	NA	9 (7)
Moderate	38	24 (63)	9 (24)	25 (66)	4 (11)
Severe					
Childhood onset	66	61 (92)	31 (47)	45 (68)	26 (39)
Adult only	18	1 (6)	5 (28)	2 (11)	3 (17)
Total	252	86	45	72	42

*Data are given as number (percentage). NA indicates not applicable.

†See the first footnote in Table 2 for an explanation of SA severity categories.

tings report having been subjected at some time to serious sexual victimization. The highest overall prevalence rates for sexual trauma were observed at a university-based family practice.

Subjects in this study ranged from 21 to 80 years of age, with a mean age of 47 ± 14 years. Of the 252 women interviewed, 207 (82.1%) were white, 41 (16.3%) were black, and 4 (1.6%) were other races (American Indian, Pacific Islander, or unspecified). The last 2 categories were combined for analysis. A total of 122 women (48.4%) in the sample reported a history of significant sexual trauma. **Table 2** shows sexual victimization by age of onset and severity. Of the 104 (41.3%) women in the sample reporting onset in childhood, almost two thirds were severely abused. The mean age at onset for those abused in childhood was 9.3 ± 3.6 years. Of 40 women in the sample reporting adult rape or attempted rape, 22 (55%) also had been sexually abused in childhood. **Table 3** describes other characteristics of abuse—multiple perpetrators, repeated or ongoing abuse, incest, or childhood physical abuse—by severity level and onset in childhood or adulthood. All of these characteristics tend to be more strongly associated with severe sexual abuse of childhood onset. Much of the childhood sexual abuse occurred within the family, sometimes compounded by physical abuse or repeated victimization in adulthood.

For the remainder of the analyses, subjects were categorized by sexual abuse severity as none or mild, moderate (childhood onset), or severe (child or adult onset). A total of 130 subjects reported no childhood or adult sexual abuse meeting the specified criteria. Racial distribution was similar among the 3 groups defined above. Mean age, however, differed significantly among the groups ($P < .05$); the severely abused group was slightly younger. Social class was not significantly different by sexual abuse category.

PSYCHIATRIC AND MEDICAL PROBLEMS

To look at the relationship between sexual abuse severity and psychiatric or medical problems and symptoms, we first evaluated the differences in somatoform symptoms by sexual abuse severity (**Table 4**). The high number of unexplained symptoms in all groups can be understood by re-

Table 4. Medical and Psychiatric Problems, by Sexual Abuse (SA) Severity*

SA Severity†	No. of Subjects	Somatoform Symptoms	Medical Problems	Psychiatric Diagnoses	Dissociative Symptoms
None/mild	130	7.5	1.5	1.2	0.66 (n = 101)
Moderate	38	8.2	1.7	1.8	1.41 (n = 32)
Severe	66	11.4	1.8	3.3	1.85 (n = 67)
$F_{2,247}‡$...	15.53	5.68	30.57	6.19§
P	...	<.001	<.01	<.001	<.01

*Except where noted, data are given as means.

†See the first footnote in Table 2 for an explanation of SA severity categories.

‡Main effects after adjusting for age and race.

§ $F_{2,196}$.

membering that this sample, while representative, is weighted for somatizing patients. The number of somatoform symptoms differed significantly ($P < .001$) among the abuse categories after adjusting for age and race, with means of 7.5, 8.2, and 11.4 unexplained physical symptoms for subjects with none or mild, moderate, and severe sexual abuse, respectively. Post hoc analyses show that the mean number of somatoform symptoms for the group with severe sexual abuse was significantly greater ($P < .05$) than for either of the first 2 categories. In the *DSM-III-R*,⁴⁶ somatization symptoms are divided into the following groups: cardiopulmonary, female reproductive, gastrointestinal tract, pseudoneurologic, and sexual. When each of these symptom groups was analyzed separately, the mean number of somatoform symptoms was significantly different by sexual abuse severity for all symptom groups, thus implying that the relationship between sexual abuse severity and somatoform symptoms was not restricted to 1 or 2 organ systems.

Medical problems were assessed at enrollment by self-report. Individually, none of these items was significantly associated with sexual abuse severity, but the total number of medical problems differed significantly ($P < .01$) among sexual abuse categories in an analysis of variance, after adjusting for age and race (Table 4).

Means for the total number of lifetime *DSM-III-R* diagnoses by sexual abuse severity are also given in Table 4. Analysis of variance revealed significant differences by sexual abuse severity in the number of lifetime diagnoses ($P < .001$). The total number of psychiatric symptoms from the DIS was also analyzed, with similar results ($P < .001$). Post hoc analyses revealed that all pairwise comparisons were significant, reflecting a linear relationship between psychiatric symptom count and sexual abuse severity, with worse severity associated with more symptoms.

Subjects were evaluated for dissociation in a follow-up interview, with about 200 women responding using the DES⁴⁷ and the modified DDIS.⁴⁸ Sexual abuse severity by the number of dissociative symptoms (as elicited by the DDIS) was significant, and means are given in Table 4. A similar linear trend was noted for the DES as well ($F_{2,200} = 3.43$; $P < .05$). Because of the considerable skewness of the data on the right, a square-root transformation was used on DES scores for the analysis. There was a significant correlation between the scores based on the 2 instruments ($r = 0.52$; $P < .001$), reflecting a reasonable level of construct validity.

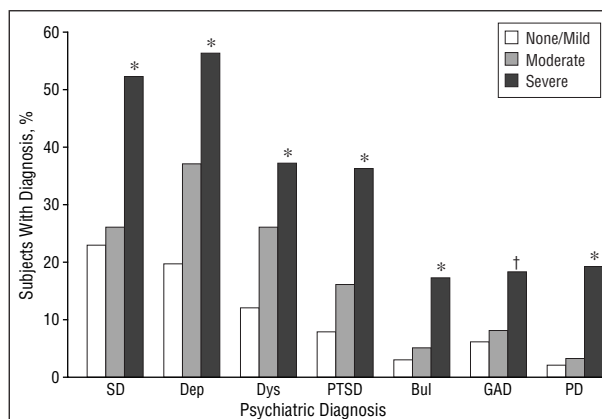


Figure 1. Specific psychiatric diagnoses by sexual abuse severity. SD indicates somatization disorder; Dep, depression; Dys, dysthymia; PTSD, posttraumatic stress disorder; Bul, bulimia; GAD, generalized anxiety disorder; PD, panic disorder; asterisk, $P < .01$; and dagger, $P < .05$.

Next, we looked at the association between sexual abuse severity and specific lifetime *DSM-III-R* diagnoses (Figure 1). The following were significant by χ^2 analysis: somatization disorder ($\chi^2_2 = 20.71$; $P < .001$), depression (major depressive episode [$\chi^2_2 = 29.28$; $P < .001$]), dysthymia ($\chi^2_2 = 19.43$; $P < .001$), PTSD ($\chi^2_2 = 27.03$; $P < .001$), bulimia ($\chi^2_2 = 13.33$; $P < .001$), generalized anxiety disorder ($\chi^2_2 = 7.83$; $P < .02$), and panic disorder ($\chi^2_2 = 21.29$; $P < .001$). Overall, there appeared to be a linear trend between sexual abuse severity and lifetime prevalence rates of these psychiatric diagnoses, with worse severity associated with a greater number of lifetime diagnoses.

In general, the data support the hypothesis that a relationship exists between sexual abuse severity and several medical and psychiatric problems. This relationship also holds for patient-reported symptoms.

HEALTH-RELATED QUALITY OF LIFE

We hypothesized that childhood or adult sexual victimization would have an adverse effect on HRQL. Although symptom status was part of our evaluation, in this section we will emphasize the 3 levels most commonly included in conceptualizations of HRQL: functional status, general health perceptions (assessed by the SF-36), and quality of life. A multivariate analysis of variance indicated that SF-36 subscale scores among the sexual abuse categories differed significantly ($P < .02$). Univariate analyses on each of the SF-36 subscales revealed significant differences in the following subscales: vitality ($F_{2,247} = 5.86$; $P < .01$), mental health ($F_{2,247} = 5.99$; $P < .01$), bodily pain ($F_{2,247} = 7.53$; $P < .01$), role of emotional health ($F_{2,247} = 6.01$, $P < .01$), role of physical health ($F_{2,247} = 3.44$; $P < .05$), and social functioning ($F_{2,247} = 6.96$; $P < .01$). On the average, greater impairment was observed in the more severely abused subjects. Only general health and physical health were not significantly different by sexual abuse severity. Figure 2 shows the relationship between sexual abuse severity and the SF-36 scores as effect size from the no-sexual abuse group. Effect size is defined as the difference in scores between a sexual abuse category and the no-sexual abuse category divided by the total sample SD of that particular subscale. This measure is used in

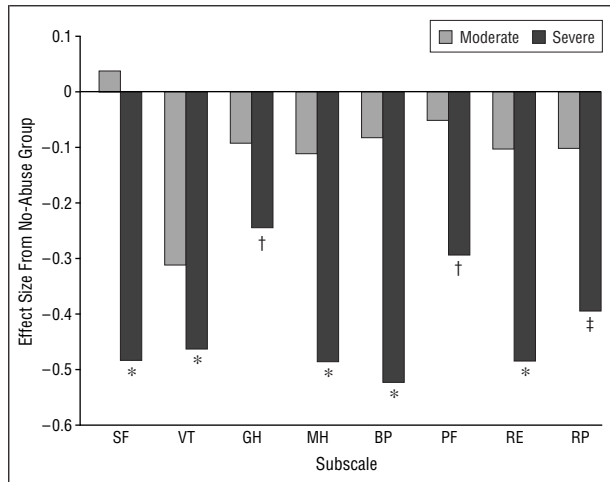


Figure 2. Effect size from the no-abuse group of subscale scores on the 36-item Short-Form Health Survey, by sexual abuse severity (from McHorney et al⁶⁰). SF indicates social functioning; VT, vitality; GH, general health; MH, mental health; BP, bodily pain; PF, physical functioning; RE, role of emotional health; RP, role of physical health; asterisk, $P < .01$; dagger, $P > .10$; and double dagger, $P < .05$.

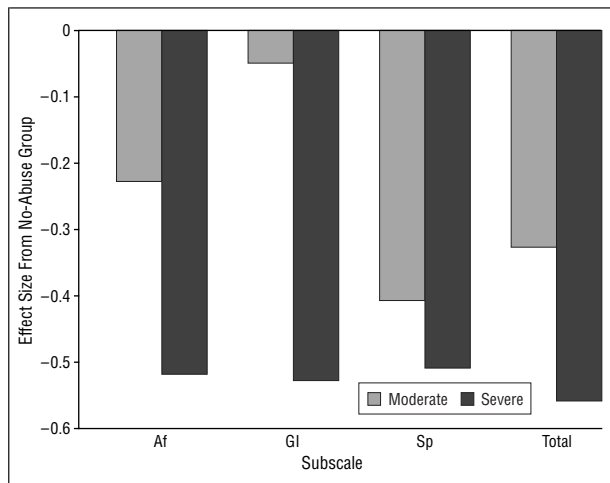


Figure 3. Effect size from the no-abuse group of quality-of-life subscale scores by sexual abuse severity: Af indicates affect; GI, global; and Sp, specific areas ($P < .01$).

other studies of functional health and psychiatric disorders.⁴² Significant pairwise differences were seen between the group with severe sexual abuse and the other 2 groups for the social functioning, bodily pain, and mental health subscales and between the group with severe sexual abuse and the group with none or mild sexual abuse for the role of emotional health and vitality subscales.

As part of the evaluation of HRQL, we administered a quality-of-life scale to determine whether the sexually abused groups had a lower level of satisfaction with their current lives than nonabused subjects. Significant differences were seen among the sexual abuse groups on affect assessment ($F_{2,246} = 6.24$; $P < .01$), global assessment ($F_{2,246} = 7.48$; $P < .01$), specific areas ($F_{2,246} = 6.42$; $P < .01$), and the total score ($F_{2,246} = 7.41$; $P < .01$). The effect size from the group with none or mild sexual abuse for each subscale and the total score is shown in **Figure 3**. Post hoc analyses on the total score were significant only

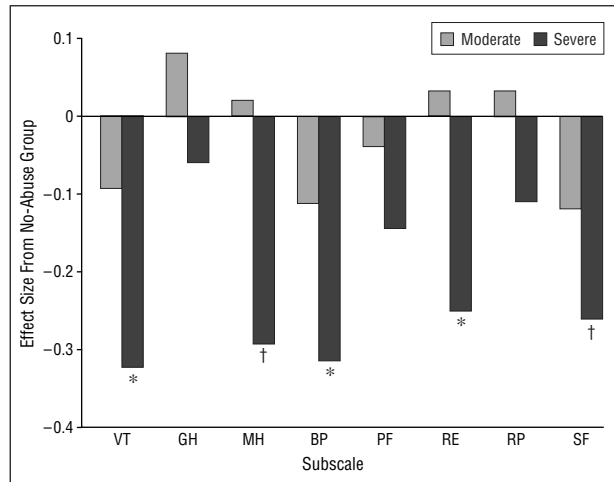


Figure 4. Effect size from the no-abuse group of sexual abuse severity on subscale scores on the 36-item Short-Form Health Survey (from McHorney et al⁶⁰) after controlling for current mental and medical diagnoses, adjusted for age, race, social class, medical problems, depressive disorders, anxiety disorders, and somatization disorders. VT indicates vitality; GH, general health; MH, mental health; BP, bodily pain; PF, physical functioning; RE, role of emotional health; RP, role of physical health; SF, social functioning; asterisk, $P \leq .10$; and dagger, $P < .05$.

for the pairwise comparison of the group with none or mild sexual abuse vs the group with severe sexual abuse.

Is sexual abuse associated with a lower HQRL beyond that seen in the mental and physical disorders associated with abuse? In other words, if a woman has been abused but does not meet criteria for specific psychiatric and medical diagnoses, is she nonetheless at risk for impaired functional status? To answer these questions, we used the linear regression approach described in the “Statistical Analysis” subsection of the “Subjects and Methods” section.

Figure 4 shows the effect size for moderate and severe sexual abuse for the components of the SF-36. Mental health and social functioning subscale scores were significantly decreased in abused subjects ($P < .05$), after adjusting for the other predictors in the model, with decrements of 0.29 and 0.26 SD, respectively, for severe sexual abuse. The P values for the coefficients for vitality, bodily pain, and role of emotional health subscales were all .10 or less, suggestive of residual effects of sexual abuse on functional health. Even after adding a current diagnosis of PTSD to the model, the P values for vitality, role of physical health, and social functioning subscale scores remained below .10.

Figure 5 shows the effect size for moderate and severe sexual abuse for the components of the quality-of-life scale. Coefficients for affect assessment, global, and total quality of life were significant ($P < .05$), with a $P < .10$ for specific areas. Again, PTSD was added to the model at this point, with P values for the affect and global subscales remaining below .05. Thus, the data support the hypothesis that sexual abuse has an adverse effect on HRQL beyond that which is expressed through these psychiatric or medical disorders.

COMMENT

Sexual abuse is a serious problem in family practice. Almost half the patients in this study had experienced some

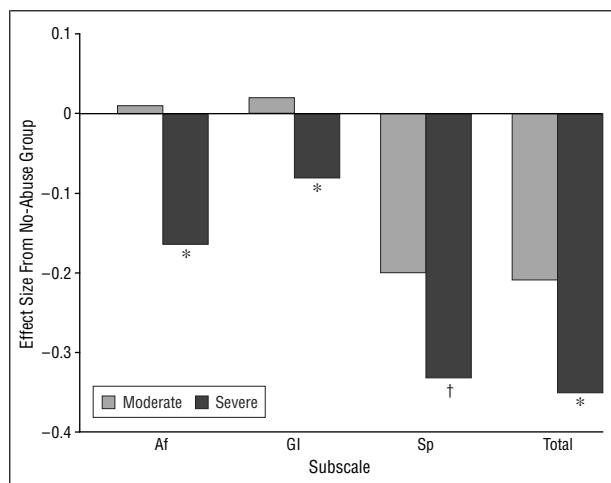


Figure 5. Effect size from the no-abuse group of sexual abuse severity on quality-of-life subscale scores after controlling for current psychiatric and medical diagnoses, adjusted for demographic variables and common mental and physical disorders. Af indicates affect; Gl, global; Sp, specific areas; asterisk, $P < .05$; and dagger, $P < .10$.

type of sexual trauma. Adjusted prevalences for each clinic ranged from 39% to 46% for any serious sexual victimization, 29% to 42% for childhood sexual abuse, and 11% to 17% for adult sexual assault. Despite differences in methods and definitions, our estimated prevalence rates for a history of childhood sexual abuse are similar to those reported by Lechner et al¹⁶ (26%), Mazza et al¹⁷ (28%), Walch and Broadhead²² (37%), and Walker et al²³ (37%) and somewhat above the 16% and 22% reported by McCauley et al¹⁸ and Springs and Friedrich.²⁰ The rates for adult sexual assault observed in the clinics in this study were slightly below the 29% reported by Walker et al²³ but similar to those reported by other authors.^{12,17,22}

The results of our study suggest that women with a history of severe sexual trauma, childhood or adult, may have substantial long-term psychological and physical distress. Overall, women reporting less severe childhood sexual abuse seem to be intermediate between those with no reported serious abuse and those with severe or combined abuse. Thus, there appears to be a dose-response relationship between severity of sexual abuse and several outcome measures. This trend was observed for somatized symptoms, the number of medical problems, most functional health subscales, quality of life, and psychiatric diagnoses. Other authors² have reported a severity gradient in the level of certain psychiatric symptoms and the severity of sexual abuse.

To our knowledge, HRQL has not been comprehensively evaluated in general medical patients with a history of sexual abuse. As noted earlier, the symptom status for subjects with severe sexual abuse is, on average, considerably worse than for subjects with no reported abuse or less severe abuse. On functional health status and subjective health assessment, as reflected in the SF-36 subscale scores, subjects with severe sexual abuse scored almost 0.5 SD lower on social functioning, role of emotional health, vitality (energy or fatigue), bodily pain, role of physical health, and mental health subscales than subjects reporting no serious abuse. A similar effect was seen for all components of the quality-of-life scale.

Spitzer et al⁴³ describe the unique patterns of impairment in the components of HRQL, using a 20-item short form questionnaire, for 5 groups of mental disorders: mood, anxiety, somatoform diagnoses, alcohol abuse or dependence, and eating disorders. Because many survivors of severe sexual abuse have common diagnosable psychiatric disorders, we wished to determine whether functional impairment in these subjects could be totally accounted for by certain common psychiatric and medical diagnoses or whether there was a unique, residual effect of sexual abuse. Although confirmatory research is needed in this area, the results of our regression analyses suggest that sexual abuse has detrimental effects on health status and quality of life that are beyond those of a current psychiatric diagnosis. Furthermore, the pattern of impairment is distinct from that reported for mood, anxiety, or somatoform disorders.

These results are readily interpretable in the context of Wilson and Cleary's model of measures of health.⁴² Consider 2 alternatives: a diagnosis-based model and a life-context model. In a diagnosis-based model, level 1 would consist of multiple psychiatric and medical diagnoses. Level 2 would be the totality of physical and psychiatric symptoms as perceived by the patient, which in turn affect various aspects of HRQL. In this model, impairment of HRQL is viewed from the perspective of diagnoses, resulting from the presence and severity of such diagnoses as depression, somatization disorder, etc. Now, consider a life-context model in which level 1 is the patient's history of abuse and abuse severity, along with the specific medical and psychiatric diagnoses. Again, level 2 would consist of the totality of physical and psychological patient-reported symptoms that may or may not meet criteria for diagnoses. Impairment in HRQL can now be understood in the context of the overall cumulative effects of abuse on a person, including, but not restricted to, specific diagnoses. In this case, an explained variation in HRQL will be somewhat greater than just the effects of specific diagnoses, especially for survivors of severe abuse, as reflected in the analyses depicted in Figures 2 through 5. This has obvious implications for primary care physicians. The usual clinical approach emphasizes making specific diagnoses, with interventions aimed at treating these diagnoses as distinct entities. In patients who are abuse survivors, diagnoses alone are insufficient for understanding the wide range of long-term effects of abuse on women's lives and health. Certain levels of distress and physical and psychological symptoms can be understood only in the context of the unifying but sometimes hidden aspect of a patient's history, ie, the abuse.

These data confirm the high prevalence of sexual abuse among primary care patients and support the need for physicians to learn about the problem and its manifestations. In retrospect, a more extensive evaluation of physical abuse and domestic violence might have added to the perspectives gained from this study. A substantial limitation of this study concerns the selection of the sample from the perspective of somatization in primary care. The sample as a whole is weighted toward the abnormal, with many unexplained physical symptoms and symptoms even in the comparison group. This may limit

effect size and result in a conservative estimate of the effects of sexual abuse. In addition, as with all research on sexual abuse, we are limited by women's ability to recollect and report past experiences of abuse. The possibility remains that some highly symptomatic women may have experienced abuse that they cannot retrieve in current memory.

Future directions of research in this area should involve clarification and further study of the relationship between specific risk factors and long-term consequences of abuse, the mechanism through which the effects occur, an assessment of subthreshold psychiatric diagnoses, symptom patterns that span numerous diagnostic categories, and possible mediating factors. An area of research not discussed in this article concerns possible neurophysiological alterations in the brains of victims of severe trauma.^{29,35} Does this result in increased vulnerability to physical and psychiatric problems later in life? Does the interaction between trauma and family dynamics engender distinct response patterns among survivors? Are there mediating factors, such as dissociation, that can affect the long-term outcome of abuse? What role does overall family dysfunction play in the development of long-term symptoms? Is there empirical evidence to support the existence of a complex PTSD that would better describe the complex symptom profiles of sexual abuse survivors with severe, ongoing abuse that began in childhood? We intend to extend our exploration of symptom profiles of abuse survivors and their relationship to specific abuse variables and family history.

Many abuse survivors are highly competent in their professional and personal lives,³⁰ compensating for the adverse effects of an abusive childhood until some added stress is introduced, perhaps a physical illness, birth of a child, or the death of a family member. This study may be biasing our view of sexual abuse survivors by focusing on high users of health care and missing those who are less likely to visit a physician, even for routine health maintenance such as Papanicolaou smears. Thus, repeating this study with different selection criteria with primary care or general medical patients might shed light on the overall spectrum of the effects of sexual abuse on health and illness behavior. A better understanding of the long-term effects of the various types of violence and abuse on mental and physical health could lead to effective interventions aimed at improving the quality of life of abuse victims. Family physicians should be aware of the adverse consequences of abuse and violence on the health and well-being of their own patients. Diagnosis-based strategies are useful but insufficient to explain the magnitude of functional impairment seen in many women who are survivors of abuse. Rather, family physicians will be better able to help by sensitively inquiring about a patient's personal history and incorporating this knowledge into a life-context approach to the patient.

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REFERENCES

1. Bergner RM, Delgado LK, Graybill D. Finkelhor's Risk Factor Checklist: a cross-validation study. *Child Abuse Negl.* 1994;18:331-340.
2. Briere J, Runtz M. Symptomatology associated with childhood sexual victimization in a nonclinical adult sample. *Child Abuse Negl.* 1988;12:51-59.
3. Elliott DM, Briere J. Sexual abuse trauma among professional women: validating the Trauma Symptom Checklist-40 (TSC-40). *Child Abuse Negl.* 1992;16:391-398.
4. 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.
5. Frometh ME. The relationship of childhood sexual abuse with later psychological and sexual adjustment in a sample of college women. *Child Abuse Negl.* 1986;10:5-15.
6. Herman JL, Russell DEH, Trocki K. Long-term effects of incestuous abuse in childhood. *Am J Psychiatry.* 1986;143:1293-1296.
7. Priest R. Child sexual abuse histories among African-American college students: a preliminary study. *Am J Orthopsychiatry.* 1992;62:475-477.
8. Russell DEH. *Sexual Exploitation: Rape, Child Sexual Abuse, and Workplace Harassment.* Newbury Park, Calif: Sage Publications Inc; 1984.
9. Russell DEH. *The Secret Trauma: Incest in the Lives of Girls and Women.* New York, NY: Basic Books Inc Publishers; 1986.
10. Sedney MA, Brooks B. Factors associated with a history of childhood sexual experience in a nonclinical female population. *J Am Acad Child Adolesc Psychiatry.* 1984;23:215-218.
11. Wilsnack SC, Vogelant ND, Klassen AD, Harris TR. Childhood sexual abuse and women's substance abuse: national survey findings. *J Stud Alcohol.* 1997;58:264-271.
12. Beebe DK, Gullede KM, Lee CM, Replogle W. Prevalence of sexual assault among women patients seen in family practice clinics. *Fam Pract Res J.* 1994;14:223-228.
13. Dumas CA, Katerndahl DA, Burge SK. Familial patterns in patients with infrequent panic attacks. *Arch Fam Med.* 1995;4:863-867.
14. Gould DA, Stevens NG, Ward NG, Carlin AS, Sowell HE, Gustafson B. Self-reported childhood abuse in an adult population in a primary care setting. *Arch Fam Med.* 1994;3:252-256.
15. Greenwood CL, Tangalos EG, Maruta T. Prevalence of sexual abuse, physical abuse, and concurrent traumatic life events in a general medical population. *Mayo Clin Proc.* 1990;65:1067-1071.
16. Lechner ME, Vogel ME, Garcia-Shelton LM, Leichter JL, Steibel KR. Self-reported medical problems of adult female survivors of childhood sexual abuse. *J Fam Pract.* 1993;36:633-638.
17. Mazza D, Dennerstein L, Ryan V. Physical, sexual and emotional violence against women: a general practice-based prevalence study. *Med J Aust.* 1996;164:14-17.
18. 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.
19. Radomsky NA. The association of parental alcoholism and rigidity with chronic illness and abuse among women. *J Fam Pract.* 1992;35:54-60.
20. Springs FE, Friedrich WN. Health risk behaviors and medical sequelae of childhood sexual abuse. *Mayo Clin Proc.* 1992;67:527-532.
21. Wagner PJ, Mongan P, Hamrick D, Hendrick LK. Experience of abuse in primary care patients: racial and rural differences. *Arch Fam Med.* 1995;4:956-962.
22. Walch AG, Broadhead WE. Prevalence of lifetime sexual victimization among female patients. *J Fam Pract.* 1992;35:511-516.
23. Walker EA, Torkelson N, Katon WJ, Koss MP. The prevalence rate of sexual abuse in a primary care clinic. *J Am Board Fam Pract.* 1993;6:465-471.
24. Drossman DA, Leserman J, Nachman G, et al. Sexual and physical abuse in women with functional or organic gastrointestinal disorders. *Ann Intern Med.* 1990;113:828-833.

25. Moeller TP, Bachmann GA, Moeller JR. The combined effects of physical, sexual, and emotional abuse during childhood: long-term health consequences for women. *Child Abuse Negl.* 1993;17:623-640.
26. Morrison J. Childhood sexual histories of women with somatization disorder. *Am J Psychiatry.* 1989;146:239-241.
27. Lipschitz DS, Kaplan ML, Sorkenn JB, Faedda GL, Chorney P, Asnis GM. Prevalence and characteristics of physical and sexual abuse among psychiatric outpatients. *Psychiatr Serv.* 1996;47:189-191.
28. Lombardo S, Pohl R. Sexual abuse history of women treated in a psychiatric outpatient clinic. *Psychiatr Serv.* 1997;48:534-536.
29. Teicher MH, Glod CA, Surrey J, Swett C Jr. Early childhood abuse and limbic system ratings in adult psychiatric outpatients. *J Neuropsychiatry.* 1993;5:301-306.
30. Mullen PE, Romans-Clarkson SE, Walton VA, Herbison GP. Impact of sexual and physical abuse on women's mental health. *Lancet.* 1988;1:841-845.
31. Briere J, Runtz M. The Trauma Symptom Checklist. *J Interpers Violence.* 1989;4:151-163.
32. Chu JA, Dill DL. Dissociative symptoms in relation to childhood physical and sexual abuse. *Am J Psychiatry.* 1990;147:887-892.
33. Herman JL, Perry JC, van der Kolk BA. Childhood trauma in borderline personality disorder. *Am J Psychiatry.* 1989;146:490-495.
34. Herman JL. Complex PTSD: a syndrome in survivors of prolonged and repeated trauma. *J Trauma Stress.* 1992;5:377-391.
35. Lowenstein RJ. Somatoform disorders in victims of incest and child abuse. In: Kluff P, ed. *Incest-Related Syndromes of Adult Psychopathology.* Washington, DC: American Psychiatric Press; 1990:247-261.
36. Radomsky N. *Lost Voices: Women, Chronic Pain and Abuse.* New York, NY: Harrington Park Press; 1995.
37. Ross CA. Multiple personality disorder and other psychiatric disorders. In: *Multiple Personality Disorder.* New York, NY: John Wiley & Sons Inc; 1989:138-147.
38. Ross CA, Heber S, Anderson G. Somatic symptoms in multiple personality disorder. *Psychosomatics.* 1989;30:154-160.
39. Rowan AB, Foy DW, Rodriguez N, Ryan S. Posttraumatic stress disorder in a clinical sample of adults sexually abused as children. *Child Abuse Negl.* 1994;18:51-61.
40. Walker EA, Katon WJ, Hansom J, et al. Medical and psychiatric symptoms in women with childhood sexual abuse. *Psychosom Med.* 1992;54:658-664.
41. Briere J. Methodological issues in the study of sexual abuse effects. *Consult Clin Psychol.* 1992;60:196-203.
42. Wilson IB, Cleary PD. Linking clinical variables with health-related quality of life. *JAMA.* 1995;273:59-65.
43. Spitzer RL, Kroenke K, Linzer L, et al. Health-related quality of life in primary care patients with mental disorders. *JAMA.* 1995;274:1511-1517.
44. Stewart AL, Greenfield S, Hays RD, et al. Functional status and well-being of patients with chronic conditions: results from the Medical Outcomes Study. *JAMA.* 1989;262:907-913.
45. Robins LN, Helzer JE, Croughan J, Ratcliff KS. National Institute of Mental Health Diagnostic Interview Schedule. *Arch Gen Psychiatry.* 1981;38:381-389.
46. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders, Revised Third Edition.* Washington, DC: American Psychiatric Association; 1987.
47. Bernstein EM, Putnam FW. Development, reliability, and validity of a dissociation scale. *J Nerv Ment Dis.* 1986;174:727-735.
48. Ross C, Heber S, Norton GR, Anderson D, Anderson G, Barchet P. The Dissociative Disorders Interview Schedule: a structured interview. *Dissociation.* 1989;2:169-189.
49. Ware JE Jr, Brooks RH, Davies-Avery A. *Conceptualization and Measurement of Health for Adults in the Health Insurance Study.* Vol 1. Santa Monica, Calif: RAND Corp; 1980. Publication R-1987/1-HEW.
50. McHorney CA, Ware JE Jr, Lu JF, Sherbourne CD. The MOS 36-item Short-Form Health Survey (SF-36), III: tests of data quality, scaling assumptions, and reliability across diverse patient groups. *Med Care.* 1994;32:40-66.
51. Andrews FM, Withey SB. *Social Indicators of Well-being in America: The Development and Measurement of Perceptual Indicators.* London, England: Plenum Publishers; 1976.
52. Ware JE Jr, Keller SD, Gandek B, Brazier JE, Sullivan M. Evaluating translations of health status questionnaires: methods from the IQOLA project: International Quality of Life Assessment. *Int J Technol Assess Health Care.* 1995;11:525-551.
53. Parkerson GJ Jr, Broadhead WE, Tse CKJ. Comparison of the Duke Health Profile and the MOS Short-Form in healthy young adults. *Med Care.* 1991;29:679-683.
54. Katz JN, Larson MG, Phillips CB, Fossel AH, Liang MH. Comparative measurement sensitivity of short and longer health status instruments. *Med Care.* 1992;30:917-925.
55. Smith G, Monson R, Ray D. Psychiatric consultation in somatization disorder: a randomized controlled study. *N Engl J Med.* 1986;314:1407-1413.
56. Andrews F, Crandall R. The validity of measures of self-reported well-being. *Soc Indic Res.* 1976;3:1-19.
57. Dubester KA, Braun BG. Psychometric properties of the Dissociative Experiences Scale. *J Nerv Ment Dis.* 1995;183:231-235.
58. Pitblado CB, Sanders B. Reliability and short-term stability of scores on the Dissociative Experiences Scale. In: Braun BG, Carlson EB, eds. *Proceedings of the Eighth International Conference on Multiple Personality and Dissociative States.* Chicago, Ill: Rush-Presbyterian-St Luke's Medical Center; 1991.
59. Mausner JS, Bahn AK. *Epidemiology: An Introductory Text.* Philadelphia, Pa: WB Saunders Co; 1974.

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