Childhood Sexual Abuse is Associated With Physical Illness Burden and Functioning in Psychiatric Patients 50 Years of Age and Older

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Abstract

Objective—To examine the association of childhood sexual abuse (CSA) with cumulative illness burden, physical function, and bodily pain (BP) in a sample of male and female psychiatric patients ≥50 years of age. Previous research on the health consequences of sexual abuse has focused on nonpsychiatric samples of younger-age adults, especially women. The health implications of abuse for mixed-gender samples of older psychiatric patients have not been explored.

Methods—Participants were 163 patients with primary mood disorders. Sexual abuse histories were collected via patient self-report, as was BP. The measure of medical illness burden was based on chart review. Clinical interviewers rated physical function, using the activities of daily living (ADLs) and instrumental activities of daily living (IADLs) scales. Linear and logistic regressions examined the association between CSA and health outcomes.

Results—As hypothesized, severe childhood sexual abuse was associated with higher cumulative medical illness burden, worse physical function, and greater BP. Comparisons of regression coefficients revealed that severe CSA's influence on illness burden is roughly comparable to the effects of adding 8 years of age. For ADL impairment and BP, the effects are comparable to adding 20 years of age.

Conclusions—Strong relationships exist between CSA and medical illness burden, function, and pain among psychiatric patients ≥50 years of age. These relationships cannot be ascribed to shared method variance. Early detection of patients' abuse histories could inform targeted interventions to prevent or decelerate the progression of morbidity in this high-risk group.

Keywords

older adults; medical illnesses; childhood sexual abuse

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INTRODUCTION

The association between childhood sexual abuse (CSA) plus other childhood traumas and elevated levels of mental illness burden (1-6) and poorer physical function (7-10) has been documented in nonpsychiatric samples, largely comprised of younger adults and women. Studies conducted on mixed-gender samples of middle-aged or older adults are relatively rare, however. Krause, Shaw, and Cairney (11), reporting on a nationwide survey of 1518 adults aged ≥65 years, concluded that traumatic and adverse experiences in older adulthood were relatively more important to adult physical health status than experiences in childhood. Nevertheless, significant associations were observed between self-reported health indices and traumatic or adverse events in childhood (specifically, those that occurred in the 6-11 year age range) among participants aged 65 to 74 years and those >85 years. Because childhood traumatic or adverse events were examined in aggregate, the relative contributions to overall morbidity of specific traumatic events are unknown. Draper and colleagues (12), reporting on 21,000 adults aged ≥60 years in primary care practices, found that those with childhood sexual or physical abuse histories had poorer health-related function and a greater number of medical illnesses. Both studies depended entirely on patients' self-reports on health indices.

The current study is focused on the health effects of CSA among psychiatric patients aged ≥50 years with primary diagnoses of mood disorder. Our assessment of physical health is based on a careful inspection of the medical chart, including a complete history and physical as well as laboratory values. This measure, along with the use of an interviewer-rated measure of physical function, enables us to minimize if not eliminate spurious associations. We hypothesized that a history of CSA would be associated with greater physical illness burden, more impaired physical functioning, and greater bodily pain (BP). Although the role of sexual abuse in adult medical illness and function (1-10), pain (13), and psychiatric illness (14,15) has been widely researched, investigations of the relationship of sexual abuse to medical illness burden have not extended to psychiatric patients. Documenting the effect of an early childhood trauma on the physical health of older adult psychiatric patients would attest to the robustness of the phenomenon, contribute to the development of theories concerning the effects of early life influences on disease in middle age and older adulthood, and provide a potential target for clinical intervention.

METHODS

Procedures

This report stems from a larger investigation examining the relationship between personality and suicidal behavior in middle-aged and older adults (16). The research protocol was approved by the Institutional Review Board at the University of Rochester Medical Center. Data collection was conducted from January 2001 to July 2004.

Patients were recruited from three inpatient units in different hospitals and one mental health outpatient clinic for older adults. In the inpatient units, research coordinators screened the records of all newly admitted patients aged ≥50 years to identify patients with a known or suspected mood disorder. After obtaining approval from an attending physician or primary clinician, a research assistant approached patients seeking their written informed consent for participation. In the outpatient clinic, patients responded to posted flyers that described the study by contacting research staff who proceeded to obtain the patients' informed consent.

The research assistant administered a structured interview and self-report questionnaires. The Structured Clinical Interview for Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM-IV) Axis I disorders (SCID) (17) was used to assess the presence, nature, and severity of mood disorders and other select mental disorders (16). After the acquisition of data

and reviews of medical records, consensus diagnostic conferences were held, which were attended by at least one psychiatrist, one psychologist, other study investigators, and members of the research team. The research coordinator, who had interviewed the patient, delivered a case presentation incorporating information from the record review and diagnostic interview, and the research team reached diagnostic consensus. Patients were included in the analyses reported here if they met the criteria for a primary diagnosis of mood disorder and had completed the measures of interest. The sexual abuse measure was included in the test battery 1 year into study recruitment.

Participants

Research coordinators approached 672 age-eligible patients with a suspected mood disorder. A total of 422 age-eligible patients were not enrolled for the following reasons: a) On approach, 341 inpatients refused further assessment of eligibility for participation. b) Sixty patients declined further participation after providing consent. c) Ten potentially eligible inpatients could not be approached due to discharge or transfer. d) Eleven inpatients were not further assessed for eligibility due to severe psychosis, severe cognitive deficits, or a primary diagnosis of substance dependence. Demographic data on nonparticipants are not available.

Among the 250 consenting patients with a confirmed mood disorder, we report on three subsets: $n = 163$ with data on both sexual abuse and functional status; $n = 140$ with data on both sexual abuse and medical illness burden; and $n = 144$ with data on both sexual abuse and BP. The principal limitation on sample size stemmed from the fact that administration of the sexual abuse scale began after study recruitment had begun; 77 participants did not have Childhood Trauma Questionnaire (CTQ) data. Multivariate logistic regressions revealed no age, gender, race, or education differences between those included in the analyses reported here and the larger 250-person sample. Among the 163 participating patients, 132 (81%) had primary diagnoses of major depression, 24 (14.7%) had primary diagnoses of bipolar I or II disorder, and 7 (4.3%) had other primary mood disorders.

Measures

CSA was assessed with the sexual abuse scale of the CTQ-short form (18). The CTQ is a self-report instrument that instructs participants to rate the perceived frequency with which events occurred "when I was growing up," using a 5-point scale with response sets of 1) "never true"; 2) "rarely true"; 3) "sometimes true"; 4) "often true"; and 5) "very often true." The items from the five-item sexual abuse subscale are: "Someone tried to touch me in a sexual way, or tried to make me touch them"; "Someone threatened to hurt me or tell lies about me unless I did something sexual with them"; "Someone tried to make me do sexual things or watch sexual things"; "Someone molested me"; and "I believe that I was sexually abused." CSA was categorized following the guidelines recommended by Bernstein et al. (18): none (score of 5), low (score of 6-7), moderate (score of 8-12), and severe (score >12). It should be noted that Bernstein et al. described these guidelines as "an approximation of the severity of maltreatment experiences" (19, p. 16), and that the categories reference the perceived frequency of abuse only. Other abuse parameters, such as whether the perpetrator was a parent figure or the abuse involved intercourse, could also be important. The CTQ has demonstrated excellent test-retest reliability and validity (19) as well as factor-structure invariance across diverse populations, and strong criterion-related validity for the sexual abuse scale (18). Given the small number of individuals in the low and moderate abuse groups, the two were combined ("low/moderate") in statistical analyses.

Physical illness burden was assessed with the Cumulative Illness Rating Scale (CIRS) (20), a scale that quantifies the level of overall medical burden through ratings of disease severity across 13 organ-system subscales. For the purpose of this study, the psychiatric subscale was

not included in the CIRS total score. The 12 included subscales were: cardiac, vascular, respiratory, eye-ear-nose-throat, upper gastrointestinal, lower gastrointestinal, hepatic, renal, other genito-urinary, musculoskeletal/integument, neurologic, and endocrine/metabolic. The CIRS was coded by a physician based on a review of the participants' medical and psychiatric charts, including intake history and physical examination, laboratory tests, and other sources of health-relevant information. A score of 0 indicates no medical burden in an organ system; a score of 1 indicates mild burden; a score of 2 indicates moderate burden; a score of 3 indicates severe burden; and a score of 4 indicates a rare degree of extremely severe burden. The validity of the CIRS is well established, correlating with medical examiner ratings of illness burden at autopsy (21).

Physical function was assessed by the Instrumental Activities of Daily Living (IADL) and Physical Self-Maintenance scales (PSMS) (22), an interviewer-rated measure. The IADL scale assesses the extent of impairment in eight higher-order activities of daily living (ADLs), such as cooking, shopping, and housekeeping. The PSMS assesses six basic ADLs, such as feeding, dressing, and grooming. Each item refers to a separate activity in which there may be no, mild, moderate, or severe impairment. Because these items refer to elements of basic functioning in which older individuals are often unimpeded, scores of "0" are common. Given that scores in the present sample included a large number of 0s, they were dichotomized to distinguish between those with (score = >1) and without (score = 0) functional impairment. BP was evaluated with the BP subscale of the Medical Outcomes Study 36-Item Short Form (SF-36) (23), a self-report measure. Pain severity and interference with function are reported on a 6-point Likert scale ranging from none to very severe.

Statistical Analyses

The predictor was CSA; indicator variables were used for low/moderate and severe CSA (with a reference category of none). The four dependent variables were the CIRS, BP, IADL, and ADL (the PSMS). Associations between CSA and the dependent variables were modeled, using multivariate regressions adjusting for the effects of age, gender, and education. Models included a random effect to account for nesting of patients within site. The CIRS and BP data were modeled, using linear regressions. Logged CIRS scores reduced the influence of a few high-scoring outliers by stabilizing the residual variance. The IADL and ADL data were modeled, using logistic regressions, with the presence of IADL or ADL impairment as the dependent variable. In the event of significant associations with overall illness burden, we conducted follow-up analyses to determine if there were associations between CSA and individual subscales of the CIRS (e.g., vascular, respiratory). Subscale scores were dichotomized for exploratory logistic-regression analyses (score of >1, functional impairment versus score = 0, no functional impairment).

RESULTS

Most patients were women (n = 94, 57.7%), Caucasian (n = 145, 89%), and non-Latino (n = 157, 96.3%). Age ranged from 50 to 88 years (mean ± standard deviation (SD) age = 60.6 ± 9.9 years). The mean ± SD level of education was 13.3 ± 2.6 years. Sixty-eight (41.7%) patients reported a history of a CSA. Of these, the CTQ scores for 35 (21.5%) were <12, with the remaining 33 (20.3%) scoring above the cutoff of 12 for severe abuse.

As seen in Table 1, results showed a significant association between severe CSA and medical illness burden, as indexed by the CIRS (B = 0.31; standard error (SE) = 0.14; z = 2.10; p = .036). Follow-up logistic regression analyses of any versus no medical burden on CIRS subscales yielded significant associations between severe CSA and the presence of medical burden in the musculoskeletal-integument system (odds ratio (OR) = 3.69; z = 2.10; p = .036) and the respiratory system (OR = 3.11; z = 2.25; p = .024). Finally, severe CSA was also

associated with greater BP on the SF-36, for which higher scores indicate less pain (B = -12.76; SE = 6.46; z = -1.98, *p* = .05).

To gain a sense of the practical importance of the CSA effects on health outcomes, we used the model coefficients to compare the effects of CSA and those of one decade of age on health outcomes. For the CIRS, we report coefficients from a model with nonlogged CIRS scores to preserve the scale of the dependent variable for these interpretations. Severe CSA was associated with CIRS scores 1.47 times higher than no CSA, whereas one decade of age was associated with a 1.85-increase in CIRS scores. This suggests that the difference in cumulative illness burden between patients reporting severe sexual abuse and those reporting no sexual abuse was approximately 79% (1.47/1.85 = 0.79) that of a decade of age, or equivalent to 7.9 years of illness burden accumulation. With respect to the CIRS subscales, two of the 12 subscales were significantly associated with sexual abuse. Patients with severe CSA were 3.11 times as likely to have some degree of illness burden in their respiratory system compared with those without CSA; and one decade of age was associated with a 1.48-fold increase in risk, suggesting that severe CSA was associated with enhanced vulnerability toward respiratory illness burden roughly twice (3.11/1.48 = 2.1) that of a decade of age. Severe CSA was also associated with a 3.69-fold increase in risk for musculoskeletal-integument system burden and one decade of age with a 1.92-fold increase in risk, suggesting the vulnerability associated with severe CSA was approximately 1.9 times (3.69/1.92 = 1.92) as much as 10 years of age. Finally, severe CSA was associated with greater bodily pain by approximately 12.76 points, and 10 years of age with greater pain by about 5.46 points, suggested that severe CSA affected BP on an order of magnitude more than twice (12.76/5.46 = 2.34) that of a decade of age, or equivalent to the effect of 23 years of age on bodily pain.

Table 1 also shows the results of two logistic regressions examining the relationship of sexual abuse severity to functional status. Results indicated that severe CSA was associated with increased risk for impairment in ADLs on the PSMS (OR = 3.03; z = 2.36; *p* = .018), but not in IADLs. Severe CSA increased risk for having any ADL impairment roughly 1.82 times (3.03/1.66) that of a decade of age, or 18 years of aging. Finally, random effects in all models suggested no significant variation in any health outcomes across sites.

DISCUSSION

We studied psychiatric patients aged ≥50 years, a group with elevated levels of morbidity (24). The effects of severe sexual abuse on health indices had clear and compelling clinical significance: the effect on medical illness burden was roughly comparable to adding 8 years of age, and on functional impairment and BP was roughly comparable to adding 20 years. We believe these are the first such estimates to appear in the literature.

Exploratory analyses showed that CSA was strongly associated with increased burden in two of the 12 CIRS subscales, the musculoskeletal/integument and respiratory subscales. Prior epidemiological studies among women with lifetime trauma sexual or physical assault histories have reported increased rates of at least two chronic afflictions in these organ systems, arthritis (25) and asthma (6). However, the issue of whether CSA is associated with specific organ-systems or medical conditions is not settled (26). Finding increased risk for certain medical disorders among older women with lifetime sexual assault histories, Stein and Barrett-Connor (25) concluded that there was no obvious common pathogenesis for those disorders, but their study design combined childhood and adult sexual assault. Assuming that there are differences in the biological repercussions of severe sexual assault according to the developmental stage of its occurrence—from early to middle childhood into adolescence and adulthood—then illness and disease patterns may vary accordingly.

Interrelated biopsychosocial mechanisms have been posited to explain the sustained, deleterious effects of childhood sexual assault on adult physical health (27,28). Early sexual trauma may lead to chronic dysregulation of stress-responsive systems (28-31), which in turn increases abused individuals' "allostatic load" (32,33). In a longitudinal prospective study, Danese et al. (27) found that childhood maltreatment (not confined to sexual abuse) predicted clinically significant biomarkers of inflammation in adulthood, even with adjustments for co-occurring risk factors and potential mediating variables. The investigators hypothesized that inflammation is a likely mediator in the established link between maltreatment and increased risk for many adult diseases.

Sexual abuse can also produce chronic negative emotions (4,34), such as shame, that have been linked to disease (4) and compromised immune function (35,36). Similarly, early abuse has implications for personality development (37), and personality traits have been shown to influence health in older adulthood (38). Childhood abuse seems to have effects on adult health status only partially mediated by adult psychiatric disorder (39).

Beyond the implications of abuse for neuroimmune regulation, neuroendocrine regulation, psychiatric disorder, emotion regulation, and personality, early abuse is associated with high-risk health behaviors (3,4,40), such as smoking and unsafe sex, which in turn influence morbidity (41). Finally, severe sexual abuse can catalyze a developmental course characterized by significant social morbidity (37). The interpersonal consequences of early abuse—including low social support, marital instability, and additional interpersonal traumas—may themselves take a physiological toll and contribute to adult disease processes (42).

In this relatively small sample, a complex model of interrelated mechanisms could not be tested. Further, this study is limited by a cross-sectional design, which precludes conclusions about causal relations. These findings may not apply to other diagnostic groups, nonclinical samples, younger cohorts, or more racially/ethnically diverse samples. Data on nonparticipants are unavailable. Participants' retrospective reports regarding CSA were not independently verified; either overreporting or underreporting is possible. Due to sample size limitations, we could not examine gender or age differences. Chief among the study's strengths is its focus on a vulnerable older psychiatric population. Our approach to the measurement of medical burden and functional impairment effectively rules out the interpretation that the reported associations are spuriously inflated products of shared method variance. The significance of study findings is underscored both by the high rate of reported CSA, 41.7%, that is comparable to other reports (43) and by the attempt to compare the health effects of abuse with that of age; the latter estimates warrant replication and could generate hypotheses about the potential contribution of early abuse to the aging process.

Study findings may well have important implications for treating patients with sexual abuse histories. Early detection of patients' abuse histories could inform targeted interventions to prevent or decelerate the progression of morbidity. Given the myriad biological, psychological, social, and economic processes that may engender, exacerbate or stem from childhood abuse, no one form of intervention or single site for intervention could suffice. Educational, psychotherapeutic, pharmacological, and medical interventions across healthcare settings, schools, and workplaces could cast a broad net for detection and treatment. Public health advertisements would increase awareness about both the long-term effects of childhood abuse on health and about available remedies, likely motivating some individuals to divulge trauma histories to their healthcare providers. The physical health effects of trauma have arguably been underemphasized in the public sphere.

At minimum, our findings point to the need for integrated if not colocalized mental health care for these patients when they are seen in primary and specialty care (44), and for careful medical

evaluations when they are seen in mental health settings. Taking the implications of these findings further requires reenvisioning healthcare systems with a prevention focus, including systematic screening for trauma exposure; among identified patients, further screening in physiological, psychological (e.g., depression, posttraumatic stress disorder (PTSD)), behavioral (e.g., smoking, alcohol consumption), and social domains (e.g., domestic violence) that may be affected by exposure to trauma; and, based on screening results, developing individualized treatment plans to address problematic areas through health education, increased medical surveillance and healthcare contacts, behavioral interventions, social service referrals, and mental health care.

Although interventions to identify and address abused adults' health-risk behaviors (4,40) could prevent or decelerate associated morbidity and mortality, some research suggests that adolescent girls and women with sexual assault histories have relatively poor compliance with behavioral-health and medical interventions (45-48). Among the reasons for noncompliance is the possibility that invasive medical interventions and the accompanying psychological experience of helplessness stimulate reexperiencing of the traumatic event (49). Specialized psychological interventions could improve adherence to treatment regimens among medically ill patients with sexual abuse histories (40), address issues of comfort, trust, and communication with health professionals, and improve a wide range of health outcomes.

Conceivably, effective psychotherapy for PTSD and depression among trauma-exposed individuals could improve not just psychiatric illnesses but also improve health and health-related quality of life (50-52). Limitations in our current therapeutic methods suggest that more treatment innovations and research are needed to develop treatment algorithms for the complex health problems of those with sexual assault histories. Some forms of psychotherapy have been found to be useful for PTSD, yet treatment attrition is relatively high (53-55). Depression can respond to pharmacotherapy and/or psychotherapy (56,57), but remission rates for the chronic, complicated depression that is often associated with CSA leave much room for improvement (58). Biological outcomes among psychotherapy patients need to be examined.

The impact of CSA is profound even into later life, and future research on the mechanisms and remediation of its effects is warranted. Finally, a society committed to preventing child sexual assault would likely observe dramatic declines in morbidity and mortality.

Acknowledgments

Glossary

ADLs, activities of daily living; IADLs, instrumental activities of daily living; CSA, childhood sexual abuse; CTQ, Childhood Trauma Questionnaire; CIRS, Cumulative Illness Rating Scale; PSMS, Physical Self Maintenance Scale; BP, bodily pain; SF-36, Medical Outcome Study 36-Item Short Form; PTSD, posttraumatic stress disorder.

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TABLE 1

Health Outcomes Associated With Childhood Sexual Abuse Among Older Adult Psychiatric Patients

	Cumulative Illness Burden,[a,b] $n = 140$	Musculoskeletal Integument System Burden,[c] $n = 140$	Respiratory System Burden,[c] $n = 140$	Less Bodily Pain,[a] $n = 144$	Physical Self-Maintenance Impairment,[c] $n = 163$	Instrumental Activities of Daily Living Impairment,[c] $n = 163$
Age in decades	0.28 *** [0.16, 0.39]	1.92 ** [1.18, 3.13]	1.48 * [1.00, 2.19]	−5.46 * [−10.63, −0.29]	1.66 ** [1.16, 2.39]	1.23 [0.80, 1.87]
Male gender[d]	0.01 [−0.22, 0.23]	0.67 [0.30, 1.48]	1.43 [0.64, 3.18]	−5.88 [−15.86, 4.11]	0.42 * [0.21, 0.84]	0.42 [0.18, 1.01]
Years of education	0.00 [−0.04, 0.04]	1.01 [0.88, 1.17]	0.94 [0.82, 1.07]	0.34 [−1.43, 2.12]	0.99 [0.87, 1.12]	0.85 [0.69, 1.04]
Moderate childhood sexual abuse[e]	−0.13 [−0.39, 0.13]	0.65 [0.26, 1.60]	1.56 [0.62, 3.89]	12.04 [−0.20, 24.29]	1.74 [0.75, 4.06]	0.79 [0.30, 2.05]
Severe childhood sexual abuse[e]	0.31 * [0.02, 0.58]	3.69 * [1.09,12.53]	3.11 * [1.16, 8.35]	−12.76 * [−25.42, −0.10]	3.03 * [1.21, 7.58]	1.20 [0.37, 3.91]

[a] Linear regression; regression coefficients and 95% confidence intervals in brackets.

[b] Logged Cumulative Illness Rating Scale score.

[c] Logistic regression; odds ratios and 95% Confidence Intervals in brackets.

[d] Versus reference category of female.

[e] Versus reference category of no childhood sexual abuse.

*
$p \le .05$

**
$p < .01$

***
$p < .001$.