

Original Article

Do Physical And Sexual Abuse Differentially Affect Chronic Pain States in Women?

Carmen R. Green, MD, Heather Flowe-Valencia, BA,
Lee Rosenblum, MSW, and Alan R. Tait, PhD

*Department of Anesthesiology, Multidisciplinary Pain Center, University of Michigan Medical Center,
Ann Arbor, Michigan, USA*

Abstract

To evaluate the role of physical and/or sexual abuse on chronic pain symptoms and health care utilization in women, 104 consecutive female patients presenting to a multidisciplinary pain center for management of chronic pain were surveyed. Outcomes included a measure of sexual or physical abuse history (Drossman Sexual-Physical Abuse Survey), and measures of anxiety, health care utilization, substance abuse, and somatic symptoms. Forty-eight percent of the sample reported a history of physical abuse (PA) or sexual abuse (SA). Forty percent of the abused patients reported both PA and SA and the remainder reported SA (37%) or PA (23%) alone. The women who reported abuse had increased pain, physical symptoms, anxiety symptoms, and mental health care utilization compared to nonabused women. The women who reported abuse were also more likely to smoke and abuse street drugs. Women who reported both PA and SA were more likely to report head pain when compared to those who reported only PA or SA. Given the impact of abuse, particularly SA, on the presentation of chronic pain, queries regarding abuse should become a routine component of the patient interview. Abused patients should be referred to mental health care practitioners as a component of successful pain management if unresolved issues persist. J Pain Symptom Manage 1999;18:420-426. © U.S. Cancer Pain Relief Committee, 1999.

Key Words

Chronic pain, women, childhood physical abuse, childhood sexual abuse, adulthood physical abuse, adulthood sexual abuse

Introduction

A link between physical abuse (PA) and sexual abuse (SA) during childhood and/or adulthood and chronic pain syndromes has

been established.¹ In general, abused women report greater health care system utilization,¹⁻³ increased drug and alcohol problems,^{1,4,5} and higher levels of psychological distress.^{2,6-10} A history of abuse also appears to be strongly associated with certain chronic pain states, specifically pelvic,^{11,12} head,¹³ and gastrointestinal pain.^{6,14-16} However, the question of whether the type of abuse sustained (i.e., sexual or physical) differentially affects somatic symptoms and subsequent pain complaints remains.

Studies using specific pain populations sug-

Address reprint requests to: Carmen R. Green, MD, Department of Anesthesiology, University of Michigan Medical Center, 1500 East Medical Center Dr., 1G323 UH - Box 0048, Ann Arbor, MI 48109, USA.

Accepted for publication: February 22, 1999

gest an association between abuse type and chronic pain diagnosis. For example, chronic pelvic pain is strongly associated with SA.^{3,17-21} Drossman et al. found in a population of women with a history of PA or SA treated for gastrointestinal disorders, that the type of abuse differentially affects disability and outcome.²²

One study of women with somatization disorder demonstrated a history of both PA and SA,²³ yet these women have not been compared separately to women who sustained PA or SA alone. Many studies focus on SA, particularly childhood SA. The role of childhood SA is certainly important, but there is little information about the effect of PA (either childhood or adulthood) and SA during adulthood. More information is needed to achieve a fuller appreciation of the roles of SA and PA during either childhood or adulthood in the development of chronic pain. This understanding has important implications for the clinical management of chronic pain.

To explore the relationship between physical symptoms, chronic pain presentation, and abuse type, we began by documenting the prevalence of PA and SA in a sample of women presenting to a multidisciplinary pain management center for treatment of chronic pain. We hypothesized that abused women would report a greater number of symptoms, utilize health care resources more often, and be more prone to substance abuse than nonabused women. We also anticipated that the experience of SA would differ from that of PA, leading to different chronic pain states and different utilization of health care resources. Furthermore, we expected to find the poorest health status and greatest use of health care resources in women sustaining both PA and SA compared with those experiencing either form of abuse alone.

Methods

With approval from the institutional review board of the University of Michigan Medical Center (UMMC), we approached English-speaking adult female patients presenting for a scheduled clinic appointment to the UMMC Multidisciplinary Pain Center (MPC) for participation in this study. Each woman was given a packet containing a four-page self-report questionnaire accompanied by a cover letter

describing the study, the voluntary nature of participation, and the confidentiality of the response. The questionnaire was completed anonymously and contained no identifying marks. Prior to being seen by a physician or an intake nurse, the patient was given the questionnaire by a receptionist at the MPC. The patients were encouraged to complete the questionnaire during their visit to the MPC. Informed consent was implied when the patient deposited the completed questionnaire in a locked box in the reception area of the MPC.

Instruments

In developing the questionnaire, a list of constructs which defined the areas of interest were first assembled. These constructs were derived from a review of the literature and from expert opinion and were focused on the specific aims of the study. With these constructs in mind, a list of items underlying the constructs was developed. Individuals with expertise in pain management, psychology, and questionnaire development were interviewed to generate the item list. This method was used to ensure the content validity of the questionnaire. Once an item list had been generated, a pilot questionnaire was developed and was administered to 50 patients representative of the target population. Based on the results of the pilot study, items that were unreliable or ambiguous were deleted. Following the pilot study, a final questionnaire was prepared and administered to the target population.

Demographics

The patient's age, ethnic status, level of education, employment status, income level, and marital status were determined by responses to 12 questions.

Somatic Complaint Measures

Based on the Hopkins Symptom Checklist²⁴ and our clinical experience, we designed a 31-item somatic symptom scale to assess three categories: 1) 21 physical symptoms (including nausea, fatigue, and heart palpitations); 2) five pain symptoms, (including abdominal, pelvic, or head pain); and 3) five anxiety symptoms which included symptoms such as nervousness, sleep disturbance, and irritability. The presence or absence of each symptom during the

previous 12 months and the total number of symptoms reported in each category were recorded for each patient.

Health Care Utilization Measures

In order to address overall health status and health care utilization, questions eliciting the number of visits to clinical or mental health care professionals for treatment or diagnostic/medical testing during the previous 12 months, the number of days of inpatient hospitalization during the same period, and the number of surgical procedures over the patient's lifetime were assessed.

Substance Abuse Measures

Substance abuse was measured by questions assessing the consumption of alcohol or "street" drugs and the incidence of cigarette smoking.

Abuse History Measures

Patients were classified as abused or non-abused using a modified version of the sexual-physical abuse history questionnaire described by Drossman et al.²² The abused population were further characterized by the type of abuse.

SA questions in the present study explored whether, during the patient's lifetime, any individuals had: 1) threatened the patient sexually, 2) touched her sexually against her wishes, and 3) attempted to force or forced sexual intercourse. PA questions focused on threats of violence, beatings, kicking, and were included to differentiate women who had been physically abused from those who had not. For the act to be considered PA, it had to be considered outside of culturally normative forms of discipline, such as "spanking."

Based on their responses, patients were classified into one of three abuse categories: sexual, physical, or multiple abuse. Women responding affirmatively to any SA question, but indicating no PA, were classified as sexually abused. Those reporting frequent physical threats, beatings, or kicking, but no SA, were considered physically abused. Patients indicating any form of both SA and PA were categorized as multiply abused (MA).

Data Analysis

Results were tabulated and then analyzed via multivariate analysis of variance (MANOVA)

and chi-square analysis. Analyses were conducted to explore the relationship between abuse history and the patients' chronic pain symptoms and health care utilization. Items with similar format were analyzed by MANOVA due to the substantial number of comparisons made. Univariate analyses were conducted only when the multivariate results were significant. Categorical data were analyzed by chi-square and Fisher's exact test, where appropriate. Wilks' Lambda and Newman-Keuls test were used in order to avoid type I error due to the multiple comparisons that were made when evaluating the somatic symptoms. A value of $P < 0.05$ identified significant differences. Internal consistency estimates of reliability were analyzed for individual scaled items using coefficient (Cronbach) alpha. Coefficient alpha values greater than 0.7 indicated good reliability.

Results

A total of 104 women returned the questionnaire. The responses of 90 women were available for analysis, 14 questionnaires being excluded because they were incomplete. The resulting response rate was 87%. Measures of internal consistency indicated that the tool was reliable. For example, coefficient alpha values for scales addressing past SA or PA were 0.95 and 0.79, respectively. Scales related to mood, patient health status, and utilization of tests were 0.87, 0.79, and 0.76, respectively.

Demographics

The mean age of the sample was 46.4 ± 15.5 years (mean \pm SD, range 18–82 years). The racial composition was 82% Caucasian, 14% African American, and 4% other categories. Sixteen percent of respondents were single, 51% were married or in a copartnership, 22% were divorced or separated, and 10% were widowed. Forty percent had a high school education or less, 38% attended some college or technical training, and 22% had completed college or graduate work. Twenty-nine percent earned less than or equal to \$20,000, 23% earned between \$20,001–40,000, and 29% earned greater than \$40,000.

Prevalence of Abuse

Approximately 48% ($n = 43$) of all respondents reported a history of PA or SA. Of these,

37% ($n = 16$) were sexually abused, 23% ($n = 10$) were physically abused, and 40% ($n = 17$) were both sexually and physically abused. Demographic variables did not differ according to the type of abuse. There were no demographic differences between the abused and the women who denied abuse, i.e., nonabused women.

Comparison of Abused and Nonabused Women

Somatic complaints. Mean Somatic Symptom Scale scores according to abuse history are presented in Table 1. According to Wilks' Lambda, the groups differed significantly in the reporting of somatic complaints (physical, pain, and anxiety variables) [$F(3,86) = 4.10, P < 0.001$]. *Post hoc* univariate comparisons of somatic complaints indicated that abused women, i.e., PA or SA, reported significantly greater mean number of physical symptoms, pain, and anxiety symptoms than those who denied PA or SA (nonabused).

Health care utilization. Abused women reported visiting a mental health care professional more often than nonabused women [$\chi^2(1) = 6.37, P < 0.05$]. There were no significant differences between sexually or physically abused women in the reported number of medical doctor visits, lifetime surgeries, or days hospitalized.

Substance use. Abused women were more likely than nonabused women to smoke cigarettes [$\chi^2(1) = 8.63, P < 0.01$] and to use street drugs [$\chi^2(1) = 5.56, P < 0.05$]. There were no differences in their use of alcohol.

Comparison of Abuse Groups

A MANOVA comparison of symptom reporting by the sexual, physical, and multiple abuse groups indicated that symptom presentation differed significantly in these groups by the

type of abuse [$F(6,76) = 2.86, P < 0.05$, transformed from Wilks' Lambda] (Table 2). Subsequent analyses revealed that the mean number of physical symptoms, pain, and anxiety symptoms differed significantly by abuse type (Table 2). *Post hoc* comparisons conducted using Newman-Keuls test demonstrated that multiply abused women reported a significantly greater mean number of physical and anxiety symptoms than those experiencing either form of abuse alone ($P < 0.05$).

Specifically, women reporting both physical and sexual abuse (MA) reported significantly more head pain than those who reported only PA or SA, and significantly more pelvic, abdominal, and stomach pain than those who were solely physically abused (Table 3). There was no significant difference between the MA (both PA and SA) and SA groups in the prevalence of pelvic, abdominal, or stomach pain, nor any difference among the three groups in the prevalence of back pain.

Discussion

Few studies have attempted to address the role of abuse, i.e., sexual and/or physical, as it relates to health status and health care utilization. Drossman et al. reported an association between a history of abuse and increased pain, poor outcome, and poor health status in patients with gastrointestinal disorders seen at a referral-based gastroenterology practice.^{16,22} Goldberg found a positive relationship between a history of SA and PA, and depression during childhood.⁷ The previous studies are limited in that they did not address the roles of PA or SA alone or in comparison with both PA and SA.

We established that a history of abuse is prevalent in women with chronic pain complaints

Table 1
Post hoc Univariate Comparisons of Mean Somatic Symptom Scale Scores
Between Abused and Nonabused Women

Variable	Means (SD)		Univariate		
	Abused	Nonabused	F	df	P
Somatic symptoms					
Physical	9.42 (± 2.82) ^a	7.17 (± 3.32)	11.87	1, 88	0.001
Pain	2.20 (± 1.30) ^a	1.65 (± 1.20)	4.34	1, 88	0.04
Anxiety	3.49 (± 1.22) ^a	2.78 (± 1.74)	4.79	1, 88	0.003

^a $P < 0.05$ vs. nonabused.

Table 2
Post hoc Univariate Comparisons of Mean Somatic Symptom
Scale Scores Among Abuse Groups

Variable	Means (SD)			Univariate		
	SA	PA	MA	F	df	P
Somatic symptoms						
Physical	8.20 (± 1.93)	8.56 (± 2.42)	10.94 (± 3.03) ^a	4.91	2, 40	0.01
Pain	1.40 (± 0.70)	2.06 (± 1.57)	2.82 (± 1.02)	4.60	2, 40	0.02
Anxiety	3.10 (± 1.10)	3.06 (± 1.12)	4.12 (± 1.17) ^a	4.32	2, 40	0.02

^a*P* < 0.05 vs. multiple abuse.

SA = sexual abuse only; PA = physical abuse only; MA = multiple abuse: both SA and PA.

presenting to a referral pain center for treatment. Consistent with others, we found that there were differences in pain and somatic symptom reporting based on the presence of SA or PA. This study revealed differences between the two types of abuse, which were enhanced when the patient reported both forms of abuse. Women reporting both PA and SA reported significantly more head pain than those who experienced only PA or SA.

Findings from the present study emphasize the importance of evaluating patients with chronic pain for a history of PA or SA. Most studies have focused their attention on abuse as it relates to specific pain problems, such as chronic pelvic, abdominal or headache pain.⁸ Utilizing criteria reported by Drossman et al.,²² we found that the prevalence of abuse in a consecutive sample of women referred to our multidisciplinary pain center for chronic pain management was 48%, which is consistent with other estimates of abuse in chronic pain populations.^{1,13,22}

Previous studies have documented increased symptom reporting in patients with a history of SA.^{9,23} Similarly, sexually abused women in our

sample reported a greater number of physical symptoms, pain, and anxiety problems compared with physically abused women, but this was not found to be statistically significant. Walling and colleagues⁸ compared chronic pelvic and headache pain patients with respect to lifetime PA and SA prevalence rates. These authors found that pelvic pain patients had a higher rate of SA when compared to headache pain patients, but they did not differ with regard to PA. Our results revealed that women who were sexually abused had similar back and head pain symptoms but greater pelvic abdominal and stomach pain symptoms than those who reported only PA. Despite these differences, they were not found to be statistically significant. A larger sample size and information about the patient diagnoses would be helpful in determining whether these differences in regard to physical symptoms, pain, and anxiety problems between the SA and PA were real. Women who sustained both PA and SA reported a greater number of physical symptoms, pain, and anxiety symptoms and were more likely to report head pain than women who experienced solely PA or SA. These differences were found to be statistically significant. Further study is warranted, since other research suggests that abuse, whether PA or sexual, exacerbates painful conditions.^{25,26} These results indicate, as others have,^{25,26} that a history of abuse, either physical or sexual, may exacerbate any painful condition.

Our results also indicate that women patients who reported either PA or SA utilize mental health care resources more often than nonabused patients. Abused women in our sample also were more likely to use illicit drugs and tobacco than nonabused women, but the use of alcohol was similar in the two groups.

Table 3
Pain Symptoms Among Nonabused, Physical Abuse,
Sexual Abuse, and Multiple Abuse Groups

	Percent "Yes" in Each Group			
	Nonabused (<i>n</i> = 47)	Physical (<i>n</i> = 10)	Sexual (<i>n</i> = 16)	Multiple (<i>n</i> = 17)
Pain symptoms				
Pelvic	13	10	31	41
Abdominal	11	10	38	44
Stomach	11	10	25	47
Back	36	80	75	76
Head	17	70	75	94

Our results did not support greater overall health care utilization in abused patients than in nonabused patients. This was surprising in light of the increased reporting of somatic, physical, and anxiety symptoms observed in the present study. Further studies using more sensitive health care utilization and alcohol use measures may be warranted to further investigate this issue.

Caution should be used in interpreting the findings from the current study. First, this is a relatively small sample. As such, findings from this study should be regarded as possible directions for future research, and not as absolute results. Second, although the presence of certain pain complaints does not appear to be related to the type of abuse patients sustain, we were unable, due to the anonymous nature of the questionnaire, to obtain information on the primary pain diagnosis. Thirdly, to preserve anonymity and thereby encourage honest reporting, findings from this study were based solely on self-report data. Due to recall, patients may have over- or underreported symptoms and/or health care utilization, e.g., number of days hospitalized or surgeries. Finally, in order to preserve confidentiality, the patient's diagnosis was not obtained and the medical chart was not reviewed. It is entirely possible that a high physical symptom score could reflect the etiology of the disease or somatization. Future studies should maintain confidentiality but obtain medical and pain diagnoses from the medical record and employ methods to validate responses regarding health care utilization.

Chronic pain has a multitude of effects, with physical, physiological, and economic implications. Furthermore, it is well established that PA and SA have far-reaching and potentially long-term personal, familial, medical, and societal implications. Our results underscore the importance of a multidisciplinary approach to chronic pain management. They also suggest that patients presenting for chronic pain management should be queried regarding a history of SA or PA as a routine component of a comprehensive history and physical examination during their initial assessment for treatment of a pain problem. When a patient's response to the question of abuse is negative, but the index of suspicion remains high, we suggest that follow-up on the suspicion and open communica-

tion be pursued once rapport, trust, and safety have been established in order to help prevent further victimization. If a history of abuse is elicited, appropriate interventions and referrals should be pursued in chronic pain patients as an adjunct to, and not in place of, the pain management plan.

References

1. Wurtele SK, Kaplan GM, Keairness M. Childhood sexual abuse among chronic pain patients. *Clin J Pain* 1990;6:110-113.
2. Toomey TC, Seville JL, Mann JD, Abashian SW, Grant JR. Relationship of sexual and physical abuse to pain description, coping, psychological distress, and health-care utilization in a chronic pain sample. *Clin J Pain* 1995;11:307-315.
3. Haber JD, Roos C. Effects of spouse abuse and/or sexual abuse in the development and maintenance of chronic pain in women. In: Fields HL, Dubner R, Cervo F, eds. *Advances in pain research and therapy*, Vol 9. New York: Raven Press, 1985: 889-895.
4. Rohsenow DJ, Corbett R, Devine D. Molested as children: a hidden contribution to substance abuse? *J Subst Abuse Treat* 1988;5:13-18.
5. Miller BA, Downs WR, Gondoli DM. The role of childhood sexual abuse in the development of alcoholism in women. *Violence Vict* 1987;5:157-172.
6. Drossman DA, Li Z, Leserman J, Toomey TC, Hu YJ. Health status by gastrointestinal diagnosis and abuse history. *Gastroenterology* 1996;110:999-1007.
7. Goldberg RT. Childhood abuse, depression, and chronic pain. *Clin J Pain* 1994;10:277-281.
8. Walling MK, Reiter RC, O'Hara MW, Milburn AK, Lilly G, Vincent SD. Abuse history and chronic pain in women: I. Prevalences of sexual abuse and physical abuse. *Obstet Gynecol* 1994;84:193-199.
9. Brier J, Runtz M. Symptomatology associated with childhood sexual victimization in a non clinical adult sample. *Child Abuse Neglect* 1988;12:51-59.
10. Sedney MA, Brooks B. Factors associated with a history of childhood sexual experiences in a non clinical female population. *J Am Acad Child Psychiatry* 1984;23:215-218.
11. Toomey TC, Hernandez JT, Gittelman GF, et al. Relationship of sexual and physical abuse to pain and psychological assessment in chronic pelvic pain patients. *Pain* 1993;53:105-109.
12. Walker E, Katon W, Harrop-Griffiths J. Relationship of chronic pelvic pain to psychiatric diagnoses and childhood sexual abuse. *Am J Psychiatry* 1988; 145:75-80.
13. Domino JV, Haber JD. Prior physical and sexual

abuse in women with chronic headaches: clinical correlates. *Headache* 1987;27:310-314.

14. Talley NJ, Fett SL, Zinsmeister AR, Melton LJ. Gastrointestinal tract symptoms and self-reported abuse: a population-based study. *Gastroenterology* 1994;107:1040-1049.

15. Bachmann GA, Moeller TP, Bennet J. Childhood sexual abuse and the consequences in adult women. *Obstet Gynecol* 1988;71:631-642.

16. Drossman DA, Leserman J, Nachman G. Sexual and physical abuse in women with functional or organic gastrointestinal disorders. *Ann Intern Med* 1990;113:828-833.

17. Reiter BC, Shakerin LR, Gambone JC, Milburn AK. Correlation between sexual abuse and somatization in women with somatic and non somatic chronic pelvic pain. *Am J Obstet Gynecol* 1991;165:104-109.

18. Harrop-Griffiths J, Katon W, Walker E, Holm L, Russo J, Hickok L. The association between chronic pelvic pain, psychiatric diagnoses, and childhood sexual abuse. *Obstet Gynecol* 1988;71:589-594.

19. Caldirola D, Gemperle M, Guzinski G, Gross R, Doerr H. Incest and pelvic pain: the social worker as part of the research team. *Health Soc Work* 1983;8:309-319.

20. Murphy TM. Profiles of pain patients, including

chronic pelvic pain: University of Washington Clinical Pain Service. In: Ng Lorenz KY, ed. *New approaches to treatment of chronic pain: a review of multidisciplinary pain clinics and pain centers*. Washington, DC: United States Government Printing Office, 1981:122-129.

21. Gross RJ, Doerr H, Caldirola D, Guzinski GM, Ripley RS. Borderline syndrome and incest in chronic pain patients. *Int J Psychiatry Med* 1980;10:76-96.

22. Drossman DA, Talley NJ, Leserman J. Sexual and physical abuse and gastrointestinal illness. *Ann Intern Med* 1995;123:782-794.

23. Morrison J. Childhood sexual histories of women with somatization disorder. *Am J Psychiatry* 1988;146:239-241.

24. Lipman RS, Covi L, Shapiro AK. The Hopkins Symptoms Checklist. *J Affective Disorders* 1979;1:9-24.

25. Rapkin AJ, Kames LD, Darke LL, Stampfer FM, Naliboff BD. History of physical and sexual abuse in women with chronic pelvic pain. *Obstet Gynecol* 1990;76:92-96.

26. Cunningham J, Pearce T, Pearce P. Childhood sexual abuse and medical complaints in adult women. *J Interpers Viol* 1988;3:131-144.