

Are Reports of Childhood Abuse
Related to the Experience of Chronic Pain in Adulthood?
A Meta-analytic Review of the Literature

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Abstract

Recent empirical evidence suggests that childhood abuse may be related to the experience of chronic pain in adulthood. To date, a systematic quantitative review of the literature has not been presented. The purpose of this study was to use meta-analytic procedures to evaluate the strength of existing evidence of the association between self-reports of childhood abuse and chronic pain in adulthood. Analyses were designed to test the relationship across several relevant criteria with four separate meta-analyses. Results of the analyses are as follows: (1) Individuals who reported being abused or neglected in childhood also reported more pain symptoms and related conditions than those not abused or neglected in childhood; (2) Patients with chronic pain were more likely to report having been abused or neglected in childhood than healthy controls; (3) Patients with chronic pain were more likely to report having been abused or neglected in childhood than non-patients with chronic pain identified from the community; and (4) Individuals from the community reporting pain were more likely to report having been abused or neglected than individuals from the community not reporting pain. Results provide evidence that individuals who report abusive or neglectful childhood experiences are at increased risk of experiencing chronic pain in adulthood relative to individuals not reporting abuse or neglect in childhood.

Living with chronic pain can be a highly frustrating and stressful experience that can lead to psychological distress and lower quality of life. Although biomedical factors in many cases set in motion the initial pain report, it is clear that psychological factors can significantly contribute to the development, exacerbation, maintenance, and potential for recovery from chronic pain disorders (1). Successful management of chronic pain depends on a multidimensional assessment of the problem. To increase the likelihood of successful treatment outcomes, it is important to understand, assess, and treat contributing factors to the development of chronic pain disorders, and potential barriers to recovery of function.

Early life exposure to abusive treatment may represent a contributing factor to the development of chronic pain disorders in adulthood. Recent research suggests that chronic pain sufferers are likely to report higher than normal prevalence rates of childhood maltreatment. Compared to non-abused individuals, adult victims of childhood maltreatment report greater pain and headaches (2-5), gastrointestinal and respiratory symptoms (2, 3, 6), gynecological problems (2, 4), neurological symptoms and overall physical problems (6), and visits to health professionals (3,4,7). In general, individuals who report a history of abuse also report greater symptom severity and medical utilization, including increased use of surgical procedures (8).

Most existing studies have been based on retrospective self-reports of exposure to abusive treatment in childhood. Few studies have prospectively examined these relationships. An exception is a prospectively designed study by Raphael and colleagues (9), which failed to find a relationship between court-documented exposure to childhood abuse and increased pain symptoms or development of chronic pain in adulthood. However, the actual occurrence of childhood abuse in the population is much higher than is handled through the legal system, and there are likely to be considerable differences in the experiences and consequences for those with

court-documented abuse versus those who later self-report abusive childhood experiences. The discrepancy between findings from retrospective and prospective studies suggests that perceptions and/or interpretations regarding abusive early experiences may be more influential in the experience of chronic pain in adulthood than objectively documented abuse.

There are a number of pathways by which early life maltreatment could contribute to the development of pain disorders in adulthood. Abusive childhood experiences can contribute to the development of poor health behaviors (10) and negative psychosocial characteristics (e.g., depression, anxiety, anger, social isolation) associated with increased risk of the development of physical disorders (11). Childhood abuse is associated with severe deficiencies in the ability to effectively self-regulate emotion (11), resulting in inappropriate perceptions of threat and exaggerated fight-or-flight responses(12). The development of physiological stress responses is strongly influenced by characteristics of the early rearing environment (12). Recent studies have reported dysregulated neuroendocrine responses in abused children and adults with a history of childhood abuse (13). These disrupted self-regulatory pathways can promote pathophysiology in the body (14), increasing vulnerability to the development of a chronic pain disorder and potentially interfering with recovery. Early abuse is also associated with higher exposure to relationship violence and life stress later in life (15-16). Heim and colleagues (17) found that childhood abuse survivors reported more adult traumas, and demonstrated greater neuroendocrine stress reactivity, suggesting physiological sensitization to stress and higher risk of stress-related illnesses. In that manner, childhood abuse may increase the risk of abusive treatment in adulthood which may then contribute to the experience of chronic pain. Disturbances in current emotional, physiological, or social functioning resulting from adverse childhood experiences may represent both contributing factors to the development of chronic

pain, and significant barriers to recovery. Until the existing contributing factors or barriers to recovery are assessed and targeted for intervention, individuals suffering from the negative effects of chronic pain are unlikely to improve in physiological or psychological functioning.

The findings cited above support the existence of a link between exposure to childhood maltreatment and the occurrence of chronic pain in adulthood and provide theoretical support for potential underlying mechanisms. However, a methodological concern within the existing research literature has been the frequent use of clinical samples of individuals in treatment for health problems or for psychological problems stemming from abuse. Because the relationship of abusive experiences during childhood to pain in adulthood may be exaggerated in those seeking clinical treatment, it is important to examine if the relationship is apparent in non-clinical samples as well. A related concern is that studies may be biased by a focus on convenience samples rather than population-based samples. These concerns, along with null findings from some studies, suggest that it would be valuable to evaluate across existing studies the existence and magnitude of a relationship between reports of childhood abuse and the experience of chronic pain in adulthood. A positive relationship between reports of childhood abuse and the experience of pain would suggest that interventions targeted at the sequelae of abuse may benefit an individual's experience with chronic pain. Alternatively, a null finding would suggest that reports of early abusive relationships are not likely to significantly impact the experience of chronic pain and may not be a useful target for intervention.

Although chronic pain has been declared “the next frontier in child maltreatment research” (18), to date, a quantitative review of the existing research has not been available. The purpose of the current study is to use meta-analytic procedures to investigate whether chronic pain in adulthood is significantly associated with self-reports of childhood exposure to physical

or sexual abuse or neglect. Because the great majority of existing research has been retrospective and there are reasons to believe the relationship may differ in prospective versus retrospective studies, this meta-analysis specifically focuses on the relationship between chronic pain and retrospective reports of childhood abuse. Analyses were designed to systematically evaluate, through a series of important group comparisons, if self-reported abusive childhood experiences are associated with greater reports of pain in adulthood. In doing so, these analyses address the relationship from a number of important perspectives, including the frequency of reports of pain in individuals who report abuse, the frequency of reports of abuse in chronic pain patients, the influence of patient status in the relationship, and the strength of the relationship within community-derived samples. It was hypothesized that reports of childhood exposure to abusive treatment would be associated with increased reports of chronic pain in adulthood, and that this relationship would not be limited to those seeking treatment for chronic pain.

Method

Literature Search

All studies chosen for the meta-analyses included retrospective reports of neglect, sexual or physical abuse experienced during childhood, and a measure of pain symptoms, chronic pain disorder status or health care visits. A variety of samples were included in the meta-analysis, and consisted of patients with chronic pain, non-patients with chronic pain who met American College of Rheumatology (ACR) criteria for fibromyalgia syndrome but never had been treated for their pain condition, healthy controls, and individuals recruited from the community who reported pain symptoms. Studies were selected only if they included an appropriate comparison group. Searches of PubMed, Medline, and PsychINFO were used to locate these articles. Keywords used in the searches were “chronic pain” and “child abuse” and “neglect”. Although it

is acknowledged that definitions vary among studies, the authors' definitions of "abuse" and "neglect" used in the studies were accepted for the purposes of these analyses. Sixteen different studies met the inclusion requirements and are identified in Appendix A. Because several studies included more than one comparison group, twenty-one meta-analytic group comparisons were derived from the selected studies.

Description of studies

Publication dates ranged from 1990 to 2001. Total sample size for the 16 studies was 5,299 ($M = 264$; $SD = 372$; median = 107). Sample sizes ranged from 40 to 1,263 participants. Seven studies ranged from 40 to 100, five from 104 to 289, and four from 426 to 1,263. Of the 16 studies, six included only females and the remaining ten included females and males. Overall, there were 3,357 females and 1,942 males.

Comparisons

There were four basic questions to address in the meta-analyses; however, not all studies were designed to address these questions. Studies investigating the relationship between reports of childhood abuse and chronic pain are by nature heterogeneous. Therefore, the 16 studies identified in the literature search were clustered to address the research questions according to which types of group were compared and which dependent variables were selected for measurement. The following questions were tested:

1. Are individuals who report the experience of abuse or neglect in childhood more likely to report pain symptoms or conditions than individuals from a matched comparison group who do not report abuse or neglect during childhood?
2. Are patients with chronic pain more likely to report having been abused or neglected in childhood than healthy controls?

3. Are patients with chronic pain more likely to report having been abused or neglected in childhood than *non*-patients with chronic pain?
4. In population-derived samples, are individuals who report pain more likely to also report having been abused or neglected in childhood than those who do not report pain?

Separate meta-analyses were performed to test each of these questions. The comparisons across different types of study groups were made to delineate underlying mechanisms supporting the relationship, to determine the extent of the relationship in a larger, more generalizable sample, and to help decrease the possibility of third variable problems.

Meta-analytic Procedures

David Kenny's (19) Meta-analysis, Easy to Answer program (META) was used to compute statistics for the meta-analyses. Using META, an effect size was computed for each study and then weighted according to sample size. Effect sizes were weighted to incorporate a measure of differing amounts of statistical power among studies into the meta-analytic calculations. These weighted effect sizes were pooled, and the combined probability that the average effect size among studies was different from zero was computed using two-tailed p values.

Homogeneity of variance between and within studies was calculated for each meta-analysis and tested using the chi-squared distribution to determine whether effect sizes among studies differed beyond what would be expected from sampling error alone (20). If effect sizes among studies were heterogeneous, specific correlates of effect sizes (or subgroup, categorical differences) were sought in an attempt to account for the heterogeneity.

Two meta-analytic results for each comparison were calculated, one using the fixed effects approach and the other using the random effects approach, to provide more information

regarding generalizability to the population. The fixed effects approach provides more statistical power to detect effects across studies because its significance test is based on the number of participants in the meta-analysis. Results of the fixed effects approach were considered to be specific to the samples included in the analysis. The random effects approach provides less statistical power to detect effects because its significance test is based on the number of studies in the analysis. Results of the random effects approach can be generalized beyond the samples to their respective populations. The test of homogeneity of effect sizes was used for information in distinguishing which approach was appropriate for interpretation of the meta-analytic results. When effect sizes among studies were heterogeneous, emphasis was placed on the random effects approach for interpretation of results (19).

Finally, in those meta-analyses that resulted in a significant overall effect, a File-Drawer analysis was performed using the Fail-safe N procedure. Rosenthal (21) recommended a File-Drawer analysis to account for possible publication bias, given that smaller studies with null results are more likely to remain unpublished in investigators' file drawers than larger studies with positive results. The Fail-safe N is a mathematical method that determines the number of studies with null results that would have to be published to reduce the probability of Type I error to non-significance. Larger Fail-safe N statistics indicate more stable meta-analytic results.

Results

Question 1. Are individuals who reported abuse or neglect in childhood more likely to report pain symptoms or conditions than individuals from a matched comparison group who do not report abuse or neglect?

Nine studies (total N = 3,040,) examined the question of whether reports of childhood abuse or neglect increase the risk of adult pain conditions (Table 1). These studies compared

reports of pain symptoms or conditions in individuals who reported being abused or neglected in childhood to reports of pain symptoms or conditions in those not reporting abuse or neglect. Samples used in these studies were recruited from a variety of populations. Three studies used community-based samples. Four studies used outpatients from multidisciplinary pain clinics, rheumatology clinics, or psychiatric clinics. Effect sizes (Cohen's d) among these studies ranged from 0.1251 to 1.047. The mean effect size across these studies was 0.4076 ± 0.27 . META produced a weighted (square root of n) mean effect size of 0.3287 ± 0.18 . Using the more conservative Random Effects Model, this effect size was significantly different from zero ($t = 5.5267$, $p = .0006$) with a Fail-safe N of 63 studies. Using the Fixed Effects model, the test of effect size also was significant (average $z = 6.5689$, $p < .0001$), with a Fail-safe N of 93. The results of the chi-squared distribution to test for homogeneity of effect sizes indicated that standardized mean differences of pain complaints between the two groups (abused vs. nonabused) were consistent across the nine studies in spite of the heterogeneous nature of sample sources. These results provide evidence that individuals abused or neglected in childhood are likely to experience more pain symptoms and conditions in adulthood relative to individuals not abused or neglected during childhood. Furthermore, based on the significance of the results using the Random Effects Model, these results can be generalized to the populations represented by the samples. Please see Table 5 for a summary of findings.

Question 2. Are patients with chronic pain more likely to report having been abused or neglected in childhood than healthy controls?

Eight studies (total $N = 1,811$) compared reports of abuse histories in patients with chronic pain to those in healthy comparison groups (Table 2). Patients with chronic pain were recruited from several types of clinics for these studies. Two studies recruited outpatients from

chronic pain clinics. Four studies recruited patients with chronic pelvic pain from gynecology clinics, and two studies recruited fibromyalgia patients from rheumatology clinics. Individuals used as healthy comparisons were recruited from community respondents, hospital employees, patients visiting their general practitioners or gynecologists for routine check-ups, and patients seeing their gynecologists for elective procedures such as tubal ligations or infertility.

The effect size used in this analysis was the proportion of healthy controls reporting a history of abuse or neglect in childhood subtracted from the proportion of patients with chronic pain reporting a history of abuse or neglect in childhood. Effect sizes ranged from 0.071 to 0.3390. The mean effect size across studies was $0.2235 \pm .1006$. The META weighted mean effect size was 0.1892 ± 0.08 . The test of effect size using the Random Effects approach was significant ($t = 6.8982, p=.0003$) and would require a minimum of 92 studies with null results to render it nonsignificant. The test of effect size using the Fixed Effects approach was significant ($z = 5.9763, p<.0001$), and would require a Fail-safe N of 67 studies with null results to render it nonsignificant. The chi-squared distribution to test for homogeneity of effect sizes across studies indicated that effect sizes were not homogeneous ($Q_{\text{between}} = 18.0068, p=.012$). This result indicates that unspecified subgroup or categorical differences might exist between studies, which in turn would cause the variation among effect sizes. Indeed, sample sources vary widely between these particular studies. However, the fact that the more stringent Random Effects test is significant in spite of these variations provides modest support for the hypothesis that patients with chronic pain are more likely to have experienced a history of abuse or neglect during childhood than healthy controls.

Question 3. Are patients with chronic pain more likely to report having been abused or neglected in childhood than *non*-patients with chronic pain?

Two studies (total N = 522) compared reports of childhood abuse histories in individuals who had sought treatment for their chronic pain to individuals who reported a significant amount of pain but never had sought treatment for their condition (see Table 3). One study compared patients from a rheumatology clinic diagnosed with fibromyalgia to community respondents who met ACR criteria for fibromyalgia who had not sought medical care for their condition. The other study compared patients with chronic pain consecutively visiting a multidisciplinary clinic to community respondents reporting “pronounced pain” who never had sought treatment for their condition (non-patients).

Effect size was derived by subtracting the proportion of non-patients with chronic pain reporting a history of abuse or neglect in childhood from the proportion of patients with chronic pain reporting a history of abuse or neglect in childhood. Effect sizes of the two studies were 0.1800 and 0.1180, respectively. The META weighted mean effect size was 0.1482 ± 0.03 . The test of Random Effects was not significant ($t = 6.4855, p=.1702$). The test of Fixed Effects was significant ($z = 3.0026, p=.0027$) with a Fail-safe N of 3. Effect sizes were homogeneous across studies ($Q_{\text{between}} = 0.432, p=.8058$). The significant Fixed Effects test indicates that in these two studies, patients with chronic pain were more likely to report a history of abuse or neglect than non-patients with chronic pain. The less than significant Random Effects test and the small, fail safe N, indicate that these results are not likely to be stable and should not be generalized to the population.

Question 4. In population-derived samples, are individuals who reported pain more likely to report having been abused or neglected in childhood than those who did not report pain?

Two studies (total N = 484) met criteria for this analysis (see Table 4). One study recruited individuals from a general medical practice register who had demonstrated at least

some psychological distress ($\text{GHQ} \geq 2$). The other study recruited individuals from bulk mailings.

Effect sizes (difference between proportions) were 0.09 and 0.14, respectively. Mean effect size was $0.115 \pm .04$. The META weighted mean effect size was $0.1203 \pm .07$. The Random Effects test was non-significant ($t = 2.4447$, $p = .3244$), due to low number of studies. The Fixed Effects test was significant ($z = 3.8913$, $p = .0001$) with a Fail-safe N of 6. These results indicate that, in individuals who participated, those who reported pain were more likely to report having been abused or neglected in childhood than those who did not report pain.

Discussion

The purpose of this study was to use meta-analytic procedures to evaluate whether reports of abusive treatment in childhood elevate the risk of experiencing chronic pain in adulthood. The analyses addressed some of the key methodological concerns present in the existing literature, such as the sampling of heterogeneous populations and the use of less than optimal comparison groups. Effect size estimates of the relationship between pain and abuse were modest, but significant across all group comparisons. The first comparison indicated that individuals who reported childhood abuse or neglect also reported more pain symptoms and conditions than those not reporting abuse or neglect. Findings support prior research indicating that women abused as children tend to report more physical problems compared to non-abused comparison groups (2,3). The results of the meta-analysis indicate that the effect is stable across a wide variety of samples and can be generalized beyond the samples to their populations. However, the majority of participants in these studies were women, therefore results may be less generalizable to men who report histories of abuse.

The second meta-analysis indicated that patients with chronic pain are more likely to

report a history of abuse than healthy individuals. As in the first analysis, the results indicate that the effect is stable across a wide variety of samples and can be generalized beyond the samples to their respective populations. The third analysis indicated that individuals who seek care for chronic pain are more likely to report a history of abuse than individuals from the community who do not seek care for chronic pain (non-patients). In short, patient status is associated with a greater likelihood of reporting childhood abuse relative to non-patient status. However, an *under-reporting* bias is also possible, suggesting caution in the conclusion that patient status matters. Rather, some characteristics unique to the sample of community non-patients with chronic pain disorders may provide a plausible, alternative explanation. The non-patient community samples were experiencing considerable and long-standing pain in their lives. The fact that these individuals never sought treatment for their pain may be due to a propensity to underreport life difficulties, a potential confounding third variable that would diminish the size of a relationship between abuse histories and chronic pain. Reluctance to self-disclose might inhibit health care-seeking behavior and also cause under-reporting of abuse history. In support of this explanation is the fact that the random effects analysis was not significant, indicating the results should not be generalized beyond the samples from which they were obtained.

The final meta-analysis indicated that individuals recruited from the community who reported more pain symptoms and conditions were also more likely to report a history of abuse or neglect relative to those who reported less pain symptoms and conditions. These results suggest that the relationship between childhood abuse or neglect and pain in adulthood is not limited to clinical samples of individuals seeking care for their pain condition. In combination, results from all the meta-analyses support the hypothesis that reports of exposure to abuse or neglect in childhood are associated with greater reports of chronic pain in adulthood.

As described previously, there are several pathways by which childhood experiences might affect the experience of chronic pain in adulthood, including psychosocial, physiological, or behavioral factors. Psychological factors in particular may be a strong factor in the relationship between reports of early abuse and the experience of pain in adulthood. One explanation for the findings of this meta-analysis is that reports of abuse in childhood are linked with negative current life factors, including psychological distress, poor health behaviors, and abusive social relationships, and these factors may then be strongly linked to the experience of pain symptoms. Because of the heterogeneity of the studies, this meta-analysis cannot make any conclusions about the impact of factors such as psychological distress or current relationship violence. However, the goal of the meta-analysis was to address the basic question of whether or not a relationship exists between reports of child abuse and chronic pain in adulthood above and beyond the potential effect of a reporting bias of a patient population. Our analyses demonstrate that a modest relationship exists, yet there remain a number of further questions regarding the precise nature of the relationship, including the age at which the abuse occurred, gender differences in the effects, impact of current distress, type of abuse or neglect, and the implications of self-report versus documented abuse.

Methodological Considerations

A primary limitation to studies of the relationship of child abuse to chronic pain in adulthood is the reliance on retrospective self-reports of abuse, the validity of which cannot be verified. In Raphael et al.'s prospective study comparing pain complaints of adults with court-documented childhood abuse to pain complaints of adults without court-documented childhood abuse, no differences in pain outcomes between the two groups were found (9). In contrast, differences in pain complaints were found between adults with retrospective, self-reported

accounts of childhood abuse relative to those who did not report abuse. The classification of individuals with undocumented (but self-reported) abuse to the comparison group may attenuate group differences. Raphael et al. compared individuals with or without welfare histories, and found that pain complaints were “virtually identical” between groups, concluding that misclassification error probably did not affect the results of their study. However, a number of further comparisons could provide useful information in this regard, including a comparison of those with documented abuse to a comparison group that excluded those with positive self-reported histories of abuse. Alternatively, it would be interesting to compare those with self-reported abuse to those with court-documented abuse. Because of the secrecy that often accompanies abuse or neglect and the large number of undocumented cases of abuse, the reliance on documented cases can result in a different set of validity problems than the reliance on self-reported cases of abuse. For these reasons, both self-reports and documented cases of abuse provide useful information about the long-term consequences of childhood maltreatment.

In any event, the accuracy of self-reports remains a concern to many researchers. Brewin and colleagues (22) conducted a review of literature addressing retrospective reports, and concluded there is little evidence that such reports are inherently inaccurate, even among those experiencing current psychopathological symptoms. Others have shown that in adults, memory is enhanced for emotional versus neutral stimuli (22), suggesting that recall of highly emotional childhood experiences like abuse will be enhanced relative to neutral experiences (22). Bifulco and colleagues (24) provide further support for the reliability of retrospective reports of abuse. Their *Childhood Experience of Care and Abuse interview* has shown good reliability and validity with adults, and has shown good reliability between sibling accounts (25). While these findings suggest that recall bias does not play a substantial role in the relationship between childhood

abuse and chronic pain in adulthood, the accuracy of reports of sexual abuse in particular has been the subject of considerable controversy within the literature. While some lines of research suggest that recall of childhood abuse can be disrupted or repressed, others suggest that false memories of abuse can be created. In light of the continuing controversy, perhaps the best conclusion to be drawn from the current findings is that interpretations or memories of childhood abuse are associated with higher occurrence of chronic pain in adulthood.

One limitation of this area of research in general that in turn limits the meta-analyses is the considerable variability in the operational definitions of “child abuse and neglect” across the studies included in the analyses. The negative test results of heterogeneity of variance in the meta-analysis point to the validity of the current findings, however there are clearly factors that may exacerbate or ameliorate the relationship. Potential moderators of the relationship that might drive treatment considerations include the severity and type of abuse or neglect, the age at which the abuse or neglect occurred, the presence or absence of early intervention, objective validation of abusive treatment, and the presence of current abusive relationships. More consistency in the definition of abuse would allow for a better test of the relationship to chronic pain in adulthood. In addition, specific definitions of abuse and a better understanding of moderators of the long-term impact would allow for more effective, targeted interventions. Similarly, the variability of outcome measures used across relevant studies limits the conclusions to be drawn from the meta-analyses. However, the null results of tests of heterogeneity of variance in the meta-analysis argue against the likelihood that the difference in outcome measures affected the overall results of the analyses. Furthermore, a reduction in variability of outcome measures likely would increase the power to detect differences, enhancing the positive results of this study.

Finally, the effect sizes found in these meta-analyses were mainly in the small range

according to Cohen's criteria (26). The largest effect size, .33, was found in the comparison of pain symptoms between abused and non-abused groups, such that about 63% of non-abused participants would have pain complaints below those of abused participants. Based on the results of these analyses, the overall relationship between childhood abuse and adult chronic pain conditions appears to be significant, but relatively modest. It will be important in future research to more clearly identify the chronic pain outcomes most closely associated with adverse early childhoods, and the specific childhood experiences most closely linked to the development of chronic pain.

Conclusions

The combined results of these quantitative meta-analyses provide support for the idea that chronic pain in adulthood and reports of childhood abuse or neglect are related above and beyond their shared variance with patient status or recall bias. The results support the growing emphasis on a biopsychosocial approach in the treatment and understanding of chronic pain by suggesting that the consequences of abusive early treatment may be contributing to the experience of pain. Psychotherapeutic approaches that address the sequelae of childhood abuse may have the potential to benefit psychological well-being as well as physical functioning in patients experiencing chronic pain. Further research with the goal of delineating the nature of the relationship between childhood abuse and chronic pain in adulthood has considerable potential to enhance treatment success in terms of chronic pain outcomes. Furthermore, a thorough investigation of the mechanisms underlying this relationship will allow for the understanding of other important biopsychosocial effects on health outcomes. Given the results of the meta-analysis presented in this report, it appears that pioneering efforts in this "new frontier of childhood maltreatment research" (18) are producing important information useful in the

understanding of the contribution of adverse childhood experiences to the experience of chronic pain in adulthood.

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Table 1
Studies comparing pain reports between abused and non-abused individuals

Study	Sample	Childhood Abuse Group	Comparison Group(s) (Non-abused)	Dependent Variable: Pain symptoms or conditions	Effect Size (Cohen's d)	Weight (sqrt N)
Raphael, Widom, & Lange (2001).	Community	743 individuals with retrospective reports of abuse or neglect during childhood	520 individuals with no documented history of abuse	Pain symptom counts	.2213	35.5387
Finestone, Davies, et al. (2000).	Psychiatric patients & nurses	26 group attendees for the treatment of childhood sexual abuse	33 psychiatric outpatients reporting no history of abuse & 21 hospital nurses	Presence of a current, chronic (>3 months) pain condition	.5379	8.9443
Green, Flowe-Valencia, et al. (1999).	Multi-disciplinary pain center patients	43 individuals with retrospective reports of sexual and/or physical abuse	61 individuals reporting no history of abuse	Pain complaints	.4395	10.1980
Fillingham, Wilkinson, & Powell (1999a).	Community (college women)	119 women who reported a positive history of childhood abuse	156 women reporting no history of abuse	Muscle pain	.1251	16.5831
Fillingham, Wilkinson, & Powell (1999b).	Community (college men)	36 men who reported a positive history of abuse	115 men reporting no history of abuse	Muscle pain	.2664	12.2882

Toomey, Seville, et al. (1995).	Chronic Pain (CP) patients	22 reporting a history of abuse	58 not reporting a history of abuse	McGill Pain Questionnaire (total pain index)	.2277	8.9443
Alexander, Bradley, et al. (1998).	75 FM patients	43 reporting a history of abuse	32 not reporting a history of abuse	McGill Pain Questionnaire (total pain index)	.4731	8.6603
Taylor, Trotter, Csuka (1995).	FM patients	26 reporting a history of abuse	14 not reporting a history of abuse	Pain symptoms	1.047	6.3245
Bendixen, Muus, Schei (1994)	Community (male & female college students)	116 reporting a history of abuse	856 not reporting a history of abuse	HA, muscular, & abdominal pain sx="often"	.3307	31.1769

Table 2
Studies comparing reports of abuse between patients with chronic pain and healthy controls

Study	Description of Sample	CP Patients	Healthy Controls	Dependent Variable: Classification	Effect Size (Difference between proportions)	Weight (sqrt N)
Goldberg & Goldstein (2000).	CP outpatients & Hospital employees	92 Outpatients (rehabilitation)	98 hospital employees	Childhood abuse history (sexual, physical, verbal)	.3300	13.7840
Lampe, Solder, et al. (2000).	Chronic pelvic pain & general practitioner patients	36 consecutive gynecological chronic pelvic pain patients	20 GP patients	Physical abuse experienced in childhood	.3390	7.4833
Alexander, Bradley, et al. (1998).	Rheumatology clinic patients & community respondents (newspaper ad)	75 outpatients (rheumatology clinic, FM)	48 community respondents	Sexual and/or physical abuse experienced in childhood	.1820	11.0905
Linton (1997).	CP outpatients & community respondents (bulk mail)	142 outpatients (rehabilitation)	945 community respondents	Sexual and/or physical abuse experienced in childhood	.0710	32.9697

Taylor, Trotter, et al. (1995).	Rheumatology clinic & community recruits (referral, etc.)	40 fibromyalgia patients	42 community recruits (no pain)	Sexual abuse experienced in childhood	.1300	9.0554
Walling, Reiter, et al. (1994).	Chronic pelvic pain clinic & gynecology pts.	64 chronic pelvic pain patients	46 pain-free women	Sexual abuse experienced in childhood	.1600	10.4881
Rapkin, Kames, et al. (1990).	Rheumatology clinic & community	31 chronic pelvic pain patients	32 community recruits (no pain)	Physical abuse experienced in childhood	.2960	7.9373
Walker, Katon, et al. (1995).	100 pts laparoscopic evaluation	50 chronic pelvic pain patients	50 ob/gyn patients (tubal ligation or infertility)	Childhood sexual abuse	.2800	10.000

Table 3

Description of studies comparing reports of abuse between patients with chronic pain and non-patients with chronic pain

Study	Description of Sample	CP Patients	CP Non-Patients	Dependent Variable Classification	Effect Size (Difference between proportions)	Weight (sqrt N)
Aaron, Bradley, et al. (1997).	Rheumatology clinic patients & community residents	80 FM patients (male & female)	33 FM non-patients from community who met ACR criteria for FM that had not sought medical care	Childhood physical and/or sexual abuse	.1800	10.6301
Linton (1997).	CP clinic consecutive patients & community respondents (bulk mail)	142 chronic musculoskeletal pain patients (male & female)	267 non-patients suffering from pronounced pain	Childhood physical and/or sexual abuse	.1180	20.2237

Table 4

Community-based studies comparing reports of abuse between individuals reporting pain vs. individuals not reporting pain

Study	Description of Sample	Community-based pain group	Community-based non-pain group	Dependent Variable: Classification	Effect Size (Difference between proportions)	Weight (Sqrt N)
McBeth, MacFarlane, et al. (1999).	Community - based from a general practice register, all had demonstrated psychological distress (GHQ \geq 2)	99 individuals with Tender Points \geq 5	190 individuals with Tender Points < 5	Physical and/or sexual abuse	.0900	17.000
Linton (1997).	Community respondents to bulk mailing soliciting study recruits	267 individuals reporting "pronounced pain"	412 individuals reporting "no pain"	Physical and/or sexual abuse	.1400	26.056

Table 5
Summary of results: quantitative meta-analyses

Study Classification by Group (DV)	Study N	Subject N	Random effects approach Effect Size (SD)	t-test	Random effects approach Fail-safe N	Homogeneity of effect size (chi squared)	Fixed effects approach Average Z	Fixed effects approach Fail-safe N
Abused vs. non-abused (pain symptoms)	9	3040	Cohen's d .3287 (.18)	5.5267 (p=.0006)	63	10.0901 (p=.2588)	6.5689 (p<.0001)	93
CP patients vs. controls (abuse group)	8	1811	p1 – p2 .1892 (.08)	6.8982 (p=.0003)	92	18.0068 (p=.012)	5.9763 (p<.0001)	67
CP patients vs. CP non-patients (abuse group)	2	522	p1 – p2 .1482 (.03)	6.4855 (p=.1702)	not applicable	.1975 (p=.6567)	3.0026 (p=.00268)	3
Community Pain vs. no Pain (abuse group)	2	968	p1 – p2 .1203 (.07)	2.4447 (p=.3244)	not applicable	1.3511 (p=.2451)	3.8913 (p=.0001)	6

Appendix

A. Table References

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