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CHRONIC PAIN SEVERITY IN OPIOID-DEPENDENT PATIENTS

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Abstract

Treatment-seeking opioid dependent patients present frequently with chronic pain (CP). This pilot study examined the feasibility and utility of a single-item rapid screening tool for identifying CP with implications for SUD treatment in a sample of patients presenting for inpatient opioid detoxification (n=110). Most respondents (91.2%) reported pain in the past week. Forty-seven (42.8%) had CP. Individuals with severe CP had significantly greater depressive symptom severity, pain-related functional interference, and were more likely to be on disability than individuals with mild to moderate CP or no CP. The relationships were supported in a multivariate model. The results suggest it is feasible and important to assess for CP severity in SUD treatment settings.

Keywords

chronic pain; opioid dependence; assessment

Patients with opioid use disorders frequently present with chronic pain (CP). These patients are more likely to have higher rates of psychosocial stressors than their non-pain counterparts, which places them at greater risk for difficulties with their substance use disorder^{1,2}. Because pain is common in SUD populations, clinicians would benefit from an efficient and clinically meaningful method to identify those patients whose pain warrants direct attention in their SUD treatment.

In pain clinics, where pain is typically the reason for seeking treatment, assessment of chronic pain includes information regarding pain severity and pain-related functional interference³. Pain-related functional interference is associated disproportionately with increased pain severity, with greater interference most likely when pain severity is moderate or greater. When assessing cancer and chronic pain, categorizing the level of pain as mild (1–4), moderate (5–6), or severe (7–10) on a 10-point numeric rating scale provides a simple, reliable, and valid method for communicating with patients about pain and guiding pain-related treatment decisions^{4–6}.

In contrast, there has been relatively little research regarding the assessment of chronic pain and its severity among patients with co-occurring SUD. In SUD treatment, pain is not generally the primary focus of treatment. Thus, in addition to categorizing pain, clinicians must determine the extent to which pain may be relevant to the SUD. One approach is to determine the extent to which pain is associated with other factors that may affect the likelihood of continued substance use or relapse (e.g. psychosocial stressors)⁷. The purpose of this pilot study was to examine the feasibility and utility of a single-item rapid screening

tool for CP that was intended to establish a threshold at which pain becomes clinically meaningful for SUD treatment.

METHODS

Participants were 110 opioid-dependent adults, age 18 or older, admitted for detoxification to one of three inpatient units in Massachusetts. Participants were excluded if they were unable to provide informed consent due to cognitive impairment, psychiatric instability, or language barrier. After receiving approval from the McLean Hospital Institutional Review Board, the authors obtained written informed consent and administered a brief self-report questionnaire requiring about 10 minutes to complete. The survey obtained information on sociodemographic characteristics (age, sex, occupational status, educational level, and race) and substance use history (current and past opioid analgesic and heroin use, current use of other substances, and substance use treatment history), depressive symptoms, and pain. Depressive symptoms were collected using the self-report Patient Health Questionnaire-9 (PHQ) ⁸, which uses 9 items that evaluate the degree to which respondents are experiencing DSM-IV-TR ⁹ symptom criteria for major depressive disorder. The PHQ provides an indication of depression symptom severity.

Pain was assessed with the Brief Pain Inventory-Short Form (BPI-SF). The BPI-SF is a widely used, well-validated, and reliable instrument to assess pain severity, duration, and pain-related functional interference ¹⁰⁻¹³. Respondents rated their physical pain in the past week on a 10-point scale ranging from “no pain at all” to “pain as bad as you can imagine.” Respondents endorsing any pain reported on how long they had been experiencing this pain. Chronic pain was defined as pain lasting six months or more ¹. Pain-related functional interference was assessed with 7 items assessing the extent to which pain interferes with general activity, mood, walking ability, work, relationships, sleep, and enjoyment of life.

RESULTS

A total of 110 respondents completed the BPI-SF items and were included in the analyses. The sample was primarily male, mean age was 33.0 years (SD=10.8), and 83.% had at least a high school education. Thirty-three percent were employed or in school at least part-time, 39.% were unemployed, and 29.% described themselves as on disability. In the 30 days prior to assessment, participants had used opioid analgesics an average of 22.7 (SD=9.8) days and heroin an average of 16.2 days (SD=12.4). While 27.7% identified opioid analgesics as their primary opioid problem and 31.5% reported heroin use less than five times in the past 30 days, 87.6% of respondents endorsed lifetime heroin use. An opioid analgesic was the first opioid used for over half of the sample (63.8%). The majority of respondents indicated that their first contact with opioid analgesics was for a legitimate medical reason (69.1%).

Most respondents (91.2%) reported at least some pain in the last week, and 47 (42.8%) met our case definition of chronic pain (pain lasting 6 months or more). The mean and median pain severity rating was 7 out of 10. Of those patients with chronic pain, 33 (70.2%) endorsed severe chronic pain (i.e. a score of 7–10), 8 (17.0%) endorsed moderate chronic pain (5–6) and 6 (12.8%) endorsed mild chronic pain (1–4).

We then examined the association between pain severity and pain-related functional interference in the 47 patients with chronic pain. The mean total score for the seven functional interference items was 6.4 (SD=2.0), and the scale’s internal consistency was 0.9. Rates of pain-related functional interference were high across all categories. Sleep interference (M=6.7, SD=3.0) and enjoyment with life (M=6.4, SD=3.1) were rated as most problematic. A Pearson correlation coefficient indicated that pain severity ratings and pain-

related functional interference were significantly associated ($r=0.66$, $p=0.001$). We compared pain-related functional interference scores for the severe ($M=7.2$, $SD=1.6$), moderate ($M=6.0$, $SD=1.2$), and mild ($M=3.1$, $SD=1.9$) chronic pain groups. Bonferroni-corrected tests indicated a significant difference in the mean level of pain-related functional interference for both the moderate pain group ($p=0.006$) and the severe pain group ($p=0.001$) when compared to the mild pain group. There was no significant difference between the moderate and severe groups.

To evaluate the presence of meaningful thresholds for chronic pain severity, we then conducted bivariate analyses examining the association between chronic pain and factors associated with relapse and continued substance use: disability status, depressive symptoms, and pre-treatment opioid use and treatment histories⁷. Pearson chi-square and t-test for independent samples were conducted as appropriate. First, we compared all CP patients ($n=47$) to non-CP patients ($n=63$). The only significant difference found was that patients with chronic pain were unsurprisingly more likely to have had lifetime treatment for chronic pain ($\chi^2=9.9$, $df=1$, $p<0.002$). Thus, the presence of chronic pain alone did not differentiate CP patients from non-pain patients. We then combined the mild pain group with the non-CP group and compared this group to the combined moderate and severe pain groups. Again, no significant differences were observed. We then compared the severe chronic pain group ($n=33$) to the patients with either no CP, mild, and moderate pain ($n=77$). In these analyses, individuals with severe chronic pain had significantly greater ($t=-2.0$, $df=98$, $p<0.05$) depressive symptom severity ($M=19.2$, $SD=6.5$) than individuals with mild to moderate CP or no CP ($M=16.6$, $SD=5.4$), were significantly more likely to be on disability than employed ($\chi^2=12.4$, $df=2$, $p=0.002$), and were significantly more likely to have used heroin less than five days in the past 30 days ($\chi^2=4.2$, $df=1$, $p<0.01$). No differences were observed with regards to use of cocaine, lifetime heroin use, and number of previous detoxifications. Logistic regression was used to examine the relationship between severe CP and the significant bivariate relationships controlling for age and sex. Adjusted odds ratios indicated that both depressive symptom severity [$aOR=1.1$ ($CI\ 1.001-1.204$)] and disability [$aOR=7.2$ ($CI\ 1.80-29.15$)] remained more likely in the severe CP group. Low heroin use was no longer significantly associated with severe chronic pain.

DISCUSSION

Our analyses examined chronic pain severity in individuals with opioid dependence to evaluate whether there is an easily assessed pain threshold that is associated with other clinically meaningful prognostic indicators in patients with SUD. Patients with severe chronic pain (a score of 7 on a 1–10 point scale) had greater depressive symptom severity and a greater probability of occupational disability than those patients with mild to moderate chronic pain or no chronic pain; depressive symptoms and being on disability are both associated with a greater likelihood of relapse to opioid use⁷. In contrast to previous reports^{1, 14–16}, no differences were observed between individuals with and without severe chronic pain with regard to substance use histories.

Our results suggest that in SUD treatment settings, in which pain is common, the presence of severe pain may be a clinically meaningful cutoff point when considering the clinical impact of chronic pain on other aspects of SUD treatment. Rapid screening is not a substitute for comprehensive pain assessment; rather, it provides a signal of the negative impact of pain on social and occupational functioning. The evaluation of pain severity can provide more detail than a simple assessment of whether or not chronic pain is present. There is a paucity of research regarding the relationship between pain management and SUD outcomes. However, our data suggest that the presence of severe chronic pain may indicate a

heightened need for referral to pain management and other adjunctive services to best ensure optimal SUD treatment outcomes.

Similar to research conducted of chronic pain patients in pain clinics, we found that functional impairment increased disproportionately for individuals with moderate or severe pain, thus distinguishing these individuals from those with mild chronic pain. This suggests that a single-item rating of severity provides some indication of pain-related interference.

Interpreting results from this pilot study is limited because of small sample size, multiple comparisons, and the exploratory nature of the analyses. Nevertheless, we are aware of no research examining pain severity ratings for individuals with co-occurring opioid dependence and chronic pain. As such, these preliminary findings extend previous chronic pain research and provide the basis for future research to assess the reliability and validity of the approach and findings described here. While further research is necessary to ensure the appropriateness use of such thresholds for clinical decision making⁶, the availability of such a threshold could aid clinicians during clinical assessment and treatment and clinical researchers conducting epidemiologic and treatment research with individuals with these co-occurring disorders.

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Table 1

Sample Characteristics

(n=110)	% or M(SD)
Age	33.04 (10.77)
Female	26.1
Occupation	
Employed (full or part-time)	32.5
Unemployed	38.6
Disability Education	28.9
Didn't Graduate High School	16.8
Graduated High School	41.6
Any College	41.6
Lifetime Heroin Use	87.6
Primary Problem Opioid Analgesics	27.7
Heroin Use < 5 days in Past 30 Days	31.8
Cocaine Use in the Past 90 Days	75.9
Lifetime Pain Treatment	49.1
Depressive Symptoms Severity	17.4 (5.8)
Any Pain in Past Week	91.2