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Severity and Interference of Chronic Pain in Methadone-Maintained Outpatients

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Abstract

Objectives. Patients with opioid use disorder maintained on methadone report more chronic pain than the general population. The current study characterized chronic pain in patients with opioid use disorder.

Design. A one-time self-report survey.

Setting. The Addiction Treatment Services methadone-maintenance clinic, located on the campus of Johns Hopkins Bayview Medical Center in Baltimore MD.

Subjects. A convenience sample of 227 methadone-maintained patients.

Methods. Participants completed a one-time self-report administration of the brief pain inventory (BPI) and a demographic survey; additional treatment variables were obtained directly from clinic records.

Results. Sixty percent of the sample endorsed chronic pain. Patients with pain were significantly older, had a higher mean methadone dose, and provided more benzodiazepine-positive urine samples. Pain was primarily located in the lower extremities (59%) and back (51%), and mean BPI severity and interference subscale scores were 5.7 and 5.4 out of 10, respectively. Logistic regressions indicated that age ($P < 0.001$) and methadone dose ($P < 0.001$) were significantly associated with having pain and that pain was a significant predictor of benzodiazepine use ($P = 0.01$). Only 13% (N = 18) of patients with pain were receiving pain management, and few were being treated with any nonopioid adjuvant analgesics. Yet patients who did receive treatment reported a mean 51% improvement in their pain, indicating they are not treatment refractory.

Conclusions. Results suggest there is a large discrepancy in the percent of patients who may need treatment for pain and those receiving treatment for pain and that more efforts should be made to provide standard pain management techniques to patients with opioid use disorder to reduce their overall level of pain and potentially improve their overall treatment outcomes.

Key Words. Methadone; Chronic Pain; Opioids

Introduction

As opioid prescribing for the treatment of chronic pain has increased, so has the prevalence of opioid use disorders and opioid-related mortality. In 2011, more than 1 million people sought treatment for opioid use disorder [1], and treatment demands for opioid use disorder related to prescription opioids have increased approximately 717% between 1992 and 2008 [2]. The dramatic increase in prescription opioid users entering substance abuse treatment has left practitioners struggling to meet the needs of this new, emerging demographic of patients.

A significant percentage (27–80%) of patients maintained on methadone for the treatment of opioid use disorder report chronic pain [3–8], and data suggest that chronic pain is more highly prevalent among patients with opioid use disorder than the general population [3,4]. There have been only a few evaluations of pain within this population, and data suggest these patients may face unique challenges regarding the treatment of pain. For example, laboratory examinations have reported that patients maintained on chronic opioids may be more sensitive to pain

than nondependent patients, a phenomenon known as opioid-induced hyperalgesia [9–13]. Pain among patients with opioid use disorder has also been associated with more severe medical and psychiatric problems, continued misuse of opioid and other substances, and poorer retention in substance abuse treatment [3,4,14–16].

Currently, there are no evidence-based treatments for pain in patients with opioid use disorder, and these patients face many challenges in their efforts to procure treatment for their pain, particularly when pharmacotherapies are indicated. For instance, these patients generally do not have health insurance and therefore have limited access to specialists and/or other nonpharmacological options for pain treatment (e.g., acupuncture, cognitive behavioral counseling for pain management, chiropractry). Patients with concurrent opioid use disorder and pain who are seeking pharmacotherapy treatment are frequently denied entry into pain management clinics because they are perceived as "drug seeking" or are discharged from pain management clinics until they can complete substance abuse treatment. Substance abuse treatment providers are not generally trained to deliver pain management treatments and frequently prioritize treatment of the opioid use disorder [17], ultimately leaving the pain condition untreated. Providers may also be reluctant to prescribe additional opioid pain medications to patients with opioid use disorder because the medications can interact with methadone to increase the risk of opioid overdose, can be rendered ineffective by buprenorphine, and can contribute to aberrant drug-taking behaviors and illicit drug use [18,19]. Suggested changes to methadone dosing patterns also confer added risk. For instance, there are no studies to support the notion that reductions in methadone dosing would decrease opioid-induced hyperalgesia, and it is widely understood that dose decreases would increase the risk of relapse to illicit opioid use. Similarly, though the practice of splitting a methadone dose into twice daily doses for pain management has been implemented in some clinics, no studies have been conducted to empirically support this approach. Ultimately, patients with concurrent opioid use disorder and pain do not generally receive any unique pain management beyond their standard opioid maintenance medication, which has been shown to be largely inadequate in treating chronic pain in opioid-dependent patients [3,17,20–22]. However, surveys of drug treatment counselors indicate almost 100% are interested in receiving specialized training to treat comorbid pain and opioid use disorder [5], suggesting that any failure to address pain as part of substance abuse treatment is likely related to a lack of information and not disinterest. Despite this urgent public health problem, we know of only one published randomized treatment of pain in opioid-maintained patients that varied the type of opioid medication provided to patients for their treatment (buprenorphine vs methadone) but did not provide any unique pain management strategies [23].

The current study evaluated the presence of pain and treatment for pain within a large sample of patients being maintained on methadone for the treatment of opioid use disorder. These data enhance the existing literature with the following aims: 1) characterize the pain experienced by a large and diverse group of patients with opioid use disorder treated in a comprehensive substance use disorder treatment program including methadone maintenance; 2) describe the degree and types of pain management therapies received by this growing population of patients with both chronic pain and opioid dependence disorders; and 3) explore the relationships between chronic pain and opioid dependence disorders with respect to aberrant drug-taking behaviors and substance use disorder treatment-related variables. The goals of these data are to provide an informed foundation for the design of future treatment programs for the care of patients with both opioid dependence and chronic pain disorders.

Methods

Study Procedures

A large, representative convenience sample of participants were recruited from the Addiction Treatment Services outpatient treatment program on the campus of the Johns Hopkins Bayview Medical Center in Baltimore, Maryland. Data were collected as part of routine care, and data collection was granted an IRB exemption. Staff members collected data on four different days between December 2006 and January 2007. Patients were approached by staff on those days and asked whether they were willing to complete a brief survey on pain; the only inclusion criterion for participation was being enrolled in the treatment program. The survey was self-administered; however, a staff member was available to answer questions and/or administer the survey (e.g., to address poor reading skills) as needed. After the survey was completed, a staff member briefly reviewed the form, confirmed the location of pain on the diagram (see Measures section), and helped participants complete questions they had unintentionally left blank. The survey took approximately 10–15 minutes to complete, and no compensation or incentives were provided for survey completion.

Participants

A total of 232 patients were approached for participation. Four patients chose not to participate, and one participant did not answer the question "do you have pain today?" Analyses are based on the 227 remaining participants, which represent 98% of the total sample approached for the evaluation (227/232) and 80% of patients in the program (227/284). Participant demographics are presented in Table 1 (N = 227), and no demographic differences were observed between participants who did and did not complete the survey.

Measures

The survey consisted of the brief pain inventory (BPI) and a brief demographic questionnaire. Chronic pain was

Table 1 Participant characteristics

	Total Group (N = 227)	No Pain (N = 90)	Pain (N = 137)	*P* value*
Demographic characteristics				
Age (years)	44.50 ± 0.67	42.20 ± 1.02	46.00 ± 0.87	<0.01
Caucasian (%)	49	56	45	0.07
Male (%)	47	47	47	0.56
Diploma/GED (%)	57	61	54	0.34
Employed (%)	39	43	36	0.16
Married (%)	22	22	22	0.49
Income (past 30 days)				
Employment	553.96 ± 102.99	794.90 ± 244.04	395.67 ± 56.03	0.11
Unemployment	6.09 ± 4.40	15.36 ± 11.06	0.00 ± 0.00	0.17
SSI/Disability	181.65 ± 21.29	133.41 ± 28.04	213.34 ± 29.85	0.052
Treatment characteristics				
Methadone dose (mg)	80.00 ± 1.82	71.00 ± 2.57	85.870 ± 2.36	<0.001
Duration at dose (days)	224.20 ± 25.80	185.50 ± 341.00	249.70 ± 416.10	0.20
Days in treatment	1653.60 ± 143.00	1675.90 ± 240.86	1639.00 ± 2071.80	0.90
Provided ≥1 drug-positive urine (%)	51	50	52	0.67
Mean percent urine samples testing positive				
Opioids	10	11	9	0.56
Cocaine	9	11	7	0.13
Benzodiazepines	5	3	7	0.01

* *P* values based on comparison between pain and no pain groups.
GED = general educational development; SEM = standard error of the mean; SSI = supplemental security income.
Values represent mean ± SEM unless otherwise indicated.

defined as endorsing question 1 of the BPI, which asked, "Have you had pain other than everyday kinds of pain today?" The BPI is a 15-item, self-report questionnaire that separates into two factors [24]. Factor 1 rates severity of pain on a scale of 0 (no pain) to 10 (pain as bad as you can imagine) for four levels of severity (e.g., worst, least, average, and now). Severity values can be evaluated individually (Cronbach's alpha values of 0.80–0.87) or summed to create a severity subscale score [25]. Factor 2 rates interference of pain on a scale of 0 (does not interfere) to 10 (completely interferes) for seven different activities (e.g., general activity, mood, walking ability, normal work, relations with people, sleep, and enjoyment of life). Interference items can also be evaluated individually (Cronbach's alpha values of 0.89–0.92) or summed to create an interference subscale score. Participants also reported the physical location of their pain by placing an "X" on a diagram that depicts the front and back of a body (the specific location of the "X" was confirmed by treatment staff) and indicated whether they were receiving medications for the treatment of pain and the perceived effectiveness of those medications. This section was an open-ended question that enabled participants to write in their pain treatments. The BPI has been validated as a measure of chronic malignant [24] and nonmalignant pain [26] and has been recommended by a consensus panel for inclusion in all chronic pain-based clinical trials [25,27]. Only patients who endorsed experiencing pain in the past 24 hours completed the full BPI.

Participants also completed a 10-question, locally developed survey that collected demographic information such as sex, race, marital status, education, employment, income, and legal status. Treatment variables, including methadone dose level, length of time at dose, duration in the present treatment episode, and urinalysis test results from the previous 90 days were obtained directly from clinic records and included in this analysis. Urine samples were routine samples that were collected for clinical purposes. All samples were tested for evidence of recent opioid, cocaine, and benzodiazepine use. The frequency of urinalysis testing varied across participants as clinically indicated and was dictated by their stability in treatment. All of the benzodiazepines detected in urine specimens were unprescribed illicit use or prescribed use that was approved by one of the program physicians.

Data Analysis

The goal of this study was to characterize pain and predictors of pain to enable the development of subsequent pain treatments. Participants were dichotomized based on presence of pain using the BPI question "Have you had pain other than everyday kinds of pain today (yes/no)?" and were compared on several treatment-level characteristics that were hypothesized *a priori* to be affected by the presence of pain. Urinalysis test results were evaluated in two ways. First, the percent of participants who provided ≥1 urine sample that tested positive for any drug (opioids,

cocaine, or benzodiazepines) was evaluated, and these data were used as a measure of polysubstance abuse. Second, the mean percent of urine samples provided by each participant that tested positive for opioids, cocaine, or benzodiazepines were evaluated. This latter conversion was conducted due to differences in the number of samples collected across study participants in the preceding 90-day period. There were no missing urinalysis samples because the clinic procedures prohibited participants from receiving methadone doses until a urine sample had been provided.

BPI ratings from patients with pain were described individually and as a function of the Severity and Interference subscales, consistent with The Initiative on Methods, Measurement, and Pain Assessment in Clinical Trials (IMMPACT) recommendations for assessing pain in clinical trials [25,27]. Severity and interference subscale scores were derived by averaging the responses of the four severity and seven interference items, respectively. Independent group *t*-tests were used to compare continuous variables, and chi-squares were used to compare dichotomous variables. Binary logistic regression was used to predict factors associated with presence of pain using the definition of pain just described. Independent variables included in the regression model were sex, age, methadone dose, number of days at that dose, and number of days in treatment. A multiple regression was conducted to evaluate whether presence of pain was associated with mean percent opioid, cocaine, and/or benzodiazepine urinalysis results. Linear regressions were used to evaluate whether sex, age, or methadone dose, were associated with severity and interference subscale scores. All results were considered statistically significant if $P \leq 0.05$. Statistical analyses were conducted using SPSS software 19.0 (IBM Corp., Armonk, NY, USA).

Results

Participant Characteristics

Characteristics for the entire sample and the pain/no pain subsamples are presented in Table 1. Briefly, participants were 44.5 years old, 49% Caucasian, and 47% male. Mean duration in methadone treatment was 4.5 years, and mean methadone dose was 80 mg (range 0–160 mg). Sixty percent (N = 137) of the total sample endorsed pain on the BPI.

Patients experiencing chronic pain were significantly older (46 vs 42, respectively, $t[225] = -2.82$, $P < 0.001$), had a higher mean methadone dose (86 mg vs 71 mg, respectively, $t[225] = 4.28$, $P < 0.001$), and provided a higher rate of benzodiazepine-positive urine samples in the past 90 days (7% vs 3%, $t[225] = -2.57$, $P = 0.01$). There were also a nonsignificant trend toward patients who were experiencing chronic pain reporting that more of their monthly income came from supplemental security income (SSI)/disability ($213 vs $133, $t[225] = -1.95$, $P = 0.052$). Yet despite previous evidence that SSI earnings are positively associated with education [28], a bivariate correlation revealed no significant association between education and SSI earnings in this sample ($r = -0.025$, $P = 0.70$).

Characteristics of Pain

Pain was primarily localized in the lower extremities (59%); back (51%); head, neck, or shoulders (21%); chest, abdomen, or hips (12%); and upper extremities (10%). Thirty-six percent of patients reported pain in more than one location. Ratings of pain severity and interference are presented in Table 2. Only 13% (N = 18) of participants with pain reported receiving pain treatment. Compared with patients who were not receiving treatment for pain, patients receiving treatment were significantly more likely to be women (50% vs 78%; χ^2 [1,137] = 0.25, $P = 0.04$), report less mean income from employment ($443.64 vs $103.11; $t[134] = 3.66$, $P = 0.001$), and have a lower mean rate of benzodiazepine-positive urinalysis samples (8% vs 2%; $t[135] = 2.45$, $P = 0.017$), respectively. Compared with patients not receiving treatment, patients receiving treatment were also more likely to endorse back pain (28% vs 54%, respectively, χ^2 [1,137] = 0.04, $P < 0.05$). Patients who were and were not receiving treatment did not differ significantly on any additional demographic, drug treatment, or BPI-related variables. Among patients receiving treatment for pain, the treatments consisted primarily of medications (89% of patients receiving treatment) such as short-acting opioids (N = 9; 50% of patients receiving treatment) or nonopioid medications (N = 6; 33% of patients receiving treatment) like ibuprofen (N = 5; 28% of patients receiving treatment) and/or gabapentin (N = 2; 11% of patients receiving treatment), though 50% (N = 9) of patients receiving treatment also endorsed nonmedication treatments (e.g., physical therapy) (N = 5, 28%), wound care (N = 1, 6%), hypobaric

Table 2 Mean ratings of pain in the past 24 hours (N = 137)

Severity	
Worst pain	7.2 ± 0.17
Least pain	4.6 ± 0.12
Average pain	5.8 ± 0.17
Pain right now	5.1 ± 0.22
Severity subscale	5.7 ± 0.16
Interference	
General activity	5.7 ± 0.24
Mood	5.2 ± 0.24
Walking ability	5.4 ± 0.27
Normal work	5.6 ± 0.25
Relations with other people	4.1 ± 0.28
Sleep	6.0 ± 0.27
Enjoyment of life	5.6 ± 0.26
Interference subscale	5.4 ± 0.21

Scales rated on 0–10 Likert scale.
SEM = standard error of the mean.
Values represent mean ± SEM.

clinic (N = 1, 6%), vascular care (N = 1, 6%), or unknown (N = 1, 6%). When participants were asked to rate the percent relief that treatments provided from pain on a scale of 0% (no relief) to 100% (complete relief), the mean percent relief from pain was 51% (range 0%–90%). Of note, no participants with chronic pain reported treatment with currently accepted medications for neuropathic pain such as antidepressants (tricyclics, serotonin-norepinephrine reuptake inhibitors), and only two patients (1% of all patients reporting pain) reported treatment with an anticonvulsant.

Predictors of Pain and Urinalysis Outcomes

The logistic regression model was significant (Wald score χ^2 [1, N = 227] = 9.59, $P = 0.002$) and showed that age (odds ratio [OR] = 1.02, 95% confidence interval [CI] = 1.03–1.10, $P < 0.001$) and methadone dose (OR = 1.03, 95% CI = 1.01–1.04, $P < 0.001$) were significant predictors of pain; however, sex ($P = 0.13$), number of days at dose ($P = 0.57$), and number of days in treatment ($P = 0.30$) were not. A multiple regression revealed a significant association between pain and mean percent benzodiazepine-positive urine samples provided (F[1, 224] = 6.4, $P = 0.01$), though no association between pain and the rate of opioid ($P = 0.58$) or cocaine ($P = 0.12$)-positive samples was detected. No significant association between sex, age, or methadone dose was detected on the severity and interference subscales (group means shown in Table 2).

Discussion

These results indicate that a substantial proportion of patients maintained on methadone for the treatment of opioid use disorder reported clinically significant and persistent pain, which is consistent with a small number of other surveys that report approximately 27–80% of patients in this population report chronic pain [3,4,6–8,29]. In the current study, the majority of pain was located in the lower extremities and back, which is consistent with both surveys from this population [3,4,29] and in surveys from chronic pain patients not being treated for opioid use disorder [30]. Additional findings from this study that were also highly consistent with previous research include the associations between pain and higher doses of methadone [3,6,8], older age [4], and presence of benzodiazepine-positive urine samples [8,16]. Overall, these results suggest there is a large discrepancy in the percent of patients who may need treatment for pain and those who are actually receiving treatment for pain.

These findings indicate that a large subset of methadone-maintained patients were experiencing high levels of pain that was severe enough to interfere with their daily activities. Average pain and worst pain in the past 24 hours in this sample was 5.8 and 7.2 out of 10, respectively (Table 2). These values are remarkably high considering that patients were maintained on methadone, a potent mu opioid agonist that is often prescribed to alleviate pain; that they were receiving routine substance abuse counseling, which focused on a wide range of substance-related psychosocial and medical problems; and that they were encouraged to discuss pain and the need for referrals for additional evaluation and care with their methadone treatment counselor. Mean interference of pain with activities was also greater than 5 out of 10 for all but one activity (relations with other people), which is consistent with a previous study wherein 40% of methadone maintenance patients rated their pain interference as five or higher [4]. Overall, these data suggest that pain was not being adequately evaluated or treated in the majority of this sample. These findings are remarkable considering the fact that the same findings were reported 10 years ago [4], and they illustrate what little progress has been made in the past 10 years regarding the concurrent treatment of pain and opioid use disorders.

The substantial lack of empirically supported pain treatments, guidelines, and/or recommendations regarding the treatment of concurrent pain and opioid use disorder likely contributes to these outcomes. For instance, though there are recommendations for the management of acute pain in opioid-maintained patients [31] and for the management of chronic pain in patients with general substance use disorder [32], we do not know of any recommendations for the management of chronic pain in patients with opioid use disorder receiving outpatient methadone treatment. The methadone treatment community has also not embraced the few recommendations that do exist. For example, physician surveys indicate reluctance to prescribe opioids to patients with any history of substance abuse, independent of recommendations, out of concern it may lead to diversion or abuse, or increase the risk for opioid overdose [18,19]. Evidence also suggests patients with opioid use disorder are being systematically undertreated for pain. For example, one study evaluating the management of acute pain in a hospital setting reported no significant difference in the morphine equivalent of opioid analgesics provided to methadone- and nonmethadone-maintained patients despite obvious differences in opioid tolerance between the groups [22], and a second study reported that methadone patients with chronic pain believed their methadone dose was effective in managing their opioid dependence but was too low to adequately manage their pain [3]. Patients have also reported frustration with their substance abuse treatment providers, which they often view as having little to no interest and/or concern in treating their pain [21]. These studies reflect the general lack of understanding of how to manage pain in an opioid-maintained population and emphasize the need for more empirical research regarding effective treatment strategies in this population. They also emphasize the need to make sure providers are educated about what strategies may be available for treating pain in patients maintained on chronic opioids so that providers will feel comfortable in administering medications and/or providing other treatments to these patients as clinically indicated.

Compared with patients who did not report receiving pain treatment, patients receiving pain treatment were

significantly more likely to be women, to make less money from employment, and to provide fewer benzodiazepine-positive urine samples. These results should be interpreted cautiously as the group sizes were very discrepant; however, these data provide an initial assessment into whether there are systematic differences in which patients with opioid use disorder do have access to pain treatment. This area deserves more focused research to more thoroughly understand these results. The few patients (N = 18) in this study that were receiving concurrent pain management outside the clinic reported that it substantially reduced their pain (mean 51% reduction in pain). This value represents a substantial improvement in pain according to the consensus statement issued by the IMMPACT [33] and indicates that patients with opioid use disorder are not treatment refractory. It also indicates that conventional pain management strategies can be effective in this population. Yet we know of only one randomized controlled evaluation of pain management in patients with opioid use disorder and chronic pain. That study assigned patients to receive methadone tablets or buprenorphine/naloxone for a 6-month period, and both groups reported reductions in pain over time, though the reported effect was small (less than 13% pain reduction) and retention rates were poor overall (46.4% vs 50% in the methadone vs buprenorphine/naloxone groups, respectively [23]). Two additional nonrandomized studies that administered methadone for the treatment of comorbid opioid dependence disorder and pain have reported successful outcomes [34,35]. Overall, additional controlled research that includes more conventional pain management strategies is strongly indicated. One comprehensive strategy would be a combined, stepped care approach that has been shown to successfully reduce problems with opioid use disorder in these patients [36].

In this sample and others [8,16], patients who reported chronic pain were more likely to have provided a benzodiazepine-positive sample in the 90 days preceding the survey. Differences in benzodiazepine use do not appear to represent general differences in rate of polysubstance abuse as the pain and no pain groups did not differ significantly on the percent of participants who provided ≥1 urine sample that tested positive for opioids, cocaine, or benzodiazepines during the 90-day screening period (Table 1). Rather, these data may indicate a strong preference for benzodiazepines among methadone-maintained patients who are experiencing pain. This preference may result from the sedating properties of that class of drugs, though the specific reasons this might be appealing are unknown and remain an empirical question. However, the fact that benzodiazepine use has repeatedly emerged as being associated with pain among methadone-maintained patients is intriguing, particularly as very few studies have even been conducted, and these results provide further support for additional controlled research into this area.

It is possible that the subjective assessment of pain may have been influenced by comorbid problems that were not assessed as part of this limited study. For instance, limited data regarding the severity of each participant's substance use disorder were collected. Uncontrolled and/or poorly managed substance abuse may magnify pain and/or impair access to pain treatments. There is also evidence that certain psychiatric disorders, such as post-traumatic stress disorder, depression, and anxiety, can influence self-report ratings of pain severity and interference [37]. These disorders are overrepresented in opioid-dependent populations [38] and therefore may have impacted these self-report ratings. Finally, no information was collected regarding whether the onset of pain occurred before or after the development of opioid use disorder or about the patients' histories of pain treatment. The goal of this study was to evaluate the prevalence and characteristics of chronic pain using a brief and well-validated questionnaire; therefore, these questions cannot be addressed with the data collected here. It will be important for future evaluations of pain in opioid-maintained patients with opioid use disorder treated with methadone to more comprehensively evaluate the impact of these comorbid conditions and issues.

This study has some important limitations. First, this study was meant to be a brief characterization of pain and pain-related impairment in a clinical sample of patients receiving methadone for opioid use disorder. As a result, additional factors that may be related to and/or affected by pain (such as depression, catastrophizing, and current medical illness) were not assessed. Second, there was a lack of specific detail regarding current and history of pain treatment and no data regarding patient definitions of what constitutes pain treatment were collected. It is therefore possible that some patients were receiving treatments (such as antidepressant therapy, cognitive behavioral counseling, biofeedback) that may have been intended as a treatment for pain but was not identified as such by the participant. The degree to which participants only identify medications as pain treatments is not known and has not yet been evaluated in a population being treated for opioid use disorder. Third, it is not possible from these data to determine the reason why benzodiazepines were being more frequently abused in the pain group. It is also not possible from these data to differentiate between illicit and prescribed benzodiazepine use. As this variable has been previously associated with pain in opioid-dependent patients, it will be important for future studies to more thoroughly explore this association and determine whether benzodiazepine use results from prescriptions for comorbid disorders or from illicit use, which would represent very different contributions to pain. Fourth, this report is based on a convenience sample of methadone-maintained patients, and we do not know how the data will generalize to a buprenorphine-maintained population who may be qualitatively different from methadone-maintained patients [39–41]. Finally, participants in this study may not have been able to differentiate between withdrawal and chronic pain, which could result in an overestimate of the prevalence of chronic pain in this sample. The sample, however, was maintained on widely recommended daily doses of methadone for opioid

dependence disorder, and it is unlikely that they were experiencing significant symptoms of opioid withdrawal.

In summary, these results make several contributions to the literature. Most importantly, they validate, reinforce, and expand a limited body of prior work that indicates a significant percentage of patients with opioid use disorder also suffers from chronic pain. In addition, the severity of pain and pain-related disability reached moderate to severe levels, and yet patients reported little to no access or participation in specialized pain management. These problems and the relatively large number of people affected by them require more clinical attention and research. One possible approach could be integrating chronic pain evaluation and treatment options in substance abuse treatment settings that use opioids or other opioid agonist medications. Alternatively, doing a better job evaluating chronic pain in patients in methadone maintenance programs and referring them to pain specialists in the community would itself be an improvement on routine care practices. Although these patients have historically had limited access to the health insurance necessary to attend specialist treatment programs, the recent onset of the Affordable Care Act will likely make these options more widely available to this patient population and may represent a major advancement in the treatment of comorbid pain and opioid use disorder. Chronic pain treatment programs might also be more willing to help patients manage their pain when it is clear they are concurrently participating in substance abuse treatment. It should be noted that patients in this sample who reported chronic pain were typically stable and negative for other opioid use, and these data support a more optimistic prognosis for patients with opioid dependence disorder and chronic pain than is usually the case. Finally, these data should illustrate to health care professionals in both substance use treatment and pain management programs that patients with both disorders are not necessarily intractable hopeless cases and that they deserve the same level of attention and clinical care as chronic pain patients in the general population.

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