



Published in final edited form as:

Drug Alcohol Depend. 2013 February 1; 128(1-2): 161–165. doi:10.1016/j.drugalcdep.2012.08.003.

Epidemiology of Pain among Outpatients in Methadone Maintenance Treatment Programs*

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Abstract

BACKGROUND—This analysis explored the prevalence and correlates of pain in patients enrolled in methadone maintenance treatment (MMT).

*Supplementary material can be found by accessing the online version of this paper at <http://dx.doi.org> and by entering doi:...

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Contributors All authors have participated sufficiently in the work to take responsibility for authorship and publication. Lara Dhingra, Russell Portenoy, Carmen Masson, David Perlman, and Randy Seewald made substantial contributions to the design, data collection, analysis, and writing of the manuscript. Courtney McKnight, Ashly Jordan, and Chris Young made substantial contributions to the data collection and preparation and literature review. Peter Homel, Emily Wald, and Judith Katz made substantial contributions to the data analysis. All authors contributed to interpreting the results and have approved the final manuscript.

Conflict of Interest No conflict declared.

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METHODS—Patients in two MMT programs starting a hepatitis care coordination randomized controlled trial completed the Brief Pain Inventory Short-Form and other questionnaires. Associations between clinically significant pain (average daily pain ≥ 5 or mean pain interference ≥ 5 during the past week) and sociodemographic data, medical status, depressive symptoms, and health-related quality of life, and current substance use were evaluated in multivariate analyses.

RESULTS—The 489 patients included 31.8% women; 30.3% Hispanics, 29.4% non-Hispanic blacks, and 36.0% non-Hispanic whites; 60.1% had hepatitis C, 10.6% had HIV, and 46.8% had moderate or severe depressive symptomatology. Mean methadone dose was 95.7 mg (SD 48.9) and urine drug screening (UDS) was positive for opiates, cocaine, and amphetamines in 32.9%, 40.1%, and 2.9%, respectively. Overall, 237 (48.5%) reported clinically significant pain. Pain treatments included prescribed opioids (38.8%) and non-opioids (48.9%), and self-management approaches (60.8%), including prayer (33.8%), vitamins (29.5%), and distraction (12.7%). Pain was associated with higher methadone dose, more medical comorbidities, prescribed opioid therapy, and more severe depressive symptomatology; it was not associated with UDS or self-reported substance use.

CONCLUSIONS—Clinically significant pain was reported by almost half of the patients in MMT programs and was associated with medical and psychological comorbidity. Pain was often treated with opioids and was not associated with measures of drug use. Studies are needed to further clarify these associations and determine their importance for pain treatment strategies.

Keywords

pain; epidemiology; methadone maintenance; addiction; pain management

1. INTRODUCTION

Pain is highly prevalent in populations with substance use disorders (SUDs; Larson et al., 2007; Passik et al., 2006; Potter et al., 2008; Rosenblum et al., 2003; Caldeiro et al., 2008; Sheu et al., 2008) and has been reported in 37-61% of patients receiving methadone maintenance treatment (MMT; Barry et al., 2009a; Jamison et al., 2000; Peles et al., 2005; Rosenblum et al., 2003, 2007). Poorly controlled pain is associated with distress and disability (Portenoy et al., 2004), and some (Brennan et al., 2005; Larson et al., 2007; Peles et al., 2005; Potter et al., 2008; Rosenblum et al., 2003; Sheu et al., 2008), but not all (Barry et al., 2009a, 2009c) studies suggest that pain is associated with poorer addiction-related outcomes. More information about pain in MMT populations is needed to guide pain management strategies while preserving positive substance abuse outcomes.

A hepatitis care coordination trial provided an opportunity for a secondary analysis of pain-related data from two MMT programs. The aims were to identify the prevalence and correlates of pain. The Institutional Review Boards at Beth Israel Medical Center and the University of California in San Francisco approved the analysis.

2. METHODS

2.1. Patient Selection and Procedures

Outpatients participating in two MMT programs in a hepatitis prevention trial provided the data. These programs, in New York and San Francisco, serve 8,000 and 400 patients, respectively. The trial used a random number table to select patients from methadone dosing lines for eligibility screening between February 2008 and June 2011. Eligibility criteria included age ≥ 18 years and no prior medical care for hepatitis C virus (HCV). Patients were excluded if they were enrolled in another study, unlikely to be available for 12 months, or

had uncontrolled psychosis. Consenting patients completed a questionnaire; those with 1 affirmative responses to screening questions for pain (“pain other than...everyday kinds of pain during the last week,” the use of “pain medications in the last 7 days,” and the experience of “some form of pain now that requires medication each and every day”) also completed the Brief Pain Inventory-Short Form (BPI-SF; Daut et al., 1983).

2.2. Measures

The BPI-SF measures pain intensity and pain interference in function during the past week (Cleeland, 2009; Daut et al., 1983; Keller et al., 2004; Mendoza et al., 2006). Intensity is measured on a 0-10 numeric scale for pain “right now”, “at its worst”, “on average”, and “at its least”, and interference is measured on a 0-10 numeric scale across 7 functional domains. The latter items are averaged to create a pain interference subscale (Cleeland, 2009). Traditional and complementary and alternative medicine pain treatments were assessed (National Center for Complementary and Alternative Medicine, 2010).

Sociodemographics, medical and psychosocial status, and SUD outcomes were evaluated (Caldeiro et al., 2008; Novak et al., 2009; Peles et al., 2005; Rosenblum et al., 2003; Tsui et al., 2011). Self-reported comorbid conditions were summed to create a medical status variable. Current substance use was assessed by urine drug screening (UDS) and by self-report using the drug use subscale (Zanis et al., 1994) of the Fifth Edition of the Addiction Severity Index (ASI) (McLellan et al., 1992). The Beck Depression Inventory–II (BDI-II) (Beck et al., 1996) measured depressive symptoms and the Medical Outcomes Survey-Short Form (MOS-SF-12) (Ware et al., 1996) assessed health status.

2.3. Statistical Analyses

“Clinically significant pain” was defined by an average pain intensity during the past week of > 5 or an average pain interference score during the past week of ≥ 5 . Patients with pain who did not meet these criteria were considered to have “non-clinically significant pain.” Patients who screened negatively for pain or indicated on the BPI-SF that they had “0” pain “on average” during the past week were considered to have “no pain.” The “no pain” and “non-clinically significant pain” groups had no significant differences and were combined for subsequent analyses.

“Current substance use” was defined as a positive UDS result for opiates if the patient did not report using a prescribed opioid for pain, a positive UDS result for cocaine or amphetamines, or self-reported use of heroin, cocaine or amphetamines on any of the past 30 days. The MOS-SF-12 mental and physical summary scores were recalculated to eliminate the single “bodily pain” item; residualized t-scores were used in the analyses.

Associations among categorical variables and continuous outcomes were determined using Chi-square tests, Student’s t-tests, one-way analysis of variance or Pearson product-moment correlation coefficients. Skewness was corrected using log transformation. Factors significant in univariate analyses were included in a multivariate logistic regression model, with fixed entry of all factors to determine which independently predicted pain. Statistical significance was defined as $p < 0.05$. All analyses were performed using SPSS (Version 18.0, SPSS, Inc., Chicago, IL) and SAS software (Version 9.1, SAS Inc., Cary, NC).

3. RESULTS

3.1. General Characteristics

The mean age of the 489 patients was 45.1 years (SD 10.0) and 31.8% were women; 36.0% were Non-Hispanic white; 60.1% and 10.6% had HCV and HIV infection, respectively, and

52.3% had 1 other comorbidities. Mean methadone dose was 95.7 mg/day (SD, 48.9; range, 4–430).¹

3.2. Significant Pain Characteristics

Overall, 237 patients (48.5%) had clinically significant pain (95% CI = 44%–53%), 76 (15.5%) had non-clinically significant pain, and 176 (36.0%) had no pain. Of those with clinically significant pain, mean average pain was 5.9 (SD, 1.9; range, 0–10) and mean worst pain was 7.9 (SD, 1.8; range, 1–10); 46.7% had worst pain ≥ 7 , a value consistent with severe pain (Serlin et al., 1995; Table 1).

3.3. Psychological and Substance Use Disorder Characteristics

UDS was positive in 285 patients (58.3%), including opiates (32.9%), cocaine (40.1%) and amphetamines (2.9%). Of those patients positive for opiates, 10.2% reported using prescribed opioids for pain. Self-reported drug abuse paralleled the UDS results. Approximately half (46.8%) had moderate or severe depressive symptomatology on the BDI-II, and the mental (38.9, SD, 13.2) and physical components summary scores (46.6, SD, 8.8) were lower than the mean of 50 in the general population (Ware et al., 1996).²

3.4. Associations with Pain

In univariate analyses, neither UDS nor self-reported drug use on the ASI was statistically associated with clinically significant pain. A sensitivity analysis evaluating different intensities of substance use in the past 30 days confirmed this. Clinically significant pain was associated with age ($p = 0.011$), being married ($p = 0.009$), current use of prescribed opioid therapy for pain ($p < 0.001$), higher methadone dose ($p = 0.003$), higher number of comorbid medical conditions ($p < 0.001$), more severe depressive symptoms ($p < 0.001$), and poorer physical HRQL ($p < 0.001$) (Table 2).

Variables associated with clinically significant pain were entered simultaneously into a multivariate logistic regression model. The mental components score on the MOS-SF-12 was added given perceived clinical relevance. Using a dependent variable of presence or absence of clinically significant pain, the model was significant (Wald score χ^2 (8, N = 480) = 85.55, $p < 0.0001$) and four variables remained independently associated with pain: current use of prescribed opioid therapy for pain, higher methadone dose, higher level of comorbid medical conditions, and more severe depressive symptoms. Based on pseudo-R squared estimates of the coefficient of determination, the model explained 24% (Cox and Snell) to 32% (Nagelkerke) of the variance in clinically significant pain and correctly classified 78% of cases. The strongest predictor of clinically significant pain was current use of prescribed opioid therapy (odds ratio [OR] = 7.74) followed by depressive symptoms (OR = 2.25; Table 2).

4. DISCUSSION

The prevalence of clinically significant pain (48.5%) in this study was higher than two earlier surveys (both 37%; Rosenblum et al., 2003; Barry et al., 2009a), differences that may reflect varying case definitions, measurements, or sample characteristics. Pain prevalence in this study was lower than Jamison et al. (2000; 61.3%) who did not identify clinically significant pain but reported average pain ratings (5.9, SD 1.9) comparable to ours (5.6, SD 1.7). Fewer patients in our study reported worst pain ratings ≥ 5 (28.8%) than Rosenblum et al. (2003; 60%) which may also be related to sample or treatment differences. For example,

¹A Supplementary Table with detailed characteristics can be found by accessing the online version of this paper at <http://dx.doi.org>.

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more patients in our study used prescribed medicines (Rosenblum et al., 2003) and fewer used non-pharmacologic strategies (Barry et al., 2009b).

Like other SUD populations (Conner et al., 2009; Johnson et al., 2006; Larson et al., 2007; Passik et al., 2006; Peles et al., 2007; Potter et al., 2008), about half had medical comorbidities or depressive symptoms, which may complicate pain treatment (Braden et al., 2009; Morasco et al., 2011; Pud et al., 2006). Contrary to research showing a significant association between HCV and pain (Tsui et al., 2011), we found neither HCV nor HIV was associated with pain.

In multivariate analysis, clinically significant pain correlated with prescribed opioid therapy for pain, higher methadone dose, more comorbid medical conditions, and more severe depressive symptoms. Prior studies confirm these findings that pain is associated with chronic illness and higher methadone dose (Peles et al., 2005) and with prescribed opioid therapy, chronic illness, and greater distress (Rosenblum et al., 2003). Other studies confirm associations between pain and medical comorbidity (Butchart et al., 2009; Dominick et al., 2012; Sheu et al., 2008; Strine and Hootman, 2007) or depressive symptoms (Barry et al., 2009a; Dominick et al., 2012; Rosenblum et al., 2003; Strine and Hootman, 2007; Trafton et al., 2004). This study did not confirm previously identified associations between pain and age (Rosenblum et al., 2003) or impaired mental HRQL (Butchart et al., 2009; Portenoy et al., 2004; Trafton et al., 2004).

The association between higher methadone dose and pain was a novel finding. It may suggest that patients with more severe addictive disorders have more severe pain, or that MMT clinicians may be intending to co-manage pain using once-daily methadone. The latter strategy is not effective for pain, and if true, would indicate a need for pain-related education for MMT professionals. Further study in MMT practices is needed to clarify this.

Findings confirm that prescribed opioids are provided to a subpopulation of MMT patients with pain (Whitehead et al., 2008), notwithstanding the reluctance of clinicians to undertake this approach in the context of SUD (Dobscha et al., 2008; Upshur et al., 2006). Caution is reasonable given concerns about abuse and addiction relapse. In the absence of clinical trials data clarifying the actual risk or benefit from opioids or other pain therapies in patients with SUDs (Morasco et al., 2011), treatment decisions must rely on limited evidence, consultation with pain specialists when available, and clinical judgment based on careful risk assessment.

The challenge of pain-related decision-making in MMT populations is compounded by the conflicting literature relating pain and addiction. While prior surveys demonstrate a link between pain and drug abuse behaviors (Larson et al., 2007; Brennan et al., 2005; Caldeiro et al., 2008; Potter et al., 2008; Peles et al., 2005; Rosenblum et al., 2003; Sheu et al., 2008), the present study, like another (Barry et al., 2009a), did not find a significant association. Trafton et al. (2004) found that only marijuana use, but not heroin use, was associated with pain. This confusing literature allows no conclusions about the extent to which effective pain treatment, perhaps using a prescribed opioid, may reduce the risk of abuse and relapse. This is an important issue for future research.

The current study has important limitations. It is a secondary analysis that evaluated cross-sectional data relevant to different time frames (e.g., substance use during the past 30 days and pain during the past week) and important characteristics about pain such as duration, and medical and non-medical use of prescription opioids were unavailable. These issues, and the relatively high rates of pain and substance use may have contributed to the non-significant association between pain and substance abuse. We did not assess substance use

to self-medicate pain. Future surveys focusing on these gaps will contribute to a slowly emerging understanding of the complex relationship between chronic pain and SUDs.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgments

We wish to thank Jack Chen and Jae Shin for their assistance with preparation of the data, literature reviews, and references, MMT staff at both programs, and the patients who participated in the study. We would also like to thank Lara Coffin who assisted with developing the complementary and alternative therapies data collection instrument and Nicole Pepper, Arielle Morganstern, Adrienne Wenthe, Jessica Hall, and Nicholas Hengl who assisted with data collection at the University of California, San Francisco at San Francisco General Hospital.

Role of Funding Source This research was supported by NIDA, R01DA020781, R01DA020841, P30DA011041, P50DA009253, and U10DA015815 (Perleman, Masson).

REFERENCES

- Barry DT, Beitel M, Garnet B, Joshi D, Rosenblum A, Schottenfeld RS. Relations among psychopathology, substance use, and physical pain experiences in methadone-maintained patients. *J. Clin. Psychiatry.* 2009a; 70:1213–1218. [PubMed: 19607760]
- Barry DT, Beitel M, Cutter CJ, Garnet B, Joshi D, Schottenfeld RS, Rounsaville BJ. Allopathic, complementary, and alternative medical treatment utilization for pain among methadone-maintained patients. *Am. J. Addict.* 2009b; 18:379–385. [PubMed: 19874157]
- Barry DT, Beitel M, Joshi D, Schottenfeld RS. Pain and substance-related pain-reduction behaviors among opioid dependent individuals seeking methadone maintenance treatment. *Am. J. Addict.* 2009c; 18:117–121. [PubMed: 19283562]
- Beck, AT.; Steer, RA.; Brown, G. Manual for the Beck Depression Inventory-II. Psychological Corporation; San Antonio, TX: 1996.
- Braden JB, Sullivan MD, Ray GT, Saunders K, Merrill J, Silverberg MJ, Rutter CM, Weisner C, Banta-Green C, Campbell C, Von Korff M. Trends in long-term opioid therapy for noncancer pain among persons with a history of depression. *Gen. Hosp. Psychiatry.* 2009; 31:564–570. [PubMed: 19892215]
- Brennan PL, Schutte KK, Moos RH. Pain and use of alcohol to manage pain: prevalence and 3-year outcomes among older problem and non-problem drinkers. *Addiction.* 2005; 100:777–786. [PubMed: 15918808]
- Butchart A, Kerr EA, Heisler M, Piette JD, Krein SL. Experience and management of chronic pain among patients with other complex chronic conditions. *Clin. J. Pain.* 2009; 25:293–298. [PubMed: 19590477]
- Caldeiro RM, Malte CA, Calsyn DA, Baer JS, Nichol P, Kivlahan DR, Saxon AJ. The association of persistent pain with out-patient addiction treatment outcomes and service utilization. *Addiction.* 2008; 103:1996–2005. [PubMed: 18855809]
- Cleeland, CS. The Brief Pain Inventory: User Guide. M. D. Anderson Cancer Center; Houston, Texas: 2009.
- Conner KR, Pinquart M, Gamble SA. Meta-analysis of depression and substance use among individuals with alcohol use disorders. *J. Subst. Abuse Treat.* 2009; 37:127–137. [PubMed: 19150207]
- Daut RL, Cleeland CS, Flanery RC. Development of the Wisconsin Brief Pain Questionnaire to assess pain in cancer and other diseases. *Pain.* 1983; 17:197–210. [PubMed: 6646795]
- Dobscha SK, Corson K, Flores JA, Tansill EC, Gerrity MS. Veterans affairs primary care clinicians' attitudes toward chronic pain and correlates of opioid prescribing rates. *Pain Med.* 2008; 9:564–571. [PubMed: 18777608]

- Dominick CH, Blyth FM, Nicholas MK. Unpacking the burden: understanding the relationships between chronic pain and comorbidity in the general population. *Pain*. 2012; 153:293–304.
- Jamison RN, Kauffman J, Katz NP. Characteristics of methadone maintenance patients with chronic pain. *J. Pain Symptom Manage*. 2000; 19:53–62. [PubMed: 10687327]
- Johnson ME, Neal DB, Brems C, Fisher DG. Depression as measured by the Beck Depression Inventory-II among injecting drug users. *Assessment*. 2006; 13:168–177. [PubMed: 16672731]
- Keller S, Bann CM, Dodd SL, Schein J, Mendoza TR, Cleeland CS. Validity of the brief pain inventory for use in documenting the outcomes of patients with noncancer pain. *Clin. J. Pain*. 2004; 20:309–318. [PubMed: 15322437]
- Larson MJ, Paasche-Orlow M, Cheng DM, Lloyd-Travaglini C, Saitz R, Samet JH. Persistent pain is associated with substance use after detoxification: a prospective cohort analysis. *Addiction*. 2007; 102:752–760. [PubMed: 17506152]
- McLellan AT, Kushner H, Metzger D, Peters R, Smith I, Grissom G, Pettinati H, Argeriou M. The fifth edition of the Addiction Severity Index. *J. Subst. Abuse Treat*. 1992; 9:199–213. [PubMed: 1334156]
- Mendoza T, Mayne T, Rublee D, Cleeland C. Reliability and validity of a modified Brief Pain Inventory short form in patients with osteoarthritis. *Eur. J. Pain*. 2006; 10:353–361. [PubMed: 16051509]
- Morasco BJ, Gritzner S, Lewis L, Oldham R, Turk DC, Dobscha SK. Systematic review of prevalence, correlates, and treatment outcomes for chronic non-cancer pain in patients with comorbid substance use disorder. *Pain*. 2011; 152:488–497. [PubMed: 21185119]
- National Center for Complementary and Alternative Medicine. [Accessed July 18, 2012] What is complementary and alternative medicine (CAM)? : National Center for Complementary and Alternative Medicine. 2010. Available at: <http://nccam.nih.gov/health/whatiscam>
- Novak SP, Herman-Stahl M, Flannery B, Zimmerman M. Physical pain, common psychiatric and substance use disorders, and the non-medical use of prescription analgesics in the United States. *Drug Alcohol Depend*. 2009; 100:63–70. [PubMed: 19010611]
- Passik SD, Hays L, Eisner N, Kirsh KL. Psychiatric and pain characteristics of prescription drug abusers entering drug rehabilitation. *J. Pain Palliat. Care Pharmacother*. 2006; 20:5–13. [PubMed: 16702131]
- Peles E, Schreiber S, Gordon J, Adelson M. Significantly higher methadone dose for methadone maintenance treatment (MMT) patients with chronic pain. *Pain*. 2005; 113:340–346. [PubMed: 15661442]
- Peles E, Schreiber S, Naumovsky Y, Adelson M. Depression in methadone maintenance treatment patients: rate and risk factors. *J. Affect. Disord*. 2007; 99:213–220. [PubMed: 17055063]
- Portenoy RK, Ugarte C, Fuller I, Haas G. Population-based survey of pain in the United States: differences among white, African American, and Hispanic subjects. *J. Pain*. 2004; 5:317–328. [PubMed: 15336636]
- Potter JS, Prather K, Weiss RD. Physical pain and associated clinical characteristics in treatment-seeking patients in four substance use disorder treatment modalities. *Am. J. Addict*. 2008; 17:121–125. [PubMed: 18393055]
- Potter JS, Shiffman SJ, Weiss RD. Chronic pain severity in opioid-dependent patients. *Am. J. Drug Alcohol Abuse*. 2008; 34:101–107. [PubMed: 18161648]
- Pud D, Cohen D, Lawental E, Eisenberg E. Opioids and abnormal pain perception: new evidence from a study of chronic opioid addicts and healthy subjects. *Drug Alcohol Depend*. 2006; 82:218–223. [PubMed: 16229972]
- Rosenblum A, Joseph H, Fong C, Kipnis S, Cleland C, Portenoy RK. Prevalence and characteristics of chronic pain among chemically dependent patients in methadone maintenance and residential treatment facilities. *JAMA*. 2003; 289:2370–2378. [PubMed: 12746360]
- Rosenblum A, Parrino M, Schnoll SH, Fong C, Maxwell C, Cleland CM, Magura S, Haddox JD. Prescription opioid abuse among enrollees into methadone maintenance treatment. *Drug Alcohol Depend*. 2007; 90:64–71. [PubMed: 17386981]

- Serlin RC, Mendoza TR, Nakamura Y, Edwards KR, Cleeland CS. When is cancer pain mild, moderate or severe? Grading pain severity by its interference with function. *Pain*. 1995; 61:277–284. [PubMed: 7659438]
- Sheu R, Lussier D, Rosenblum A, Fong C, Portenoy J, Joseph H, Portenoy RK. Prevalence and characteristics of chronic pain in patients admitted to an outpatient drug and alcohol treatment program. *Pain Med*. 2008; 9:911–917. [PubMed: 18346064]
- Strine TW, Hootman JM. US national prevalence and correlates of low back and neck pain among adults. *Arthritis Rheum*. 2007; 57:656–665. [PubMed: 17471542]
- Trafton JA, Oliva EM, Horst DA, Minkel JD, Humphreys K. Treatment needs associated with pain in substance use disorder patients: Implications for concurrent treatment. *Drug Alcohol Depend*. 2004; 73:23–31. [PubMed: 14687956]
- Tsui JI, Herman DS, Kettavong M, Anderson BJ, Stein MD. Chronic pain and hepatitis C virus infection in opioid dependent injection drug users. *J. Addict. Dis*. 2011; 30:91–97. [PubMed: 21491290]
- Upshur CC, Luckmann RS, Savageau JA. Primary care provider concerns about management of chronic pain in community clinic populations. *J. Gen. Intern. Med*. 2006; 21:652–655. [PubMed: 16808752]
- Ware J Jr, Kosinski M, Keller SD. A 12-item short-form health survey: construction of scales and preliminary tests of reliability and validity. *Med. Care*. 1996; 34:220–233. [PubMed: 8628042]
- Whitehead AJ, Dobscha SK, Morasco BJ, Ruimy S, Bussell C, Hauser P. Pain, substance use disorders and opioid analgesic prescription patterns in veterans with hepatitis C. *J. Pain Symptom Manage*. 2008; 36:39–45. [PubMed: 18358690]
- Zanis DA, McLellan AT, Cnaan RA, Randall M. Reliability and validity of the Addiction Severity Index with a homeless sample. *J. Subst. Abuse Treat*. 1994; 11:541–548. [PubMed: 7884837]

Table 1

Characteristics of clinically significant pain in outpatients undergoing opioid agonist therapy for addiction ($n = 237$)

Characteristic	Frequency (%)
Pain intensity in past week	
Worst pain, mean (min, max) ^a	7.9 ± 1.8 (1, 10)
Mild (1-4) pain level	13 (9.5)
Moderate (5-6) pain level	60 (43.8)
Severe (7-10) pain level	64 (46.7)
Average pain, mean (min, max) ^a	5.9 ± 1.9 (0, 10)
Mild (1-4) pain level	26 (11.1)
Moderate (5-6) pain level	105 (44.7)
Severe (7-10) pain level	104 (44.3)
Any current pain treatments or strategies ^b	
Yes	196 (82.7)
No	41 (17.3)
Use of pharmacologic strategies	
Prescribed opioid analgesics ^b	92 (38.8)
Prescribed non-opioid analgesics ^{b,c}	116 (48.9)
Over-the-counter-analgesics ^{b,d}	89 (37.7)
Use of non-pharmacologic strategies	
Prayer ^e	80 (33.8)
Vitamins/dietary supplements ^e	70 (29.5)
Distraction techniques ^b	30 (12.7)
Relaxation techniques ^{b,f}	29 (12.3)
Herbal medications/supplements ^e	26 (11.0)
Massage ^e	22 (9.3)
Acupuncture/acupressure ^e	11 (4.6)
Aromatherapy ^e	8 (3.4)
Homeopathy ^e	8 (3.4)
Chiropractic ^e	5 (2.1)
Reflexology ^e	5 (2.1)
Energy healing ^e	4 (1.7)
Biofeedback training ^b	2 (0.8)
Hypnosis ^b	2 (0.8)
	Mean (SD)
Pain interference	
General activity	5.9 ± 2.9
Mood	6.4 ± 2.8

Characteristic	Frequency (%)
Walking ability ^f	6.4 ± 3.3
Normal work ^f	6.1 ± 3.1
Relations with other people ^f	4.8 ± 3.2
Sleep ^f	6.4 ± 3.3
Enjoyment of life	6.2 ± 3.2
Overall	6.0 ± 2.3
Outpatient visit for chronic pain with physician (in past 3 months) ^g	
Yes	44 (35.5)
No	80 (64.5)
Number of chronic pain outpatient visits with this physician (past 3 months) ^g	
1-3 visits	36 (81.8)
4-6 visits	5 (11.4)
> 6 visits	3 (6.8)

^a Sample sizes for worst pain, $n = 137$; average pain, $n = 235$.

^b Measured with the Brief Pain Inventory-Short Form in the past 7 days.

^c Including nonsteroidal anti-inflammatory drugs or acetaminophen.

^d Sample size for over-the-counter-analgesics, $n = 236$.

^e Measured in the past 30 days.

^f Sample sizes for relaxation, walking; work; relations; sleep, $n = 236$.

^g Sample sizes for outpatient visits with physician, $n = 124$; $n = 44$.

Table 2Correlates of clinically significant pain in past week ($N = 480$)

	Univariate Regression		Multivariate Regression	
	OR (95% CI)	<i>P</i> value*	OR (95% CI)	<i>P</i> value*
Age (years)				
46	Reference	0.011	Reference	0.427
> 46	1.59 (1.12-2.28)		1.11 (0.72-1.71)	
Marital status				
Married	Reference	0.009	Reference	0.646
Unmarried	0.52 (0.32-0.85)		0.59 (0.33-1.05)	
Current use of prescribed opioid therapy for pain treatment				
No	Reference	< 0.001	Reference	< 0.001
Yes	8.77 (5.02-15.31)		7.74 (4.25-14.13)	
Current methadone dose (mg) ^a	Reference	0.003	Reference	0.027
	1.01 (1.00-1.01)		1.01 (1.00-1.01)	
Number of medical comorbidities ^b	Reference	< 0.001	Reference	< 0.001
	2.34 (1.72-3.18)		2.09 (1.45-2.99)	
BDI-II				
Minimal/mild	Reference	< 0.001	Reference	0.010
Moderate/severe	2.38 (1.66-3.43)		2.25 (1.40-3.62)	
MOS-SF-12				
MCS	1.00 (0.99-1.02)	0.950	1.01 (0.99-1.03)	0.330
PCS	0.96 (0.93-0.98)	0.000	0.97 (0.94-1.00)	0.070

Abbreviations: BDI-II, Beck Depression Inventory-II; MOS-SF-12, Medical Outcomes Survey-Short Form; MCS, Mental Components Summary Score; PCS, Physical Components Summary Score, controlled for bodily pain.

^aOR for each 1 mg increase in methadone dose.

^bOR for each increasing level of comorbidity.

* $p < 0.05$