ORIGINAL RESEARCH

Patient "Catastrophizing" Associated with Expectations of Opioid Prescriptions for Acute Pain Control

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Background: **The prescription of opioids for acute pain may be a driving factor in chronic opioid abuse. We examined patients' characteristics associated with the expectation of the receipt of opioid prescriptions for acute pain control.**

Methods: **A 1-time survey was administered to adult patients at family medicine clinics in the Pacific Northwest between November 2018 and January 2019. Logistic regression modeled adjusted odds of expecting an opioid prescription in ≥ 3 of the 4 dispositional acute pain scenarios by patient demographics, opioid use, past-week pain intensity and duration, past-week anxiety, and pain catastrophizing.**

Results: **The survey was completed by 108 patients (62% female, 48% between 30 and 49 years of age, 75% non-Hispanic Whites). Most patients (71%) expected an opioid prescription in ≥ 1 of the 4 scenarios; 26% expected a prescription in ≥ 3 scenarios. Patients with higher levels of pain catastrophizing had more than 3 times greater odds of expecting opioids than those with lower pain catastrophizing (OR, 3.73; *P* = .032; 95% CI, 1.12-12.46); no other characteristics were statistically significant.**

Conclusion: **Higher pain catastrophizing was associated with increased odds of expecting opioids in dispositional acute pain scenarios in outpatient settings. Future studies can determine whether addressing pain catastrophizing reduces expectations of opioid prescribing for acute pain control. The finding that most patients expected opioid prescriptions in acute pain scenarios needs further exploration into other potential factors associated with these expectations. Evidence-based guidelines for condition-specific acute pain management are warranted for appropriate opioid prescribing and to guide treatment expectations. (J Am Board Fam Med 2020;33:858–870.)**

Keywords: **Acute Pain, Catastrophization, Family Physicians, Logistic Models, Opioid-Related Disorders, Opioids, Outpatients, Pain Management, Physician's Practice Patterns, Surveys and Questionnaires**

Introduction

The opioid epidemic in the United States has resulted in increased efforts to reduce chronic opioid use. Increasingly, studies suggest that opioid exposure for acute pain control (ie, sudden onset of pain that lasts no longer than 90 days[1]) could be a leading cause of chronic opioid abuse.[2,3] Systematic reviews largely agree that opioids have greater short-term analgesic efficacy than placebos[4]; thus, opioids are routinely used for acute pain management in many US health care settings.[1,3] In 2000, the Joint Commission introduced standards for organizations to improve care for patients with pain, which included emphasizing the need for organizations to perform systematic assessments using quantitative measure for pain (eg, place pain on a 10-point score).[5] These standards may

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have resulted in increasing opioid prescriptions in the US health care system.[5] Recently, with increasing knowledge of the highly addictive properties of opioids and significantly increased mobility and mortality from opioid use, prescribing patterns of opioids have been changing as general guidelines are being developed to encourage limiting opioid prescription for both chronic (ie, pain that persists or recurs for more than 3 months[1,6]) and acute pain.[1,7]

Studies have examined patient factors associated with receipt of opioids for chronic pain in outpatient settings and postsurgical opioid use; however, to our knowledge, none have examined the patient characteristics associated with the expectation of provision of opioids for acute pain control in outpatient settings.[8–11] Several studies on postsurgical acute and chronic pain showed that increased anxiety and depression are associated with increased opioid requirement and patients who were anxious had significantly higher pain scores compared with less anxious patients.[12–17] Pain catastrophizing, a cascade of negative thoughts and emotions in response to actual or anticipated pain,[18] is shown to predict delayed opioid cessation after surgery[19] as well as predict acute postoperative pain and chronic postsurgical pain.[16,20–23] Pain catastrophizing has been associated with long-term opioid use,[24] opioid craving,[25] and opioid misuse[26] in outpatient settings. One study among a chronic pain population found a significant relationship between pain intensity and opioid prescriptions that was much stronger in women, especially those with high levels of pain catastrophizing.[18] Demographic characteristics have been found to be associated with acute and chronic postsurgical pain intensity and opioid use, as well as in chronic opioid use in primary care settings, including age,[9,27,28] gender,[15,29–31] race,[9] socioeconomic status,[10,17,32] and education level.[14]

The current study examines patients' expectations of receipt of an opioid prescription for acute pain control and patient characteristics associated with these expectations. Understanding the factors associated with expectations of opioids among patients, especially for acute pain relief in outpatient settings, could aid in providing patient-centered health care and education with the goal of reducing unnecessary opioid exposure.

Methods

Study Design and Settings

This cross-sectional study utilized a 1-time survey with a convenience sample of patients in clinic waiting rooms at 2 family medicine clinics in Portland, Oregon: Clinic A serves a high proportion of patients with private insurance, and Clinic B, which is a federally qualified health center (FQHC), primarily serves Medicaid-insured or uninsured patients.

Recruitment Methods and Inclusion Criteria

Adult patients were recruited from the waiting rooms of 2 clinics. The principal investigator visited each clinic waiting room multiple times between November 2018 and January 2019. Visits to the clinics varied in length and occurred at varying times of the day depending on the investigator's schedule. Patients in the waiting room were approached to ask if they would be willing to complete a survey on opioid use and pain. Patients were verbally assessed for study eligibility, which included being a patient at the clinic for a scheduled appointment or an accompanying family member who identified as being a patient of the clinic, at least 18 years of age, could read and write English, and who could provide verbal consent; there were no other inclusion or exclusion criteria for participation.

Survey Creation Process

The study team created the original survey. The survey was piloted with 10 randomly recruited individuals (patients or family members who were visiting the lobby of the health center in which one of the study clinics was located). Verbal feedback was solicited after completion of the survey and used to develop the final version.

Survey Measures

After providing verbal consent, participants completed a 21-question article survey in writing. (Appendix Table 1 includes survey items analyzed in this article). It took an average of 10 to 15 minutes to complete the survey; patients either completed the survey while in the waiting room or while in the examination room and returned the survey to the principal investigator before leaving the clinic. The following items are included in the current analysis.

Demographics

Participant demographic information including: age (18 to 29 years, 30 to 39 years, 40 to 49 years, 50 to 59 years, 60 to 69 years, 70 to 79 years, and > 80 years old), gender (male, female, prefer not to describe, prefer not to answer), ethnicity (Hispanic, non-

Table 1. Patient Demographics (n = 108)

	Total* N (%)	Clinic A† N (%)	Clinic B‡ N (%)	*P* Value§
Gender	108	54 (50.00)	54 (50.00)	.47
Female	67 (62.04)	35 (32.41)	32 (29.63)	
Male	40 (37.04)	18 (16.67)	22 (20.37)	
Other	1 (0.93)	1 (0.93)	0	
Age, years	108	54 (50.00)	54 (50.00)	.41
18 to 29	11 (10.19)	7 (6.48)	4 (3.70)	
30 to 39	28 (25.93)	15 (13.89)	13 (12.04)	
40 to 49	24 (22.22)	15 (13.89)	9 (8.33)	
50 to 59	17 (15.74)	8 (7.41)	9 (8.33)	
60 to 69	19 (17.59)	6 (5.56)	13 (12.04)	
70 to 79	6 (5.56)	2 (1.85)	4 (3.70)	
≥ 80	3 (2.78)	1 (0.93)	2 (1.85)	
Ethnicity	104	54 (51.92)	50 (48.08)	.80
Hispanic	6 (5.77)	3 (2.88)	3 (2.88)	
Non-Hispanic	95 (91.35)	50 (48.08)	45 (43.27)	
Prefer not to answer	3 (2.88)	1 (0.96)	2 (1.92)	
Race	107	53 (49.53)	54 (50.47)	.45
Black	9 (8.41)	4 (3.74)	5 (4.67)	
White	80 (74.77)	39 (36.45)	41 (38.32)	
Asian	7 (6.54)	5 (4.67)	2 (1.87)	
Native American	2 (1.87)	2 (1.87)	0	
Pacific Islander	0	0	0	
Other	7 (6.54)	2 (1.87)	5 (4.67)	
Prefer not to answer	2 (1.87)	1 (0.93)	1 (0.93)	
Education	107	54 (50.47)	53 (49.53)	.005
No HS	10 (9.35)	3 (2.80)	7 (6.54)	
Completed HS or GED	42 (39.25)	15(14.02)	27 (25.23)	
Completed college	42 (39.25)	30 (28.04)	12 (11.21)	
Completed graduate degree	13 (12.15)	6 (5.61)	7 (6.53)	

GED, general education diploma; HS, high school.
*Total number of patients may not match due to missing answers.
†Clinic A: Serving a high proportion of patients with private insurance.
‡Clinic B: A federally qualified health center.

Hispanic, prefer not to answer), race (Black, White, Asian, Native American, Native Hawaiian or other Pacific Islander, other, prefer not to answer), and education (not completed high school, completed high school or earned General Education Diploma (GED), completed college degree, completed graduate degree or more, prefer not to answer).

Anxiety

We used the Patient-Reported Outcome Measurement Information System (PROMIS)-29 Profile v2.0 Anxiety 4a[33] to assess levels of anxiety in the past 7 days. The response for each item was scored between 1 and 5 with a higher score indicating higher anxiety levels (max score, 20) (www.healthmeasures.net/explore-measurement-systems/promis). A T-score of 50 (raw score just below 6) is the norm for the US general population with a standard deviation of 10. Based on a previous psychometric study among patients with chronic pain, we used a cut-point of 8 and above to indicate anxiety symptoms that would likely result in an anxiety disorder diagnosis.[34]

Pain Intensity and Duration

We used the PROMIS-29 Profile v2.0 to assess patients' average pain intensity in the past 7 days and the duration of the pain. The average pain intensity item has 11 response options, ranging in value from 0 (no pain) to 10 (the worst imaginable pain). Based on previous literature, pain intensity was categorized

as mild (1 to 4), moderate (5 to 6), or severe (7 to 10).[35] Duration of pain was measured in number of weeks and months (0 to 1 week, 1 to 4 weeks, 1 to 3 months, over 3 months).

Pain Catastrophizing

The Pain Catastrophizing Scale consists of 13 questions and has been validated by a number of studies and in various populations.[36] However, to ensure brevity of the survey, we used a 2-item measure to assess pain catastrophizing based on previous literature.[37,38] Each item was measured using a Likert scale from 1 (Never feel this way) to 5 (Always feel this way) and we averaged the score by dividing by 2. Lutz et al[37] reported that a cutoff of 3 and greater had a sensitivity of 81.4% and specificity of 46.5% for predicting risk for opioid medication misuse among chronic pain patients in primary care.

History of Opioid Prescriptions

The patient's personal experiences with opioid prescriptions were assessed, including history of receiving opioid prescriptions and prescription frequency.

Duration and/or Regular Use of Opioids

We asked about the duration of use of the last opioid prescription, including regular use of opioids for chronic medical conditions, as a proxy for chronic opioid use. Chronic opioid use was defined as patient-reported use for longer than 3 months, or if the patient reported regular or as needed use of opioids for chronic medical conditions.

Opioid Expectations in Dispositional Acute Pain Situations

We created dispositional acute pain situations using 4 unique scenarios commonly seen in primary care settings or dental care: 1) a sprained ankle, 2) a root canal procedure, 3) a cast placement for a broken arm, and 4) acute back pain. Patients indicated their levels of agreement that they would expect their doctors or dentists to prescribe opioids for their acute pain control in each scenario. The levels of agreement were rated on a 5-point Likert Scale ("strongly disagree," "disagree," "not sure," "agree," and "strongly agree"). Expectations of opioid prescriptions for the 4 different scenarios were dichotomized into "strongly disagree/disagree/not sure" versus "agree/strongly agree."

This research was approved by the Institutional Review Board of the participating institution.

Data Storage

Article survey data were manually transferred and stored in the Oregon Clinical & Translational Research Institute's REDCap installation, a secure Web-based research data collection and management system, which then was transferred to Stata/IC15.1 (StataCorp, LLC, College Station, TX) for analysis.

Data Analysis

We first examined patient characteristics overall and by each clinic. We tested for significant differences between clinics using the χ^2 test. We then examined characteristics of patients by the number of dispositional acute pain situations in which the patient expected to be prescribed an opioid (n = 0 to 4 situations). Finally, we conducted multiple logistic regression analysis to compute the odds of expecting opioid prescriptions ("agree/strongly agree") in at least 3 out of 4 acute pain scenarios by age, gender, race, education level, pain intensity in the past 7 days, duration of pain, anxiety level in the past 7 days, pain catastrophizing scores, and chronic opioid use. Given the small sample size, categories were collapsed for most variables.

Model diagnostics were conducted to ensure that the regression model met assumptions and had acceptable discrimination and fit. All statistical tests were 2-sided, and significance was defined as $P < .05$. All statistical analyses were performed using Stata/IC15.1.

Results

Study Sample and Characteristics

Table 1 shows our study sample and patient characteristics, overall and by study clinic. A total of 108 surveys were completed (n = 54 per clinic: it should be noted that not all respondents answered every question). Females accounted for 62% of participants and nearly half (48%) of the patient sample was between the ages of 30 and 49 years. Most of survey respondents were non-Hispanics (91%) and Whites (75%), and most either completed high school or GED (40%) or completed a college degree (40%).

The mean past-week anxiety score was 7.74, with nearly half (48%) of the patients with a score of 8 and above, indicating a positive screen for anxiety. Our study sample had a mean past-week pain intensity of 3.49 out of 10. For duration of pain, the

highest proportion of patients reported being "not in pain" (35%), followed by pain duration of more than 3 months (31%). The mean catastrophizing score was 2.17, out of a maximum score of 5. The majority (n = 88/106; 83%) of patients had ever had opioids prescribed and of those with at least 1 prescription, most (n = 64/86; 74%) reported having opioids prescribed more than once (data not shown). Of patients who reported having ever been prescribed opioids, nearly half (45%) reported use of less than 1 week each time (Table 2).

Patient characteristics were similar between the 2 clinic sites, with a few exceptions. The FQHC clinic had more patients with lower education level, higher anxiety scores and higher pain intensity than the clinic with more privately insured patients (Table 1 and Table 2).

Opioid Expectations in Dispositional Acute Pain Situations

The majority (71%) of participants agreed or strongly agreed that they would expect an opioid to be prescribed in at least 1 or more of the 4 different scenarios and roughly a quarter (26%) of patients expected them in 3 or more scenarios. Table 3 describes patient demographics by the number of scenarios in which they would expect an opioid prescription. There were no statistically significant differences among opioid expectations by clinics, gender, age, or education. In unadjusted analysis, there was a difference by race, with whites more likely to expect opioids in the majority of the presented situations than nonwhites.

Patient Characteristics Associated with Opioid Expectations in Dispositional Acute Pain Situations

Table 4 demonstrates the results of the multiple logistic regression analysis of the patient factors associated with the adjusted odds of expecting opioid prescriptions in at least 3 out of 4 acute pain scenarios. Patients who had a pain catastrophizing score of 3 and above had more than 3 times greater odds of expecting opioids than those with a pain catastrophizing score of 2 and below (OR, 3.73; $P = .032$; 95% CI, 1.12-12.46); no other characteristics were statistically significant.

Discussion

Our main objective was to examine patients' expectations of receipt of an opioid prescription for acute pain control in outpatient settings and the patient characteristics associated with these expectations. The only factor associated with increased expectations of opioids was higher pain catastrophizing. This finding was similar to other studies that found patients with increased pain catastrophizing had more opioid prescriptions for treatment of chronic pain.[18,24] To our knowledge, this is the first study to examine the association between pain catastrophizing and these expectations for outpatient treatment of acute pain. Previous research also found that anxiety and pain catastrophizing predicted increased acute postsurgical pain.[16,21–23] However, we did not observe higher anxiety scores associated with increased expectations of opioids in our study. Some patients may have anxiety toward opioid side effects, which could lessen the expectation of opioid prescription.

The concept of pain catastrophizing refers to an exaggerated irrationally negative cognitive and emotional reaction or response to actual or anticipated pain,[36,37] which may include active rumination on pain, a feeling of helplessness, and magnification of the pain.[37,39] Pain catastrophizing has been recognized as a predictor of a number of pain-related outcomes (eg, pain severity, pain-related activity interference, disability, depression, frequent use of health care system), both in pain-free healthy individuals as well as patients with different types of chronic pain conditions.[36,40] Some studies suggested that cognitive therapy, behavioral therapy, or both can be effective in reducing pain catastrophizing thoughts and improving pain-related outcomes.[26,36] Assessing and treating pain catastrophizing thoughts could avoid unnecessary opioid prescriptions for acute pain and provides holistic patient care.

Most patients in our study indicated that they would expect an opioid prescription in at least 1 out of 4 of the dispositional acute pain scenarios described in the survey. This is of concern because outcomes of acute pain, especially in musculoskeletal pain, have been found to be influenced by expectation for a given intervention rather than the specific intervention itself.[41] The National Academies of Sciences, Engineering, and Medicine formed the Clinical Practice Guideline for Prescribing Opioids for Acute Pain and in their report the committee considered main factors which influence clinicians in prescribing opioids. These include acute pain presentation (eg, trauma, nontraumatic, exacerbation of chronic

Table 2. Distribution of Anxiety Score, Pain Intensity, Pain Duration Pain Catastrophizing Scores and Opioid Use Duration (n = 108)

	Total* N (%)	Clinic A† N (%)	Clinic B‡ N (%)	*P* Value§
Average anxiety score in the past 7 days‖ (mean, 7.74)	108	54 (50.00)	54 (50.00)	.021
Below 7	56 (51.85)	34 (31.48)	22 (20.37)	
8 and over	52 (48.15)	20 (18.52)	32 (29.63)	
Average pain intensity in the past 7 days¶ (mean, 3.49)	108	54 (50.00)	54 (50.00)	.015
0	26 (24.07)	15 (13.89)	11 (10.19)	
1 to 4	43 (39.81)	27 (25.00)	16 (14.81)	
5 to 6	17 (15.74)	7 (6.48)	10 (9.26)	
7 to 10	22 (20.37)	5 (4.63)	17 (15.74)	
Pain duration	107	54 (50.47)	53 (49.53)	.14
Not in pain	37 (34.6)	22 (20.56)	15 (14.02)	
Less than 1 week	10 (9.35)	7 (6.54)	3 (2.80)	
1 to 4 weeks	14 (13.08)	6 (5.61)	8 (7.48)	
4 to 12 weeks	11 (10.28)	3 (2.80)	8 (7.48)	
More than 3 months	33 (30.84)	14 (13.03)	19 (17.76)	
Not sure	2 (1.87)	2 (1.87)	0	
Pain catastrophizing scores** (mean = 2.17)	108	54 (50.00)	54 (50.00)	.06
1 to 2	75 (69.44)	42 (38.89)	33 (30.56)	
3 to 5	33 (30.56)	12 (11.11)	21 (19.44)	
Duration of opioid use last time prescribed	87††	44 (50.57)	43 (49.43)	.16
Prescribed but never taken opioids	3 (3.45)	2 (2.30)	1 (1.15)	
Less than 1 week	39 (44.83)	26 (29.89)	13 (14.94)	
1 to 4 weeks	17 (19.54)	5 (5.75)	12 (13.79)	
1 to 3 months	5 (5.75)	1 (1.15)	4 (4.60)	
>3 months	7 (8.05)	3 (3.45)	4 (4.60)	
I take opioids only when I need them for my chronic medical problem(s)	6 (6.90)	2 (2.30)	4 (4.60)	
I take opioids regularly for my chronic medical problem(s)	7 (8.05)	3 (3.45)	4 (4.60)	
Other	3 (3.45)	2 (2.30)	1 (1.15)	

*Total number of patients may not match due to missing answers.
†Clinic A: Serving a high proportion of patients with private insurance.
‡Clinic B: A federally qualified health center.
§Comparison between Clinic A and B.
‖PROMIS-29 Profile v2.0 Anxiety instrument.
¶PROMIS-29 Profile v2.0 Pain Intensity instrument.
**Measurement of Pain Catastrophizing Thinking assessment using two-item measure.
††Among those who had ever been prescribed opioids (n = 88; data missing on one patient).

conditions), care settings (eg, outpatient, inpatient, emergency department), availability to access to other resources (eg, insurance coverage, pharmacy access, follow-up plans), and influencing factors such as patient characteristics (eg, age, sex, comorbidities).[1] Evaluation of self-reported factors influencing opioid prescribing for acute pain among almost 200 primary care physicians in 1 Pacific Northwest state found that about half admitted that patient expectations and satisfaction were important factors.[3] Thus, patient opioid expectations can influence prescribers' decision to prescribe opioids. Over the last 2 decades in the United States, opioids have been prescribed routinely for any acute pain conditions mainly governed by subjective pain level assessment[5] and also influenced by patient expectations and satisfaction.[3] Indeed, the fact that the majority of patients expected opioids may be the result of recent opioid overprescribing practice patterns in medical settings. Evidence-based guidelines for acute pain control for specific medical conditions, including specific opioid indications and nonopioid treatments, are needed to provide

Table 3. Number of Scenarios Expecting Opioid Prescription by Clinic and Patient Demographics (n = 108 Patients)

Expected Opioids in. . .	0 Scenario N (%)	1 Scenario N (%)	2 Scenarios N (%)	3 Scenarios N (%)	4 Scenarios N (%)
Total	31 (28.70)	28 (25.93)	21 (19.44)	14 (12.96)	14 (12.96)
Clinic					
Clinic A*	18 (16.67)	14 (12.96)	10 (9.26)	8 (7.41)	4 (3.70)
Clinic B†	13 (12.04)	14 (12.96)	11 (10.19)	6 (5.56)	10 (9.26)
P value	.446				
Gender					
Female	22 (20.37)	16 (14.81)	13 (12.04)	9 (8.33)	7 (6.48)
Male	9 (8.33)	12 (11.11)	7 (6.48)	5 (4.63)	7 (6.48)
Other	0	0	1 (0.93)	0	0
P value	.591				
Age, years					
18 to 29	5 (4.63)	2 (1.85)	2 (1.85)	2 (1.85)	0
30 to 39	8 (7.41)	7 (6.48)	6 (5.56)	3 (2.78)	4 (3.70)
40 to 49	7 (6.48)	8 (7.41)	4 (3.70)	3 (2.78)	2 (1.85)
50 to 59	0	8 (7.41)	4 (3.70)	2 (1.85)	3 (2.78)
60 to 69	8 (7.41)	1 (0.93)	2 (1.85)	3 (2.78)	5 (4.63)
70 to 79	1 (0.93)	2 (1.85)	2 (1.85)	1 (0.93)	0
Over 80	2 (1.85)	0	1 (0.93)	0	0
P value	.378				
Education					
No HS Degree	2 (1.87)	2 (1.87)	3 (2.80)	1 (0.93)	2 (1.87)
HS degree or GED	9 (8.41)	10 (9.35)	10 (9.35)	6 (5.61)	7 (6.54)
College degree	17 (15.89)	8 (7.48)	7 (6.54)	6 (5.61)	4 (3.74)
Graduate degree	3 (2.88)	8 (7.48)	1 (0.93)	0	1 (0.93)
P value	.196				
Race					
White	26 (24.76)	15 (14.29)	19 (18.10)	10 (9.52)	10 (9.52)
Non-White	4 (3.81)	12 (11.43)	2 (1.90)	3 (2.86)	4 (3.81)
P value	.030				

GED, general education diploma; HS, high school.
*Clinic A: Serving a high proportion of patients with private insurance.
†Clinic B: A federally qualified health center.

standards of care across health care settings.[1] These guidelines could lead to reduced overall exposure of opioids among patients[1,42–44] and appropriate expectations of opioid prescriptions among patients with acute pain.

Limitations of our study include a relatively small number of patients that were recruited using convenience sampling within a single academic institution. While both clinics are in the same academic institution, the patient demographics vary greatly by clinic (with 1 being an FQHC), and thus represent a somewhat diverse patient population. The survey design had limitations as well. For one, we were unable to conduct conventional psychometric testing due to limited resources. It is also possible that patient responses to the questions regarding history of prescription opioid use could be subject to recall bias. There are also limitations in our use of dispositional acute pain situation scenarios. Patient's past experiences with specific scenarios, or lack thereof, could have influenced their expectations for opioids in the scenarios described. Finally, while most patient-level variables often associated with opioid prescribing expectations for chronic pain were not significantly associated with expectations for acute pain control, other unmeasured patient-level variables such as other medical or psychiatric comorbidities could be associated with these expectations; future studies should explore these potential relationships. In our study, the majority (83%) of patients ever had opioids

Table 4. Adjusted Odds of Expecting Opioid Prescriptions in at Least 3 out of 4 Acute Pain Scenarios by Patient Characteristics (n = 93)

	OR (95% CI)
Pain catastrophizing score	
1 to 2	Ref
≥ 3	3.73 (1.12-12.46)
Anxiety score	
< 8	Ref
≥ 8	2.28 (0.77-6.78)
Pain intensity	
0 to 4	Ref
5 to 10	0.34 (0.08-1.51)
Pain duration	
0 day (not in pain) to 3 month	Ref
> 3 months	1.06 (0.28-4.02)
Opioid use duration	
0 day to 3 months*	Ref
>3 months or regular use†	2.68 (0.60-11.97)
Education	
Completed high school or lower	Ref
Completed college or higher	0.73 (0.25-2.11)
Age, years	
18 to 39	Ref
40 to 59	0.84 (0.21-3.30)
≥ 60	1.14 (0.30-4.42)
Race	
Non-White	Ref
White	0.54 (0.15-1.90)
Gender	
Male	Ref
Female	0.73 (0.25-2.13)

*This category includes patients who have never been prescribed opioids and those who reported use of opioids for ≤ 3 months.
†This category includes patients who reported using opioid for >3 months and/or using opioids regularly or as needed for a chronic medical condition.
OR, odds ratio; Cl, confidence interval.

prescribed, which was slightly higher than what was reported in larger nationwide survey (64%),[45] and this may have biased our findings. Future studies with larger sample sizes are warranted to further our understanding of the association of pain catastrophizing and opioid expectations, including whether addressing and reducing pain catastrophizing thoughts among outpatients with acute pain can reduce opioid prescriptions.

Conclusion

Our study demonstrated that higher pain catastrophizing increases the odds of expecting opioids in dispositional acute pain scenarios in outpatient settings. Future studies are needed to determine whether addressing pain catastrophizing in the context of acute pain reduces expectations of opioid prescribing and unnecessary opioid use. We also found that most patients expected to be prescribed an opioid in at least 1 acute pain scenario. Developing and disseminating evidence-based guidelines for acute pain control for specific medical conditions could result in both appropriate opioid prescribing and patient expectations of opioids for acute pain management.

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To see this article online, please go to: http://jabfm.org/content/33/6/000.full.

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Appendix

ID#_____

Patient Survey About Opioids and Pain

STUDY00018431

We are conducting a study to learn more about patients' general understanding about opioids. Some questions ask you about things like your age and race. This information will help us understand the characteristics of those who complete the survey. It will take about 10 minutes to complete this. This is an anonymous survey and your responses will only be available to the study team; they will not be shared with anyone else, including your doctor.

We appreciate your participation!!

1. **Why are you visiting the clinic today?**
   - ☐ I am here for an acute problem, such as a cold or injury
   - ☐ I am here for a follow-up visit
   - ☐ I am here for an annual visit
   - ☐ Other (please describe: _____)

2. **What is your age?**

   a. 18-29 b. 30-39 c. 40-49 d. 50-59 e. 60-69 f. 70-79 g. Over 80

3. **What is your gender?**
   - ☐ Male
   - ☐ Female
   - ☐ I prefer to describe: _____
   - ☐ I prefer not to answer.

4. **What is your ethnicity?**
   - ☐ Hispanic
   - ☐ Non-Hispanic
   - ☐ I prefer not to answer.

5. **What is your race? (Please select all that apply)**
   - ☐ Black or African American
   - ☐ White
   - ☐ Asian
   - ☐ Native American (ie. American Indian)
   - ☐ Native Hawaiian or other Pacific Islander
   - ☐ Other, please specify: _____
   - ☐ I prefer not to answer.

6. **What is the highest level of education that you have completed?**
   - ☐ I have not completed high school
   - ☐ I completed high school and/or earned my GED
   - ☐ I completed a college degree
   - ☐ I completed a graduate degree (ie. masters or doctorate)
   - ☐ I prefer not to answer.

ID#_____

The next questions ask you about how you have been feeling:

7. In the past 7days…	Never	Rarely	Sometimes	Often	Always
a) I felt fearful	1	2	3	4	5
b) I found it hard to focus on anything other than my anxiety	1	2	3	4	5
c) My worries overwhelmed me	1	2	3	4	5
d) I felt uneasy	1	2	3	4	5

8. In the past 7 days, how would you rate your pain on average?

☐ 0 **No pain** ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 **Worst imaginable pain**

9. If you are currently in pain, how long have you had this pain?

- ☐ Less than 1 week
- ☐ Longer than 1 week but less than 4 weeks
- ☐ 1 - 3 months
- ☐ More than 3 months
- ☐ I am not sure
- ☐ I am not currently in pain.

The next questions ask you how you feel when you experience pain:

10. When I feel pain….	Never feel this way	Rarely feel this way	Sometimes feel this way	Often feel this way	Always feel this way
a) It is terrible and I feel it is never going to get any better.	1	2	3	4	5
b) I feel I can't t stand it anymore.	1	2	3	4	5

13. We would like to understand what you would expect your doctor or dentist to do in terms of prescribing opioids for you. Please rate your level of agreement with the following.

I would expect my doctor or dentist to prescribe an opioid if…	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
a) ...I sprained my ankle and it has become very swollen and painful, making it difficult to sleep. Over-the-counter pain medicines have not been helping very much.	1	2	3	4	5
b) ...I just had a root canal and my pain is not that bad at the moment, but I am not sure if the pain is going to come back. Over-the-counter pain medicine was not very helpful prior to the procedure.	1	2	3	4	5
c) ...I broke my arm and it was placed in a cast. Over-the-counter pain medicine was not very helpful prior to the cast placement. Pain is better now.	1	2	3	4	5
d) ...I suddenly have back pain, making it difficult to move and perform daily activities. Over-the-counter pain medicine has not been helping very much.	1	2	3	4	5

16. Have you ever been prescribed opioids?

- ☐ Yes
- ☐ No
- ☐ Not sure

17. About how many times?

- ☐ Once
- ☐ 2-3
- ☐ 4-5
- ☐ 6-7
- ☐ 8-9
- ☐ 10 or more
- ☐ I have never taken or been prescribed opioids.
- ☐ I do not remember.
- ☐ Not sure

18. If and when opioids were prescribed for you, did you:

- ☐ Take **all** of them each time as prescribed.
- ☐ Take **some** but not all that were prescribed.
- ☐ Decide not to take any of them.
- ☐ I have never been prescribed opioids.
- ☐ Other: _____

19. The last time you were prescribed opioids, how long did you take them?

- ☐ Less than 1 week
- ☐ Longer than 1 week but less than 4 weeks
- ☐ 1 - 3 months
- ☐ More than 3 months
- ☐ I take opioids regularly for my chronic medical problem(s)
- ☐ I take opioids only when I need them for my chronic medical problem(s)
- ☐ I have never taken or been prescribed opioids.
- ☐ Other:_____

Thank you very much for your participation!