Original Reports

Doctor Recommendations are Related to Patient Interest and Use of Behavioral Treatment for Chronic Pain and Addiction

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Abstract: The opioid crisis has highlighted the importance of improving patients’ access to behavioral treatments for chronic pain and addiction. What is not known is if patients are interested in receiving these treatments. In this cross-sectional study, over 1,000 participants with chronic pain were surveyed using an anonymous online questionnaire on Amazon Mechanical Turk to investigate participants’ use of and interest in pharmacological and behavioral treatments for chronic pain and addiction. Participants also indicated whether their doctor had recommended these treatments. The majority of participants reported using medication for their pain (83.19%) and that their doctor recommended medication (85.05%), whereas fewer participants reported using (67.45%) and being recommended to (62.82%) behavioral treatments. We found 63.67% of participants screened positive for possible opioid misuse; those who screened positive were more interested in receiving behavioral treatments than those who did not screen positive. Participants who received treatment recommendations were more likely to be interested in receiving those treatments as compared to participants who did not. The results suggest that recommendations for behavioral treatments and interest in those treatments are related. Results also suggest that patients endorsing behaviors consistent with opioid misuse are interested in behavioral treatments.

Perspective: This study provides information around chronic pain patients’ treatment interests, treatment receipt, and recommendation receipt for behavioral pain management and addiction treatment. This study could help facilitate communication between patients and doctors regarding available treatments for chronic pain and pain treatment-related addiction problems.

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Key Words: Chronic pain, behavioral treatment, opioid misuse, addiction, treatment preferences.

Chronic pain is one of the most debilitating, difficult to treat, chronic health conditions and affects at least 20% of the American adult population. In addition to the direct impact on quality of life via health consequences, chronic pain is widely believed to be causally related to the current opioid epidemic. Opioid pain medications are one of the most frequently used treatments for chronic pain, despite limited evidence of their long-term efficacy. Risks of opioid pain medication include abuse, addiction, and overdose. As many as 62% of patients with chronic pain who are prescribed opioids misuse them. Despite opioids being a commonly used treatment for chronic pain, clinical practice guidelines strongly
emphasize behavioral approaches as first-line treatments for chronic pain.\textsuperscript{9,10,34} There is ample evidence to support the efficacy of behavioral approaches to treat pain, including cognitive behavioral therapy,\textsuperscript{18,30} health coaching,\textsuperscript{17} behavioral activation,\textsuperscript{28} and mindfulness.\textsuperscript{18}

There are likely numerous reasons for the common use of opioid pain medication over behavioral approaches, including pressure on physicians to provide rapid pain relief,\textsuperscript{27} economic and time demands during medical appointments,\textsuperscript{23} and barriers to accessing behavioral treatments, such as high cost, variable accessibility, and low motivation.\textsuperscript{2} For instance, patients may not be able to locate a behavioral health provider with expertise in chronic pain, insurance may not be accepted, and behavioral treatments often require practice between sessions for maximal benefit. In addition, physicians report concerns about negative interactions with patients if they recommend behavioral treatments.\textsuperscript{17}

Both patients and providers may perceive discussions around chronic pain treatment as uncomfortable, with providers feeling pressure to prescribe opioid medication, and patients reporting concerns that their doctors view them as drug-seeking.\textsuperscript{25} This mutual discomfort and lack of a shared understanding of patients’ pain treatment preferences indicates that there is a need for more information regarding patients’ preferences. For instance, it is unknown whether there is an association between doctors’ recommendations and patients’ interest in behavioral treatments. This additional understanding could inform a more candid and effective conversation about pain treatment. Further, it is not known whether patients misusing opioids are less interested in behavioral approaches, as is commonly perceived by physicians.\textsuperscript{3}

Information about patient interests and preferences is needed to guide public health approaches to increase use of behavioral treatments for chronic pain.

The aim of the current study is to better understand patients’ receipt of recommendations for chronic pain treatments from their doctor, as well as their interest in and use of treatments for chronic pain. We were interested in understanding whether there is a relationship between doctor recommendation for a treatment and patients’ interest in this treatment. We also aimed to determine whether patients misusing opioids are less likely to be interested in behavioral treatments. We hypothesized that 1) more patients will have received and have been recommended to receive medication treatment than behavioral treatment; 2) there will be a positive association between providers recommending behavioral treatments and patients’ interest in behavioral treatments; and 3) patients who report misusing opioids will be less interested in behavioral treatments than medication.

Methods

Participants

Since we were interested in understanding the treatment interest of a large community sample of chronic pain patients, including those who may be misusing opioids, participants were recruited through Amazon Mechanical Turk (Mturk). Mturk provides a user-friendly interface for participants and allows researchers to collect data from a diverse participant pool.\textsuperscript{4} Previous research has found participants on Mturk are willing to admit to higher rates of addiction,\textsuperscript{26} perhaps due to the anonymous nature of the format. Mturk has been found to be reliable and valid for populations with health concerns,\textsuperscript{35} including addiction.\textsuperscript{29} All Mturk workers were able to access the survey, but screening questions were included at the beginning of the survey to ensure respondents met the inclusion criteria. Those that did not endorse the inclusion criteria were directed to a thank you page and exited out of the survey.

A total of 1,399 participants accessed the study over a period of approximately 1 week during August of 2018. Participants were allowed to proceed with the survey if they answered “Yes” to all of the following inclusion criteria questions: “Are you over the age of 18?”; “Do you have chronic pain?”; “Do you receive your healthcare in the United States?” Based on these criteria, 249 participants were excluded, leaving a final study sample of 1,050 participants (550 women, 485 men, and 4 other; 12 participants did not identify a gender). More detailed demographic information about participants is reported in Table 1.

<table>
<thead>
<tr>
<th>Demographic</th>
<th>Category</th>
<th>Mean (SD)/% (N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
<td>37.50 (11.94)</td>
</tr>
<tr>
<td>Gender</td>
<td>Female</td>
<td>52.38% (550)</td>
</tr>
<tr>
<td></td>
<td>Male</td>
<td>46.19% (485)</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>0.38% (4)</td>
</tr>
<tr>
<td>Work status</td>
<td>Working (Full or part time)</td>
<td>73.42% (771)</td>
</tr>
<tr>
<td></td>
<td>Student (Full or part time)</td>
<td>6.38% (67)</td>
</tr>
<tr>
<td></td>
<td>Not working</td>
<td>27.05% (284)</td>
</tr>
<tr>
<td>Disability benefits</td>
<td>Disability benefits (% yes)</td>
<td>20.38% (214)</td>
</tr>
<tr>
<td>Level of education</td>
<td>High school/GED/Trade school/Some college</td>
<td>41.90% (440)</td>
</tr>
<tr>
<td></td>
<td>College graduate or higher</td>
<td>57.90% (608)</td>
</tr>
<tr>
<td>Marital status</td>
<td>Married/living as married</td>
<td>51.71% (543)</td>
</tr>
<tr>
<td></td>
<td>Not married</td>
<td>47.71% (501)</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>Hispanic/Latino</td>
<td>11.90% (125)</td>
</tr>
<tr>
<td></td>
<td>Not Hispanic/Latino</td>
<td>87.33% (917)</td>
</tr>
<tr>
<td>Race</td>
<td>American Indian</td>
<td>1.24% (13)</td>
</tr>
<tr>
<td></td>
<td>Asian</td>
<td>5.05% (53)</td>
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<tr>
<td></td>
<td>Native Hawaiian/Pacific Islander</td>
<td>0.19% (2)</td>
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<td></td>
<td>Black/African American</td>
<td>9.05% (95)</td>
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<tr>
<td></td>
<td>White</td>
<td>80.48% (845)</td>
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<tr>
<td></td>
<td>More than one race</td>
<td>1.90% (20)</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>1.52% (16)</td>
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<tr>
<td>Military service</td>
<td>No</td>
<td>87.62% (920)</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>12.38% (129)</td>
</tr>
<tr>
<td>Community</td>
<td>Urban</td>
<td>65.05% (683)</td>
</tr>
<tr>
<td></td>
<td>Rural</td>
<td>34.38% (361)</td>
</tr>
</tbody>
</table>

Note: Totals vary, as not all participants completed every question and some questions allowed for multiple responses.
Measures

Behavioral Treatment Measures

Survey items were developed by the research team based on clinical consensus of treatments typically indicated for chronic pain and available in the Veterans Affairs healthcare system. The survey included brief descriptions of behavioral and pharmacological treatments for chronic pain and addiction including cognitive behavioral therapy, health coaching, behavioral activation, mindfulness, positive practice, medication, and addiction treatment (see Appendix A). Participants were asked to indicate if they had received each of these treatments in the past (Y/N), whether their doctor had recommended each treatment (Y/N), and whether they were interested in receiving each treatment (Yes very interested; Somewhat interested; Not very interested; Not interested at all).

Multidimensional Pain Inventory

The West Haven-Yale Multidimensional Pain Inventory19 is a well-validated self-report measure of important dimensions of the experience of people with chronic pain. While all the participants in the sample endorsed chronic pain, respondents were asked to rate pain level at the present moment, severity during the past week, and suffering due to pain on a scale of 0–10, with 0 = not severe at all and 6 = extremely severe.

Pain Disability Index

The Pain Disability Index33 is a self-report instrument used to assess the degree to which chronic pain interferes with various daily activities. Participants were asked to answer how much their pain negatively impacts their life in the following areas: family/home responsibilities, recreation, social activity, occupation, sexual behavior, self-care, and life-support activities. Respondents answered on a scale of 0–10, with 0 = no disability and 10 = worst disability.

Self-Report Measures of Medication Use

Respondents were asked whether they are currently taking any medications for their chronic pain (Y/N) and whether they are taking any opioid medications (Y/N; eg, Hydrocodone, Oxycodone, Morphine, Fentanyl, Codeine, Methadone, Meperidine, Propoxyphene, and Tramadol). Brand names for each medication were provided as examples (eg, Lorcet, Vicodin, Percocet, Dilaudid, Opana, Demerol, etc.).

Current Opioid Misuse Measure

Current Opioid Misuse Measure5 is a 17-item well-validated self-report questionnaire of various behaviors, emotional, and psychiatric problems related to opioid misuse (eg, In the past 30 days, how often have you taken your medications differently from how they are prescribed?). Items are rated from 0 (never) to 4 (often) with a total maximum score of 68. A score of “9” or higher is considered positive for risk of opioid misuse. The full 17-item Current Opioid Misuse Measure includes a question around thoughts of self-harm, which was removed because this research was conducted anonymously and we had no ability to follow up on suicidal ideation,8 resulting in a maximum possible score of 64. As a result, a cutoff score of “8” to indicate risk of opioid misuse was used for data analysis in the present study. The Cronbach’s alpha among our sample was .771, which is considered acceptable.15 For comparison, Martel et al assessed for opioid misuse among patients with chronic pain and found an alpha coefficient of .74 after removing items related to experience of psychiatric issues.25

Patient Health Questionnaire-2

The Patient Health Questionnaire-2 (PHQ-2)22 is a 2-item screen for depression. It inquires, “Over the last 2 weeks, how often have you been bothered by the following problems? 1) Little interest or pleasure in doing things. 2) Feeling down, depressed or hopeless.” Items are rated from 0 (Not at all) to 3 (Nearly every day) with a total maximum score of 6. A positive depression screen is indicated by a score of “3” or higher.

Demographic Questions

Respondents were asked to report their age, gender, ethnicity, race, education level, marital status, employment status, military service, disability benefit status, and whether they lived in a rural or urban area (see Table 1).

Procedures

This study was a cross-sectional, between-subjects design. All participants electronically reviewed and affirmed their understanding of an informed consent form prior to study participation, and all procedures were approved by the SUNY Albany Institutional Review Board. The survey took about 15 minutes to complete. The questionnaire responses were housed on PsychData to ensure no identifying information, such as IP addresses, was associated with participants’ responses.29 At the end of the survey, participants were given a completion code to enter into Mturk for payment. Eligible participants who completed the survey were compensated $1.00 for their time.

Data Analysis

All data were analyzed using SPSS v.25. Data were checked for low response rate (<20% of items completed for any one measure) and no cases were excluded. Descriptive data for categorical variables were presented as percentage responding “yes,” and were analyzed using chi-square tests. We examined bivariate correlations between demographic and clinical variables, interest in treatments, recommendations for treatments, and receipt of treatments.
For chi-square analyses including respondents’ interest in treatments, responses of “Yes very interested” and “Somewhat interested” were grouped and recoded as “Interested.” Responses of “Not very interested” and “Not interested at all” were grouped and recoded as “Not interested.”

Results

Descriptive Statistics

Participants were between 19 and 81 years old (M = 37.50, SD = 11.94). About half of the sample was female (52.38%). A high percentage of our sample were white (80.48%), had a college degree or higher (57.9%), and working (73.42%; Table 1).

The participants’ responses on the PHQ-2 indicated that 46% of our sample scored above the cutoff for positive depression screen, indicated by a score of “3” or above. The mean score on the PHQ-2 was 2.55 (SD = 1.70), out of a maximum of 6.

The average level of pain in the present moment was 3.21 (SD = 1.25) out of 6 and 3.76 (SD = 1.20) out of 6 in the past week. The average suffering experienced due to pain was 3.75 (SD = 1.22) out of 6. The pain impairment index showed an average pain disability of 4.61 (SD = 2.25) out of 10.

There was a high rate of endorsement of behaviors associated with opioid misuse — 63.67% of those receiving opioid treatment screened positive for being at risk of opioid misuse, indicated by a score of “8” or above. The mean score on the COMM was 28.17 (SD = 13.43), out of a maximum of 64.

Receipt of Treatments

Overall, 32.55% of participants reported having received none of the behavioral treatments indicated on the survey. Of the participants who had received any behavioral treatment (67.45%), on average they received 2.32 (SD = 1.26) behavioral treatments. Most participants received medication for their chronic pain (83.19%). Table 2 shows the percent of participants who received each of the treatments. The least received treatments were addiction treatment (15.27%) and behavioral activation (23.00%) and the most received treatments were medication (83.19%) and health coaching (37.04%).

Recommendations for Treatments

Overall, 37.18% of participants reported receiving no recommendations for behavioral treatments. Of the participants who received any behavioral treatment recommendations (62.82%), on average they received recommendations for 2.11 (SD = 1.50) behavioral treatments. Most participants reported receiving recommendations for medication (85.05%). Table 2 shows the percent of participants who received recommendations for each of the treatments. The least recommended treatments were addiction treatment (16.02%) and behavioral activation (22.93%) and the most recommended treatments were medication (85.05%) and health coaching (41.08%).

Interest in Treatments

Overall, 89.05% of participants reported being very or somewhat interested in receiving at least one behavioral treatment and 73.69% of participants reported being very or somewhat interested in medication. Participants reported being interested in an average of 3.15 (SD = 1.70) behavioral treatments. Table 2 shows the percent of participants interested in each of the treatments. The behavioral treatments that participants reported the most interest in were health coaching (65.38%), mindfulness (63.27%), and positive practice (62.52%).

Bivariate Correlations Between Variables

Bivariate correlations show significant positive associations between positive depression screen, pain severity, pain disability and behavioral treatment interest, recommendation, and receipt. There was not a consistent relationship between age, education or gender and interest, recommendation, or receipt of treatments. Table 3 shows the bivariate correlations between age, gender, education, depression, disability, pain severity, pain disability and interest in treatment, treatment recommendations, and treatment receipt.
Table 3. Bivariate Correlations between Age, Gender, Education, Depression, Disability, Severity, and Receipt of, Interest in, and Recommendation for Various Treatments

<table>
<thead>
<tr>
<th>Variable</th>
<th>Receipt of Treatment</th>
<th>Interest in Treatment</th>
<th>Recommendation for Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>.079*</td>
<td>.023</td>
<td>.021</td>
</tr>
<tr>
<td>Gender</td>
<td>.065*</td>
<td>.023</td>
<td>.021</td>
</tr>
<tr>
<td>Level of education</td>
<td>.187**</td>
<td>.098**</td>
<td>.151**</td>
</tr>
<tr>
<td>Depression (PHQ-2)</td>
<td>.224**</td>
<td>.193**</td>
<td>.262**</td>
</tr>
<tr>
<td>Disability (PDI)</td>
<td>.274**</td>
<td>.214**</td>
<td>.282**</td>
</tr>
<tr>
<td>Severity (MPI)</td>
<td>.162**</td>
<td>.180**</td>
<td>.178**</td>
</tr>
</tbody>
</table>

Note. Significance levels: *p < .05, **p < .01.
their pain and also more interested in receiving addiction treatment as compared to those who were not misusing opioids. Patients with chronic pain who misuse opioids are often negatively perceived as resistant to behavioral pain and addiction treatments in the healthcare and broader community. Our findings indicate, however, that patients who show signs of opioid misuse are likely to be receptive to addiction treatment recommendations.

Our data suggest public health efforts do not need to focus on convincing patients to consider behavioral treatments. Rather, public health efforts are needed to train providers to more frequently and perhaps more effectively make recommendations for behavioral treatments. While, in general, provider recommendations and patient interest are associated, not all patients who were recommended a treatment were interested. Previous research finds that when not delivered correctly, a recommendation for behavioral treatments can feel like the provider is discrediting or misunderstanding the

Figure 1. Percent of participants interested in treatments by provider recommendation/no provider recommendation. * indicates \( p = .0001 \).

Figure 2. Percent of participants interested in treatments by risk of opioid misuse/no risk of opioid misuse. * indicates \( p = .0001 \).
patient’s pain, or implying the pain is “all in their head.”12,13 Public health efforts are likely also needed to increase the availability of these treatments. Our data found that few participants received these behavioral treatments and previous research supports the multiple barriers of treatments receipt for pain.2

Moreover, our data suggest that both patients and providers should be apprised of the full menu of treatment options for chronic pain, including integrative pharmaceutical and behavioral approaches. Previous research suggests that patients typically benefit from interdisciplinary approaches to pain management, including lifestyle modification, movement therapies, and mind-body based treatments.24 Patients’ behavioral treatment preferences did not always exactly mirror doctor recommendations, and those who had received behavioral recommendations typically noted interest in several approaches, suggesting that there may be room for discussion of multiple approaches to pain management. Discussing these multiple approaches may ultimately increase receipt, as patients cite having a wide array of treatment options as a facilitator to using behavioral treatments for chronic pain.2

Strengths of this study include data being collected via Mturk, which is an anonymous online method that may have facilitated more honest and genuine responses regarding treatment interest and risk of opioid misuse.36 Mturk also has limitations. While a large community sample was used, there may be characteristics unique to this sample which limit generalizability to the broader population. Research has shown that Mturk samples tend to be younger, more educated, and have higher rates of depression than nationally representative sources,36 and this finding may be accurate for our sample as well. For example, our sample may have been younger, with more education, and a greater proportion reporting moderate or worse pain when compared to a nationally-representative survey such as the Medical Expenditure Panel Survey.31 Additionally, nearly half of the present study’s sample scored at or above the cutoff on a brief depression screen. Although positive screen does not necessarily equate to diagnosis, this is a rate closer to the prevalence of depression found in pain clinics or inpatient pain programs as compared to the general population.1 Thus, our results may best generalize to patients seen in a clinic as compared to the general population.11

Another limitation was that we included select behavioral interventions and thus, did not evaluate interest in other approaches to chronic pain such as physical therapy and diet modifications. Also, this was a cross-sectional study and thus we cannot draw definitive conclusions regarding the influence of treatment interest on subsequent receipt. Future research could examine whether pain severity or disability interact with opioid use/misuse to predict treatment recommendation, interest, and receipt, as these examinations were beyond the scope of this paper. While this study focused on individual interest in treatment, it should be noted that there are multiple factors affecting the use of and access to chronic pain treatment modalities, including changes in approaches to pain and pain treatment (ie, biopsychosocial framework, biomedical model, etc.).14 as well as shifts in funding and public health policy.38 These should be explored in future studies.

Overall, this study underscores the importance of developing, discussing, and recommending alternative treatment approaches to the management of chronic pain. Our findings suggest a high rate of interest in nonpharmacological, behavioral treatments, which was even more prevalent among patients whose providers recommended these treatments and among patients misusing opioids. Rather than assume patients prefer medication for chronic pain, providers should explore a broad range of behavioral treatment options with patients.

Supplementary data
Supplementary data related to this article can be found at https://doi.org/10.1016/j.jpain.2019.12.008.

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