Research Paper

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Time for change: an experimental investigation of chronic pain patients' emotional and attitudinal responses to simulated opioid-tapering advice

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Abstract

Clinicians report reluctance to deliver opioid-tapering advice to patients with chronic pain, in part due to concerns that patients will be angry and dissatisfied. An experiment was conducted to examine chronic pain patients' emotional and attitudinal responses to simulated opioid-tapering advice. Patients scheduled for an initial assessment at a tertiary pain clinic and currently taking opioid medications for pain (N = 196) were randomly assigned to view video footage of a standardized patient receiving 1 of 3 forms of treatment advice: (1) stay on current medication (2) change to a different pain medication, or (3) taper off pain medications and participate in a CBT-based pain self-management program. Participants reported how positive/enthusiastic, anxious/worried, and angry/irritable they felt in response to the simulated treatment advice, and how satisfied with and willing they would be to accept and follow the advice. Participants expressed more positive emotional and attitudinal responses to simulated opioid-tapering advice than to simulated opioid-maintenance advice. Furthermore, participants' responses to simulated opioid-tapering and opioid-change advice were not significantly different, suggesting that participants responded positively to the prospect of *change* in treatment strategy. Additional analyses revealed that participants with a longer history of chronic pain and opioid use responded less positively to simulated opioid-tapering advice. The results of this study contribute to our understanding of factors that may shape chronic pain patients' responses to opioid-tapering advice and suggest that patients may respond more positively to opioid-tapering advice if it is presented together with an alternative treatment approach.

Keywords: Opioid-tapering, Patient–clinician communication, Chronic pain, Patient satisfaction, Emotion

1. Introduction

In light of evidence for the limited benefits and significant harms associated with long-term opioid therapy for chronic pain,[1] current guidelines recommend deprescribing (tapering) pain medications and encouraging patients to engage with behavioural and other nonpharmacological treatment modalities.[5,9,10,24] A number of studies have demonstrated that patients with chronic pain can safely and effectively taper off opioid medications when they are provided with alternative strategies to help them cope with persisting pain.[3,4,7,11,21,27,32,34] Indeed, when patients are supported with cognitive-behavioural strategies for pain management, they may report less pain and greater psychosocial functioning and wellbeing even after complete opioid cessation.[8,21,34]

Qualitative studies reveal that clinicians anticipate that patients will be, at best, resistant to change or, at worst, extremely angry when it is recommended that they reduce their opioid prescription.[17,26] Some clinicians have described these encounters as emotionally charged, exhausting, and even threatening.[17] Others report perceiving a conflict between their motivations to safely deprescribe opioid medications on the one hand and maintain rapport and patient satisfaction on the other.[17] Consequently, clinicians may be reluctant to communicate opioid-tapering advice to patients. Indeed, primary care providers report that their discomfort with potential confrontations with patients sometimes led them to prescribe opioid medications in larger quantities than they might have deemed optimal.[26]

Clinicians' concerns are not unfounded. When patients are not provided with a credible alternative to pain medications, they can feel abandoned ("as if the rug has been pulled out from under them"),[20] and emotions of anxiety, fear, and anger are common in these scenarios. However, when patients are presented with alternative treatment modalities—that is, when opioid tapering represents a *change* in treatment approach rather than the *cessation* of treatment—patients may respond more positively.[4,15] In support of this hypothesis, recent studies have found that patients on long-term opioid therapy identified significant problems with opioids[26] and expressed a desire to find and try

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alternative treatment modalities.[8] As one patient explained: "We don't (necessarily) want to take a pill. We want relief."[26]

The current study used an experimental approach to test the hypothesis that patients with chronic pain attending a tertiary pain clinic for treatment advice would express more positive (and less negative) emotions and attitudes towards opioid-tapering advice than opioid-maintenance advice when cognitive behavioral therapy (CBT)-based pain self-management strategies are offered as an alternative. In addition, we explored whether patient characteristics, including history of opioid medication use, pain self-efficacy,[15] pain catastrophizing, and depression,[16] are predictive of responses to advice to taper off opioids and apply CBT-based pain self-management strategies.

2. Methods

2.1. Participants

Two hundred thirty-eight patients attending the Pain Management and Research Centre, the tertiary pain clinic at a university teaching hospital in Sydney, Australia, for their initial multidisciplinary assessment were recruited to participate in the study voluntarily (without compensation) before receiving treatment advice. The single-centre research protocol for an experimental study (nonclinical trial) was approved by the Human Research Ethics Committee of the Northern Sydney Local Health District, operating in accordance with the National Health and Medical Research Council's National Statement on Ethical Conduct in Human Research and the Declaration of the World Medical Association (www.wma.net).

Patient inclusion criteria were (1) 18 years or older; (2) scheduled for an initial pain assessment of chronic pain at the pain clinic; (3) have been taking opioids for a minimum of 4 weeks; and (4) able to complete a 15-minute questionnaire using a tablet computer without assistance. There were no exclusion criteria; however, patients were instructed to cease their participation in the survey at any time if they felt any sense of burden or distress. Inclusion criteria were initially assessed using patient self-report: The online survey required patients to confirm that they met the inclusion criteria before they were able to continue with the study. After patients had completed the study, their eligibility was reassessed based on their responses to survey items regarding their current medications. The demographic characteristics of patients included in analyses after reassessment of eligibility are shown in **Table 1**.

Table 1

Sample characteristics and descriptive statistics.

	Treatment advice conditions			Total sample
	Opioid maintenance	Opioid change	Opioid tapering	
Sample size	64	63	69	196
Sex (%F)	51.6	58.7	49.3	53.1
Age category (%)				
18-25 y	3.1	3.2	5.8	4.1
26-35 y	15.6	7.9	14.5	12.8
36-45 y	15.6	17.5	18.8	17.3
46-55 y	28.1	28.6	29.0	28.6
56-65 y	18.8	33.3	13.0	21.4
66+ y	18.8	9.5	18.8	15.8
Duration of pain (%)				
3-6 mo	2.9	4.8	6.3	4.6
6-12 mo	3.1	7.9	8.7	6.6
1-2 y	9.4	22.2	10.1	13.8
2-5 y	17.2	27.0	23.2	22.4
5-10 y	21.9	12.7	14.5	16.3
Over 10 y	42.2	25.4	40.6	36.2
Duration of medication use (%)				
Less than 1 mo	4.7	1.6	3.0	3.1
1-3 mo	7.8	14.3	6.1	9.3
3-6 mo	9.4	6.3	6.1	7.3
6-12 mo	9.4	12.7	10.6	10.9
1-2 y	14.1	22.2	16.7	17.6
2-5 y	15.6	22.2	24.2	20.7
Over 5 y	21.9	9.5	18.2	16.6
Over 10 y	17.2	11.1	15.2	14.5
Current pain intensity (M, SD)	6.11 (1.96)	6.13 (2.16)	6.13 (2.25)	6.12 (2.12)
Current pain distress (M, SD)	6.73 (1.91)	6.86 (2.22)	7.11 (2.12)	6.90 (2.08)
Evaluation of current medication (M, SD)	4.77 (2.42)	5.11 (2.40)	5.03 (2.31)	5.16 (2.14)
DASS—depression (M, SD)	15.7 (12.07)	16.3 (12.53)	17.7 (12.95)	16.6 (12.49)
DASS—anxiety (M, SD)	11.9 (10.01)	12.9 (10.67)	12.44 (9.80)	12.4 (10.11)
DASS—stress (M, SD)	17.5 (10.87)	17.4 (10.67)	20.1 (10.81)	18.3 (10.80)
PCS—total (M, SD)	28.4 (13.60)	28.6 (13.77)	29.1 (14.47)	28.7 (13.90)
PSEQ (M, SD)	23.3 (16.25)	21.1 (13.19)	22.0 (13.31)	22.2 (14.24)

DASS, Depression, Anxiety, and Stress Scale; PCS, Pain Catastrophizing Scale; PSEQ, Pain Self-Efficacy Questionnaire.

2.2. Design and procedure

A research assistant provided patients in the waiting room of the clinic with study information, including the eligibility criteria. Patients who provided written consent to participate in the study were provided with a tablet computer and headphones to complete the study using REDCap, a secure web-based application for designing and managing online surveys and databases.[13]

Participants' medical record number was entered into the survey system, and the research assistant used an online randomization program (randomizer.org) to assign participants to 1 of the 3 experimental conditions in which a simulated clinician spoke with a simulated patient about their case history before delivering 1 of 3 forms of treatment advice: (1) stay on current pain medication; (2) change to a different pain medication; or (3) taper off opioid medications and attend a pain self-management program. Before viewing 1 of the 3 videos, participants were instructed to pay attention to how they felt about the treatment advice being delivered to the patient, and further, that "your feelings will give us insight into how patients like you might feel in similar situations."

Immediately after viewing 1 of the 3 videos, participants' emotional and attitudinal responses to the simulated treatment advice were measured. Participants responded to measures confidentially using the tablet computer, and as such, the research assistant was blind to outcome measures. Participants completed a series of manipulation checks to assess their attention to the simulated treatment advice scenario, and the

realism and credibility of the simulated patient–clinician interaction. Participants were then asked a series of questions relating to their current level of pain and opioid medication use. Participants reported their age and sex categorically (**Table 1**).

Data collection was carried over 9 consecutive months, from July 2017 to March 2018, until our estimated sample size of 64 per group was reached—which, accounting for an estimated 20% of incomplete or invalid data, was sufficient to detect moderate group differences of 0.5 SDs. At this time, patients' electronic health records were accessed by the research assistant, who used patients' medical record numbers to access their responses to a standard bank of psychological screening questionnaires which were completed before their initial appointment at the clinic. Specifically, the research assistant accessed patients' responses to the Pain Self-Efficacy Questionnaire (PSEQ),[22] the Pain Catastrophizing Scale (PCS),[33] and the Depression, Anxiety, and Stress Scale (DASS-21).[19] Patients' medical records were also accessed to check patients' current medication and daily opioid dose expressed in oral morphine equivalents (OMEs).

2.3. Materials

2.3.1. Simulated treatment advice conditions

Participants viewed video footage of 1 of 3 simulated clinician–patient interactions. In each simulation, a middle-aged Anglo-Australian or Caucasian female "clinician" delivered a standardized case summary to a middle-aged Caucasian female "patient." The standardized case summary (see Appendix, available as supplemental digital content at http://links.lww.com/PAIN/A764) included intentionally nonspecific information about the patients' experience of chronic pain[29] including the site of pain (lower back), duration of pain ("many years"), pain distress, and the impact that chronic pain has had on their psychosocial functioning. The content of the case summary was developed in close collaboration with clinic staff to be representative of a "typical" patient seeking specialist advice for the management of chronic pain.

After viewing the standardized case summary, participants viewed the "clinician" delivering 1 of 3 forms of treatment advice to the "patient": (1) "stay on current medication" (opioid maintenance) (2) "change to a different pain medication" (opioid change) or (3) "taper off opioids and attend a CBT-based pain self-management program" (opioid tapering) (full transcripts of each treatment advice condition are provided in Appendix, available as supplemental digital content at http://links.lww.com/PAIN/A764). During footage in which the "clinician" delivered treatment advice, the video camera was positioned behind the simulated patient, so that participants viewed the simulated clinician from the perspective of the patient in the video. The simulated patient did not display overt nonverbal behavior indicative of their emotional responses to the treatment advice she received. Nor did the simulated patient express a verbal response to the treatment advice provided during the video. To enhance participants' understanding of the video content (accounting for variable levels of proficiency with the English language), subtitles were added to the video recordings.

2.4. Measures

2.4.1. Manipulation checks

To determine whether participants were paying attention to the treatment advice being delivered to the simulated patient, they were asked 2 recall questions with multiple choice responses: "Thinking back to the video, where was the patient's pain primarily located?" and "What was the treatment advice that the patient was given?" Participants who answered either one of these questions incorrectly were excluded from data analysis.

To check the personal relevance of the patient–clinician simulation, we asked participants to rate "How easily could you imagine yourself in the patient's situation?" (1 = not at all easily and 10 = very easily); "How similar was the patient's story to your own?" (1 = not familiar at all and 10 = extremely familiar); and "How realistic or believable was the situation portrayed in the video?" (1 = not realistic at all and 10 = very realistic).

2.4.2. Emotional responses to simulated treatment advice

Participants were asked to rate how *positive/enthusiastic, anxious/worried*, and *irritable/angry* they "think they would feel if they received the same advice as the patient in the video" (1 = not at all and 10 = very). Single-item measures of enthusiasm, anxiety, and anger in response to the treatment advice scenario were used due to demands for brevity in this clinical setting.

Self-report measures of anticipated affective states are known to reflect people's beliefs or schemas about how people "in general" feel and behave and are often weakly correlated with people's actual affective experiences in the moment.[36] Previous research has demonstrated that the accuracy of affective forecasts (predictions about emotional responses to future events) is improved by asking people to focus on the feelings that are aroused by thoughts about a target event.[6] Hence, before asking participants to predict *how they think they would feel* if they received the treatment advice delivered to the simulated patient, we first asked them to indicate *how they felt* in response to the treatment advice being given to the patient (in the video) using the same 3 items (positive/enthusiastic, anxious/worried, irritable/angry; 1 = *not at all* and 10 = *very*).

2.4.3. Attitudes towards simulated treatment advice

Attitudes towards simulated treatment advice were measured with 3 items: Participants were asked to indicate the extent to which they would be *satisfied* with, *willing to accept*, and *likely to follow* the treatment advice "if it were given to you," using 10-point rating scales (1 = not at all and 10 = very). These 3 interrelated items (Cronbach's alpha = 0.89) were combined to form a measure of mean positive attitudes towards the simulated treatment advice.

2.4.4. Patient characteristics

2.4.4.1. Psychological measures

Self-reported depressive symptoms, pain self-efficacy, and pain catastrophizing were measured using the short-form version of the DASS-21,[14] PSEQ,[22] and PCS.[33] The psychometric quality of these scales has been previously reported.[14,22,23,25,31,33]

2.4.4.2. Pain

Participants reported how long they had been experiencing persistent pain (pain duration) using the following categories: 3 to 6 months, 6 to 12 months, 1 to 2 years, 2 to 5 years, 5 to 10 years, or over 10 years. Participants were asked to rate their current pain (pain intensity) using a numeric rating scale (1 = *no pain* and 10 = *unbearable pain*). Finally, participants were asked to rate how

distressing their pain had been, on average, in the past week (1 = *not at all distressing* and 10 = *as distressing as it could be*).

2.4.4.3. Current medication

Patients reported the duration with which they have been using opioids and their other current prescription pain medication (3-6 months, 6-12 months, 1-2 years, 2-5 years, 5-10 years, or over 10 years). Participants' total daily dose of opioids (converted into OMEs) was obtained from their electronic medical record.

2.4.4.4. Evaluation of current medication

Two items measured participants' evaluations of their current pain medication prescription. Participants rated their level of satisfaction with their current pain medication (1 = *very dissatisfied* and 10 = *very satisfied*) and the perceived effectiveness of their current pain medication (1 = *very ineffective* and 10 = *very effective*).

2.4.4.5. Demographics

Participants reported their age category (18-25, 26-35, 36-45, 46-55, 56-65, or 66+) and sex (male or female). Questions regarding participants' ethnicity and socioeconomic status were not included in the survey.

2.5. Data analytic technique

Our primary research question was examined by comparing 4 outcome variables (means of positive/enthusiastic, anxious/worried, irritable/angry, and composite positive attitude ratings) across the 3 scenarios (opioid maintenance, opioid change, and opioid tapering). This analysis was conducted using a 1-way analysis of variance with the Tukey honestly significant difference (HSD) procedure to examine pairwise comparisons. R base package statistical software (r-project.org) was used to conduct all statistical analyses. Analyses were conducted by DC and interpreted by all authors.

Following this, we examined correlations between participants' psychological characteristics (depression, anxiety, stress, pain catastrophizing, and pain self-efficacy), experience of chronic pain (duration, intensity, and distress), medication use (duration and dose in mg OME), evaluations of their current pain medication (satisfaction and effectiveness), and the 4 outcome variables for the total sample and separately for each treatment advice condition. Correlations that were approximately 0.3 or greater in magnitude were considered to be moderate.[2]

Finally, we conducted a moderated multiple regression analysis to explore whether participants' attitudes towards the simulated treatment advice could be predicted by their emotional responses, and whether the relationship between participants' emotional responses and attitudes depended on the treatment advice scenario they observed. We first analysed a model with emotional responses as predictors, then analysed a second model with treatment advice scenario (dummy coded with opioid tapering as the reference category) and interactions between each emotional response and each treatment advice dummy variable added as predictors (significance level set at 0.05).

3. Results

3.1. Data screening and manipulation checks

Two hundred thirty-eight patients agreed to participate in the study. Of these, 20 (8.4%) did not meet the inclusion criteria (eg, were not currently taking any opioid medications for pain), 15 (6.3%) did not correctly recall essential details of treatment advice scenario, and 11 (4.6%) completed less than 50% of the survey, including primary outcome variables.

Data from the remaining 196 participants were analysed: 69 (35%) were in the simulated opioid-tapering condition, 63 (32%) were in the simulated opioid-change condition, and 64 (33%) were in the simulated opioid-maintenance condition. We examined residuals and determined that the assumptions of analysis of variance were satisfied.

3.2. Characteristics of the study sample

Characteristics of the study population and descriptive statistics are presented in **Table 1** within treatment advice conditions and across conditions (total sample). Across conditions (total sample), the modal class of patient age was 46 to 55 years, the modal class of pain duration was 2 to 5 years, and the modal class of opioid use was 2 to 5 years. Mean pain intensity and distress of the sample (across conditions) were moderate to severe (M_{pain} = 6.12, SD = 2.12 and $M_{distress}$ = 6.90, SD = 2.08).[28] Mean patient satisfaction with current pain medications (mean of items capturing of satisfaction with and perceived effectiveness of medications) was 5.16 (SD = 2.14).

Mean DASS depression, anxiety, and stress scores were in the moderate range ($M_{Depression}$ = 16.6, SD = 12.49; $M_{Anxiety}$ = 12.4, SD = 10.11; M_{Stress} = 18.3, SD = 10.80).[19] Mean PCS scores (M = 28.7, SD = 13.90) were subclinical.[33] Mean PSEQ scores (M = 22.2, SD = 14.24) were considered moderate.[22]

3.3. Manipulation check

As noted above, 15 of the original 238 participants (6%) did not correctly recall essential details of treatment advice scenario and were excluded from main analyses. Questions probing the familiarity, believability, and self-relevance of the treatment scenarios were interrelated (Cronbach's alpha = 0.77) and were combined into a composite measure of "personal relevance." Participants rated the personal relevance of each treatment advice scenario equally highly (opioid maintenance: 6.45, SD = 2.5; opioid change: M = 7.19, SD = 2.10; opioid tapering: M = 6.81, SD = 2.35), F(2, 193) = 1.62, P = 0.20).

3.4. Emotional and attitudinal responses to treatment advice scenarios

Mean ratings of positive enthusiasm in response to simulated treatment advice differed significantly across the 3 groups, F(2, 193) = 8.36, $P < 0.0003$. The Tukey HSD test revealed that mean ratings of positive/enthusiastic were significantly lower in the opioid-maintenance condition (M = 4.16, SD = 2.91) compared with the opioid-tapering condition (M = 5.80, SD = 2.84 P = 0.003) and opioid-change condition (M = 6.06, SD = 2.83, P = 0.0006) groups (**Fig. 1**). Mean anxious/worried ratings did not differ significantly across the 3 simulated treatment advice conditions (opioid maintenance M = 4.38, SD = 3.03; opioid tapering M = 5.13, SD = 2.81; opioid change M = 4.05, SD = 2.88), F(2, 193) = 2.43, P = 0.091, and none of the pairwise comparisons were significant using the Tukey HSD test (**Fig. 1**). Mean irritable/angry ratings did not differ significantly between the 3 groups (opioid maintenance M = 4.03, SD = 3.01; opioid change M = 3.24, SD = 2.76; opioid tapering M = 3.04, SD = 2.55), F(2, 193) = 2.33, P = 0.100, and none of the pairwise comparisons were significant using the Tukey HSD test (**Fig. 1**).

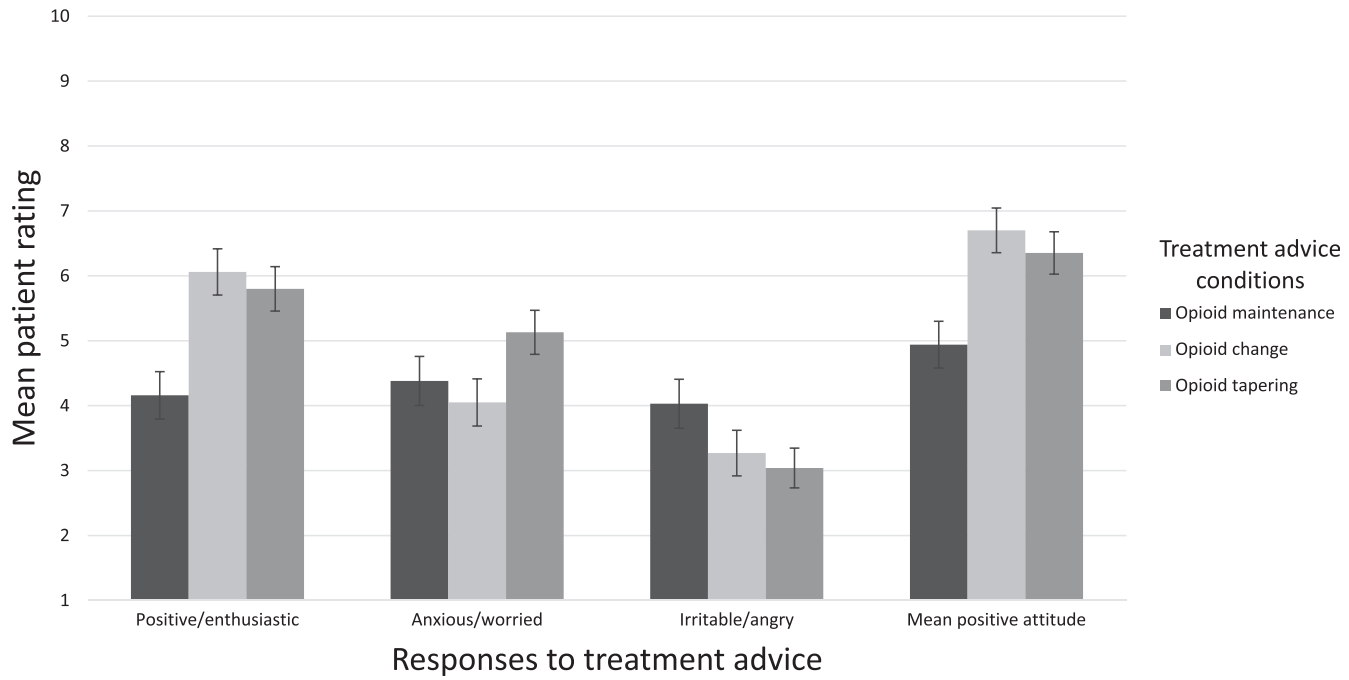

Figure 1. Emotional and attitudinal responses to simulated treatment advice by condition. Mean positive attitudes represent a composite of participant ratings of how satisfied, accepting, and willing they would be to follow the simulated treatment advice.

Mean positive attitude ratings of simulated treatment advice differed significantly depending on the treatment advice participants received, $F(2, 193) = 7.25$, $P = 0.0009$. The Tukey HSD test revealed that participants in the opioid-maintenance condition ($M = 14.81$, $SD = 8.66$) were more negative in their evaluations of simulated treatment advice than participants in the opioid-change ($M = 20.01$, $SD = 8.20$, $P = 0.001$) and opioid-tapering ($M = 19.06$, $SD = 8.12$, $P = 0.010$) conditions.

Across treatment advice conditions, higher positive/enthusiastic ratings predicted more positive attitudes towards treatment advice, $b = 2.21$, $t(192) = 16.24$, $P < 0.001$, and higher irritable/angry ratings predicted less positive attitudes towards simulated treatment advice, $b = -0.39$, $t(192) = -2.24$, $P = 0.026$. Anxious/worried ratings did not predict attitudes towards simulated treatment advice, $b = 0.18$, $t(192) = 1.15$, $P = 0.252$. Together these predictors explained 65% of the variance in evaluations of treatment advice, $F(3, 192) = 117.0$, $P < 0.001$.

When experimental condition was included in the model, a significant interaction was observed between treatment advice scenario and irritable/angry responses to treatment advice, $b = -1.19$, $t(184) = -2.77$, $P = 0.006$, such that irritable/angry ratings predicted attitudes towards simulated treatment advice more strongly in the opioid-tapering condition compared with the opioid-maintenance condition. The magnitudes of the relationships between irritable/angry ratings and attitudes towards treatment advice did not differ between the opioid-change and opioid-tapering conditions. The inclusion of treatment advice scenario in the second model explained only an additional 1% of variance in evaluations of treatment advice, $F(11, 184) = 33.12$, $P < 0.001$.

3.5. Correlations between participant characteristics and responses to opioid-tapering advice

In the opioid-tapering condition, participants' PCS scores, DASS depression scores, current pain distress, and daily OME were associated with self-reported levels of anxiety/worry in response to opioid-tapering advice (**Table 2**). Participants' self-reported levels of enthusiasm and anger/irritability were not associated with any of the measured patient characteristics. Participants' attitudes towards simulated opioid-tapering advice were, however, inversely related to both participants' pain duration and duration of pain medication use, such that more less positive attitudes towards simulated opioid-tapering advice were associated with longer durations of pain and pain medication use (**Table 2**).

4. Discussion

Qualitative studies report that clinicians feel apprehensive about discussing opioid tapering with patients and expect patients to respond with anger.[17] However, there is little quantitative evidence that patients respond more negatively to opioid-tapering advice than opioid-maintenance advice when opioid tapering is presented as part of a change in treatment approach. The current study examined this question by comparing chronic pain patients' emotional and attitudinal responses to treatment advice scenarios in which a simulated patient either received advice to maintain their current pain medication use, change to a different pain medication, or taper off pain medications and participated in a CBT-based pain self-management program.

4.1. Key findings and implications

The results of analyses revealed several key findings. First, participants who were themselves currently taking opioid medications for chronic pain responded more positively—both emotionally and attitudinally—to the treatment advice scenario in which the simulated patient received advice to taper off opioids than to the scenario in which the patient received opioid-maintenance advice. These results are consistent with findings from a recent survey conduced at a tertiary pain clinic in Montreal

Table 2

Correlations between patient characteristics and responses to simulated opioid-tapering advice.

	Opioid maintenance				Opioid change				Opioid tapering			
	Positive	Anxious/ worried	Irritable/ angry	Overall evaluation	Positive	Anxious/ worried	Irritable/ angry	Overall evaluation	Positive	Anxious/ worried	Irritable/ angry	Overall evaluation
PSEQ	0.07	−0.05	0.07	0.02	0.08	−0.12	0.01	−0.10	−0.01	−0.21	0.23	−0.08
PCS (total)	0.09	0.12	0.01	0.12	0.16	0.22	0.20	0.22	−0.04	0.27*	0.19	−0.02
DASS—depression	−0.09	0.27*	0.27*	0.02	−0.02	0.41*	0.37*	0.05	−0.02	0.29*	0.07	−0.01
DASS—anxiety	0.10	0.25	0.14	0.22	0.11	0.24	0.16	0.22	0.10	0.23	0.07	0.17
DASS—stress	−0.14	0.39*	0.33*	0.00	0.02	0.40*	0.36*	0.02	0.23	0.21	−0.01	0.20
Pain duration	−0.06	−0.06	0.07	0.01	−0.06	−0.06	0.10	−0.08	−0.20	0.03	0.21	−0.28*
Current pain	0.11	0.01	−0.02	0.15	0.10	0.12	0.10	0.07	0.22	0.07	−0.10	0.20
Pain distress	0.14	−0.01	0.00	0.24	0.15	0.18	0.23	0.11	0.05	0.26*	0.02	−0.03
Medication duration	−0.04	−0.08	−0.03	−0.02	−0.08	−0.15	0.01	0.00	−0.11	0.03	0.20	−0.31*
Daily oral morphine equivalent (mg)	−0.03	0.09	0.06	0.05	0.08	−0.01	−0.05	0.06	−0.26	0.32*	0.30	−0.26
Evaluation of current medication	0.24	−0.10	−0.04	0.09	0.09	0.21	0.21	0.19	0.09	0.21	−0.13	0.19

DASS, Depression, Anxiety, and Stress Scale; PCS, Pain Catastrophizing Scale; PSEQ, Pain Self-Efficacy Questionnaire.
* $P < 0.001$.

in which most patients expressed a negative attitude or neutral attitude to continued opioid use.[35]

The second key finding is that participants' emotional and attitudinal responses to the simulated opioid-change advice scenario were as positive as responses to the opioid-tapering scenario, and significantly more positive than participants' responses to the opioid-maintenance advice scenario. This finding may reflect the nature of the participant sample, the majority of whom had been referred to a tertiary pain clinic because their current pain management strategy (chronic opioid therapy) was not providing adequate therapeutic benefit. Hence, patients participating in the current study seem to have responded positively to the prospect of *change* in treatment approach offered by both the opioid-change and opioid-tapering advice scenarios, keeping in mind that the simulated opioid-tapering advice was presented as part of an alternative treatment strategy not as a *cessation* of treatment. This interpretation of participants' equally positive responses to simulated opioid-change and opioid-tapering advice aligns with Penney et al.[26] perspective that "patients' resistance to moving off opioids may have less to do with problematic attachment to medications or passive orientation to their role in treatment and more to do with resistance to experiencing debilitating pain."

The third key finding is that participants experienced mixed emotions in response to simulated treatment advice, but only levels of positive emotion (enthusiasm) that predicted attitudes to all forms of treatment advice. This finding suggests that a certain level of patient anxiety or irritation in response to treatment advice can be experienced alongside enthusiasm, and patients' expression of "negative" emotions is not necessarily indicative of their level of satisfaction with or willingness to follow treatment advice. It was only participants' attitudes to simulated opioid-tapering advice that were predicted, to some extent, by anger/irritation, and this relationship was negative. We cannot explain this effect of treatment advice scenario on the association between feelings of anger/irritation and attitudes to simulated treatment advice based on the current data. However, qualitative studies suggest that anger/irritation may be evoked in response to opioid-tapering advice due to pessimism about the efficacy of nonpharmacological approaches to pain management, fears about opioid withdrawal, or concerns that they will be "abandoned" by clinicians if they are recommended opioid tapering.[17,20,26]

A fourth key finding is that neither participants' psychological characteristics nor their pain severity predicted levels of enthusiasm or anger in response to any of the treatment advice scenarios, including opioid tapering. Participants' *anxiety* in response to simulated opioid-tapering advice, specifically, was predicted by their PCS scores, DASS depression scores, current pain distress, and daily OME; however, it should be noted that anxiety was not associated with patients' attitudes towards the opioid-tapering advice scenario. Hence, the results of this study suggest that patient characteristics are not necessarily good predictors of willingness to receive opioid-tapering advice.

Finally, patients' evaluations of the opioid-tapering advice scenario were (inversely) related to their pain duration and duration of opioid use, but not to their daily dose of opioids (OME). On the one hand, this result suggests that patients who have lived with chronic pain for longer periods and have been using opioid medications for longer durations may be more resistant to opioid-tapering advice. However, it is also possible that this correlation reflects an association between patients' duration of medication use and their (lack of) confidence in nonpharmacological approaches to pain management. Consistent with this perspective, Goesling et al.[12] argue that patient characteristics, per se, are not strong predictors of patients' motivation to continue or discontinue opioid therapies but rather patients' confidence in managing pain using alternative pain management strategies.

4.2. Methodological strengths

The current study used a novel experimental approach to examine chronic pain patients' emotional and attitudinal responses to opioid-tapering advice. A major limitation of observational research into patients' emotional and attitudinal responses to opioid-tapering advice is that the patients who receive opioid-tapering advice in practice are often those who

clinicians predict will be most likely to respond most positively to this treatment advice. Hence, samples of patients who actually receive opioid-tapering advice are vulnerable to a "clinician-selection" bias. The current study avoids this "clinician-selection" bias by randomly assigning patient participants to respond to either simulated opioid-maintenance, opioid-change, or opioid-tapering advice. An additional advantage of comparing patient participants' responses to simulated rather than actual treatment advice is that the confidence and patient-centeredness with which the simulated clinician delivered the treatment advice was standardized to ensure that differences in participants' responses to treatment advice could not be accounted for by clinicians' hesitation or reticence to deliver opioid-tapering advice relative to opioid-maintenance or opioid-change advice. A final strength of the current study is that it was conducted with a large sample of patients with high levels of pain, who had been on chronic opioid therapy for long periods. Patients attending tertiary pain clinics are among the most disabled by chronic pain and are among the most complex. Despite the severity of their pain and history of opioid use, we still found that patients were relatively positive and enthusiastic about tapering off opioids and participating in a CBT-based pain self-management program.

4.3. Limitations and future directions

A limitation of the current design is that we do not know how patients actually responded to the treatment advice that was delivered to them by their treating clinician. Research demonstrates that people's predictions about their emotions and evaluations of future events are highly correlated with actual responses; however, affective and behavioural "forecasts" are prone to error.[18,30] In addition, since the current study did not track patients' responses to the treatment advice they actually received, we also do not know whether patients' emotional and attitudinal responses closely correspond to their behavior. Whether or not patients' attitudes towards opioid tapering predict their adherence to opioid tapering is likely to be dependent upon a number of factors, including social support for opioid tapering, the impact of opioid tapering on individuals' pain and functioning, and ability to cope with withdrawal symptoms. Patients may accept opioid-tapering advice at the time it is recommended and make an honest attempt to taper, but their success with opioid tapering is likely to depend on more than enthusiasm and a positive attitude. In consideration of these limitations, future research investigating patient responses to actual medical advice about opioid prescription and any longitudinal effects on adherence to treatment is warranted.

Future research will also be needed to test whether patients who are managing chronic pain with opioid medications in the community or within a primary care setting respond similarly to those who have sought specialist care from a tertiary pain clinic. It is possible that patients attending a tertiary pain clinic are less satisfied with the therapeutic benefits of chronic opioid therapy than patients in primary care. By implication, patients seeking treatment advice from a tertiary pain clinic might respond more positively to opioid-tapering advice than patients in primary care. To the extent that patients in primary care are satisfied with the therapeutic effects of chronic opioid therapy, we expect that they may respond more positively to opioid-maintenance advice than opioid-tapering advice. Future research is needed to examine whether there are population differences in patients' responses to opioid-tapering and opioid-maintenance advice.

Finally, it will be important for future research to investigate whether positive responses to opioid-tapering advice are contingent upon it being delivered together with an alternative pain management strategy. Patient participants in the current study responded to simulated advice involving opioid-tapering and participation in a CBT-based pain self-management program. It is not known whether patient participants would respond as positively if they had received opioid-tapering advice without the provision of an alternative approach.

4.4. Conclusion

Patients who are attending a tertiary pain clinic and currently taking opioids for chronic pain may respond more positively (both in terms of emotions and attitudes) to treatment advice which recommends *a change* in approach, even when that change involves tapering off opioids and using nonpharmacological pain self-management strategies.

Conflict of interest statement

There are no conflicts of interest to disclose.

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Appendix A. Supplemental digital content

Supplemental digital content associated with this article can be found online at http://links.lww.com/PAIN/A764.

Supplemental video content

Video content associated with this article can be found at http://links.lww.com/PAIN/A765.

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