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Authors

Feng, Bo
Malloch, Yining Z
Kravitz, Richard L
et al.

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Assessing the effectiveness of a narrative-based patient education video for promoting opioid tapering

Bo Feng, PhD[a], **Yining Z. Malloch, PhD**[a], **Richard L. Kravitz, MD MSPH**[b], **Susan Verba, MFA**[c], **Ana-Maria Iosif, PhD**[d], **George Slavik, MFA**[c], **Stephen G Henry, MD**[b]

[a]Department of Communication; University of California Davis; Davis, USA

[b]Department of Internal Medicine; University of California Davis; Sacramento, USA

[c]Department of Design; University of California Davis; Davis, USA

[d]Department of Public Health Sciences; University of California Davis; Sacramento, USA

Abstract

OBJECTIVE—To compare effectiveness of a narrative-based educational video versus an informational pamphlet for increasing patients' self-efficacy and intention to taper their opioid use.

METHODS—Five thousand participants recruited from MTurk were screened to identify eligible patients. Eligible participants (n = 365, 49.9% female, mean age = 37 years) were randomized to either watch the narrative video or read the pamphlet. Linear regression models were used for the main analysis.

RESULTS—Participants' perceptions of tapering effectiveness were higher in the video group (mean = 4.06) than the pamphlet group (mean = 3.67), adjusted mean difference = 0.34, 95%CI 0.13 – 0.54, $P < 0.001$. Participants' perceptions of tapering self-efficacy were also higher in the video group (mean = 3.97) than the pamphlet group (mean = 3.60), adjusted mean difference = 0.32, 95%CI 0.09 – 0.55, $P < 0.001$. Perceived tapering effectiveness and self-efficacy were both positively associated with post-intervention tapering intention (Spearman rank correlation coefficient = 0.38 and 0.53, respectively, both $P < 0.001$).

CONCLUSION—A narrative-based video about opioid tapering enhanced patients' perceptions of the effectiveness of tapering and their tapering self-efficacy.

PRACTICE IMPLICATIONS—Narrative-based videos may be effective for changing patient attitudes about opioid tapering.

CORRESPONDING AUTHOR: Bo Feng, Department of Communication, University of California, Davis, Davis, CA 95616, USA, Phone: +1 (530) 754-0978, bfeng@ucdavis.edu.

Credit author statement

Bo Feng: Conceptualization, Methodology, Writing - Original Draft, Writing- Reviewing and Editing. **Yining Z. Malloch**: Investigation, Data curation. **Richard L. Kravitz**: Conceptualization, Writing- Reviewing and Editing. **Susan Verba**: Resources, Writing- Reviewing and Editing. **Ana-Maria Iosif**: Methodology, Writing- Reviewing and Editing. **George Slavik**: Resources. **Stephen G Henry**: Conceptualization, Writing- Reviewing and Editing, Funding acquisition.

Keywords

opioid tapering; narrative transportation theory; patient education; chronic pain; self-efficacy

1. INTRODUCTION

Chronic pain is one of the most common health problems in the world [1, 2]. Over the past two decades, increased opioid use for chronic pain has led to a rapid rise in opioid-related harms, including death, without clear evidence of corresponding patient benefit [3, 4]. Thus, new clinical practice guidelines recommend that many patients taking opioids for chronic pain would likely benefit from opioid tapering (i.e., a reduction in their prescribed opioid dose) [5, 6, 7]. However, tapering is a fraught topic. Many primary care clinicians (who prescribe the majority of long-term opioids) understand the medical reasoning for tapering but fear that recommending opioid dose reduction will lead to disagreement and conflict, which may stymie management of patients' other medical problems [8, 9]. Patients are likewise often hesitant to discuss tapering because of fears that tapering may lead to withdrawal symptoms, uncontrolled pain, or even termination of care [10, 11]. Mutual dread of disagreement or conflict is thus an important barrier to initiating discussions about opioid tapering, so there is a need for tools and strategies that can enhance patients' willingness to consider opioid tapering or promote productive patient-clinician discussions about opioid tapering.

Personal stories from patients who have firsthand experience with opioid tapering are an untapped resource for constructing effective tapering interventions. Videos showing patients describing their lived experiences can be highly persuasive; people typically respond to stories that they feel reflect their own experiences and sentiments [12]. For example, patient interventions using videos showing real patient stories about experiences with hypertension have been shown to significantly improve blood pressure control among patients with hypertension [13]. Patient stories are also likely to be effective for increasing patients' willingness to attempt opioid tapering – if the stories are persuasive to the patients who watch them.

To fill the need for tools to promote appropriate opioid tapering, our team designed a narrative-based patient education video to encourage patients to consider opioid tapering and to discuss tapering with their primary care clinicians. The objective of this study was to assess this video's effectiveness in increasing patients' self-efficacy for tapering as well as their intention to taper. We hypothesized that the narrative-based video would be more effective than an informational pamphlet on opioid tapering developed by the Centers for Disease Control and Prevention (CDC) [14]. If our hypothesis is confirmed, this patient educational video could be shared and used across a wide range of clinical settings.

2. METHODS

2.1. Video design

This study was approved by the University of California Davis Institutional Review Board. The design of the video was part of a larger project on opioid tapering approved by the University of California Davis Institutional Review Board. Participants for the larger project (not the current study) were adult patients at 13 primary care clinics who reported moderate to severe chronic neck and/or back pain and had either tapered down or off long-term opioids (≥1 dose per day for ≥3 months) within the past year, were identified as a candidate for tapering down or off long-term opioids by their primary care clinician, or were in the process of tapering. As part of the larger project, 7 compelling storytellers selected from 21 focus group participants each underwent a 30-minute video-recorded interview about their experience with opioids and tapering Detailed recruitment procedures for the larger project and characteristics of the 21 focus group participants have been previously published [10]. The research team evaluated each participant by observing group dynamics during each focus group (e.g., which participants seemed to really engage the other group members when they were talking) with the goal of identifying participants who were compelling storytellers and who recounted experiences with tapering that were likely to be compelling to patients who were candidates for opioid tapering. Based on investigator's observations and review of focus group transcripts, 7 participants were invited to give video recorded interviews. Characteristics of the 7 story tellers are provided in Table 1. From these interviews, investigators selected forty-eight 30–60 second narrative video clips for possible inclusion in the patient education video. Forty-eight patient raters were recruited to watch and rate the video clips. Rater recruitment was stratified by age (<60 versus ≥60) and gender and was conducted at the same clinics using the same methods and eligibility criteria as storytellers. Characteristics of the 48 raters are provided in Table 1. Each rater watched and rated one-half of the clips in terms of patient engagement with the clip and the clip's perceived persuasiveness related to opioid tapering. The final video included 15 clips that received at least a 3.5 mean (on a 1 to 5 scale, with higher values indicating more persuasiveness) rating on perceived persuasiveness. The full video is included in the online Appendix.

2.2. Pre-Intervention Participant Recruitment and Screening Survey

The target audience for the narrative video about tapering were people taking opioids for chronic pain who were not in the process of tapering. To identify an appropriate target audience, we conducted a pre-Intervention survey using an Amazon Mechanical Turk (MTurk, www.mturk.com) sample (n = 5,000) (Figure 1). MTurk is an online crowdsourcing labor marketplace operated by Amazon.com. There is evidence showing that MTurk convenience samples provide data equivalent in quality to the data generated from alternative samples [15,16]. The survey was constructed and administered using Qualtrics (Provo, UT, version 12), which allows for random assignment to intervention conditions. Qualtrics records individual responses to the survey, but not the MTurk account information, so participants remain anonymous. Each participant received $0.30 for their participation.

Participants were first asked if they were experiencing pain most or all of the time during the past 30 days; those who reported "Yes" were asked to report a) how long they had been suffering from pain, and b) if they were taking opioid medications to deal with their pain. Participants who reported taking opioid medications to deal with their pain were also asked how often they have taken opioid medications in the past 30 days and if they had already started tapering, assessed by an item asking whether their opioid use had increased, decreased or remained about the same during the past year. The following criteria based on pre-Intervention survey responses were used to identify participants eligible for the intervention: 1) experienced pain most or all of the time during the past 30 days, 2) had been suffering from pain for 6 months or longer, 3) were prescribed opioids and taking opioids at least once a week, and 4) did not report a reduction in prescribed opioid dose during the past year. A total of 365 out of 5000 participants (7.3%) were eligible for the intervention.

2.3 Pre-Intervention Survey Measures

Participants who reported they were not already tapering were asked to report their intention to taper, measured by averaging their responses to 3 items (Appendix 1) using a 5-point Likert-type scale (1 = "Not Likely" to 5 = "Very Likely"; Chronbach's alpha = 0.91). Participants were also asked to report their pain intensity, perceptions of their pain's interference with life, and their attitudes about opioids and opioid tapering, as these could affect their tapering intention.

Pain intensity was measured with the one-item subscale of pain intensity taken from the PEG scale [17] ("Circle the number that best describes your pain on average in the past week) on a 11-point Likert-type scale (0 = "No pain" to 10 = "Pain as bad as imaginable"). *Pain-related interference* was measured by averaging responses to two items (Appendix 1) using a 11-point Likert-type scale (0 = "Doesn't interfere" to 10 = "Completely interferes"; alpha = 0.87). *Beliefs about opioid effectiveness* were measured by averaging responses to two items asking about opioid effectiveness (Appendix 1) using a 5-point Likert-type scale (1 = "Not at all effective" to 5 = "Extremely effective"; alpha = 0.65). *Concerns about opioids* were measured by averaging responses to 4 items taken from the Prescribed Opioids Difficulties Scale and the Current Opioid Misuse Measure (Appendix 1) on a 5-point Likert-type scale (1 = "Not at all/Never" to 5 = "Extremely/Very often"; alpha = 0.86). Participants also provided demographic characteristics (Table 2).

2.4 Intervention Design

A two-condition between-subject intervention was conducted on MTurk. Eligible participants (n = 365) were randomly assigned to receive an invitation to a follow-up study that involved either watching the narrative video or reading an opioid tapering pamphlet produced by the CDC [14]. Both the video and the pamphlet are available in the online Appendix. Of the 365 eligible participants (182 females, mean age = 37 years), 239 took part in the intervention (128 in the video condition and 111 in the pamphlet condition, Figure 1), giving an overall response rate of 65.5%. The respondents and non-respondents did not differ in terms of their demographic characteristics or pre-survey measures. After watching the video or reading the pamphlet, participants were instructed to report their perceptions of tapering effectiveness, tapering self-efficacy, and their intention to start

tapering. All surveys were administered using Qualtrics. There are a total of 28 items in the pre-intervention screening survey. On average, participants spent 4.44 minutes (266.5 seconds) to complete the survey. Each participant received $1.00 for their participation.

2.5 Intervention survey measures

In the Intervention survey, *perceived effectiveness of tapering* was measured by averaging responses to 3 items (Appendix 2) measured on a 5-point Likert-type scale (1 = "Strongly Disagree" to 5 = "Strongly Agree"; alpha = .72). *Self-efficacy for tapering* was measured with the average of responses to 3 items (Appendix 2) on a 5-point Likert-type scale (1 = "Strongly Disagree" to 5 = "Strongly Agree"; alpha = 0.85). *Post-intervention tapering intention* was measured with a slightly modified version of the 3-item tapering intention measurement used in the pre-intervention survey (Appendix 2; alpha = 0.92).

2.6 Power and Sample Size Considerations

All outcomes (perceived effectiveness of tapering, self-efficacy for tapering, and tapering intention) were measured on a 1 to 5 scale. Thus, we considered that a 0.5-point difference would be clinically meaningful. Based on data with similar scales and patient population, we expected standard deviations to range between 1 and 1.2. Statistical power would depend on how many of the 365 eligible randomized participants received the intervention and provided post-intervention data and/or were following protocol. Under the conservative assumption that only half of participants would provide usable data (91 per arm), the study would have between 80% and 92% power to detect a 0.5-point difference in the effects of intervention (assuming standard deviations between 1 and 1.2) for a two-sided significance test with $\alpha = 0.05$. These estimates are conservative in that they do not take into account the expected increase in power that results from adjusting for baseline characteristics. Power would be enhanced if more than 50% of the randomized participants would provide usable data.

2.7. Statistical analysis

Before assessing the hypotheses of the study, we first compared characteristics and variables for patients across the two intervention conditions using Chi-square (for categorical variables) and independent samples t-test (for interval variables). We then examined zero-order Spearman rank correlations among variables. To assess differences between the two intervention conditions in terms of: 1) perceived effectiveness of tapering, 2) perceived self-efficacy in tapering, and 3) tapering intention, we conducted three separate linear regression analyses. Each regression model included terms for intervention group (dummy coded: video = 1, pamphlet = 0), participants' demographic characteristics, including age, sex, race, educational level, employment status, and income, and their pre-intervention measures, including pain intensity, pain-related interference with life, perceptions of opioid effectiveness, concerns about opioids, and their pre-intervention tapering intention. Regression assumptions were checked by inspecting residual plots, which showed that the assumptions of regression were adequately met.

Our primary analysis employed an "intention-to-treat" approach that analyzed all patients who were randomized and provide outcome data. Since participants were not forced to

spend a fixed amount of time with the intervention (i.e., the video or pamphlet), we also conducted a secondary, "per-protocol" analysis based on the time participants spent with the video or pamphlet (time spent on each stimuli was covertly recorded by Qualtrics). The median time spent with the video (n = 128) was 9 minutes (540 seconds) (range 1 second to 5028 seconds; interquartile range 42 seconds to 808 seconds). The median time spent with the pamphlet (n = 111) was 36 seconds (range 1 second to 1306 seconds; interquartile range 7 seconds to 102 seconds). The 13-minute long video consists of a number of short narrative segments and each segment is at least 30 seconds long. The two-page long pamphlet contains 565 words and it should take an average adult 2 to 3 minutes to read. Based on these considerations our secondary, "per-protocol" analyses included only participants who spent at least 30 seconds with the video (n = 99) or at least 5 seconds viewing the two-page pamphlet (n = 94). The total sample size for this analyses was 193. To assess if amount of time or attention spent with the intervention affects the outcome measures, we also conducted a "dose-response" analysis, examining the Spearman correlation between time spent with the stimuli and the outcome measures. All analyses were conducted in SPSS (IBM, version 23).

3. RESULTS

Participants in the narrative video condition (n = 128) and those in the pamphlet condition (n = 111) did not differ significantly in terms of their pain intensity, perceived pain-related interference with life, perceptions of opioid effectiveness, concerns about opioids, or their pre-intervention tapering intention (Table 3). However, since pain intensity, perceived pain-related interference with life, perceptions of opioid effectiveness, concerns about opioids, or their pre-intervention tapering intention were found to be significantly associated with pre- and post-intervention tapering intention (Table 4), they were included, along with demographic characteristics, as covariates in the primary, "intention-to-treat" analyses.

Participants' perceptions of tapering effectiveness were higher in the video group (mean = 4.06) than the pamphlet group (mean = 3.67), adjusted mean difference = 0.34, 95%CI 0.13 – 0.54, $P < 0.001$. Participants' perceptions of tapering self-efficacy were also higher in the video group (mean = 3.97) than the pamphlet group (mean = 3.60), adjusted mean difference = 0.32, 95%CI 0.09 – 0.55, $P < 0.001$. Perceived tapering effectiveness and self-efficacy were both positively associated with post-intervention tapering intention (Spearman correlation coefficient = 0.38 and 0.53, respectively, both $P < .001$). These differences correspond to a moderate effect size (0.4 – 0.5) [18]. Participants in the narrative video condition did not differ significantly from their counterparts in the pamphlet condition in terms of tapering intention (Table 5).

The secondary, "per-protocol" analyses revealed a very similar pattern of findings as the primary analyses (Table 6). Participants in the narrative video condition (n = 99) perceived greater levels of tapering effectiveness and greater levels of self-efficacy than participants in the pamphlet condition (n = 94) (Table 6). These differences indicate slightly larger effect sizes (0.45 – 0.66) than we found in our primary analyses. Both perceived tapering effectiveness and tapering self-efficacy were positively associated with tapering intention

(Table 7). Participants in the two intervention conditions did not differ significantly in terms of tapering intention (Table 6).

Finally, in our "dose-response" analysis, time spent viewing intervention was weakly associated with concerns about opioids, pre-intervention tapering intention, and perceived tapering effectiveness in the main analysis (Table 4). In our "per-protocol" analysis restricted to patients who spent at least 5 seconds viewing the pamphlet or at least 30 seconds viewing the video, time spent viewing the intervention was only significantly associated with perceived tapering effectiveness (Table 7).

4. DISCUSSION AND CONCLUSION

4.1. Discussion

Past research and theorizing on persuasive communication in health contexts have shown that narrative communication is often more effective than informational communication in persuading people to make positive health changes [19–21]. To our knowledge, no prior empirical research has examined the effectiveness of narrative communication in promoting appropriate opioid tapering. Our study thus fills this gap in the literature.

Our study provides preliminary support for the effectiveness of a narrative-based educational video (as opposed to an informational pamphlet) in enhancing patients' belief in the effectiveness of tapering in managing the side effects of opioids and their ability to manage their pain with a lower dose of opioids. The effect sizes we observed in our primary analyses were at least as large as those found in a recent clinical trial examining the effect of mind-body training on patients' pain-related self-efficacy, and so are likely to be clinically meaningful [22]. The slightly larger effect sizes we observed in our secondary, "per-protocol" analysis, and the results of our "dose-response" analyses both support the interpretation that between-group differences in outcomes were due to differences in the interventions (video versus pamphlet).

Although our study did not observe an impact of the narrative video in enhancing patients' intention to taper, the narrative video's effectiveness in promoting perceptions of tapering effectiveness and tapering efficacy is encouraging, especially given that both of these perceptions were found to predict tapering intention. One possible interpretation of this result is that, even after receiving education about tapering, many patients would want to consult their prescribing clinician to determine whether tapering was clinically appropriate before they considered attempting to taper. The video only recommended that patients discuss tapering with their clinician, so it is plausible that increased belief in tapering effectiveness and tapering self-efficacy associated with watching the video would prompt additional conversations with clinicians about tapering, and thus eventually, increases in clinically appropriate tapering. Our study participants consisted of patients recruited from a non-clinical setting; the video may have greater impacts if it is targeted to a clinical population for whom clinicians have determined that opioid tapering is potentially appropriate. Thus, a direction for future research is to assess the effectiveness of the narrative video in a clinical setting, such as patients identified by their clinicians as candidates for tapering.

Limitations of our study are that we recruited participants from a subpopulation (MTurk users) that may not be representative of patients on opioids who are candidates for tapering. In particular, the mean age of our sample (37) was much younger than the average age of patients taking opioids for chronic pain based on national surveys, which is usually around 45–65 in national samples [23, 24]. The younger sample in our study may also explain that the percentage of eligible participants for our intervention (7.3%) was lower than estimate of overall chronic pain population in the US, which is approximately 18% of the adult population [23]. However, our use of a screening survey to assess eligibility and randomized allocation mitigated this limitation. Finally, we did not assess opioid dose, so our sample likely included patients on low-dose or intermittent opioids for which opioid tapering is not clinically indicated. However, increased beliefs in tapering effectiveness and tapering self-efficacy is unlikely to lead to opioid cessation in these patients; rather, shifts in attitudes about tapering associated with watching the video could conceivably reduce the likelihood that patients on low opioid doses would seek higher opioid doses in the future.

4.2. Conclusions

Taken as a whole, our findings suggest that video-recorded patient stories may be more effective than an informational pamphlet in promoting patients' perceptions of the effectiveness of tapering in managing the side effects of opioids and their ability to manage their pain with a lower dose of opioids. Given the limitations of our sample, future research should reassess the effectiveness of the narrative video in a clinical setting.

4.3 Practice implications

Our findings offer practical implications for the design of intervention programs aiming at promoting health behavior change such as opioid tapering. Advantages of educational videos as a strategy for encouraging opioid tapering are that videos have negligible risks for patients, can be viewed by patients outside clinic settings on their own time, and can easily be deployed at scale and shared across clinical settings. In our home institution, we have incorporated the patient video into our health system's electronic health record, so that clinicians can order the video for patients who they consider to be good candidates for tapering. The full video is available in the online Appendix and is available for use under a Creative Commons license (https://www.youtube.com/watch?v=bdAdkcpxXdw). Clinicians interested in obtaining the video for use in other clinical settings should contact the last author.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Appendix

Appendix 1.

Study variables and items used in the pre-intervention survey

Pre-intervention intention to taper
Chronbach's alpha = 0.91
5-point scale: 1 = "Not Likely" to 5 = "Very Likely"
How likely is it that you will consider taking less opioid pain medicine in the next few months?
How willing are you to try decreasing the amount of opioid medications you are taking?
How likely is it that you will talk to your doctor about decreasing the amount of opioid medications you are taking?
Perceived pain-related interference
Chronbach's alpha = 0.87
11-point scale: 0 = "Doesn't interfere" to 10 = "Completely interferes"
Choose the number that best describes how, during the past week, pain has interfered with your general activity.[1]
Circle the number that best describes how, during the past week, pain has interfered with your enjoyment of life.[1]
Beliefs about opioid effectiveness
Chronbach's alpha = 0.65
5-point scale: 1 = "Not at all effective" to 5 = "Extremely effective"
How effective are opioid medications at reducing your level of pain?
How effective are opioid medications at reducing how much pain interferes with your normal work or other activities?
Concerns about opioids
Chronbach's alpha = 0.86
5-point scale: 1 = "Not at all/Never" to 5 = "Extremely/Very often"
Considering the side effects of opioid medicines you experienced in the past month, how bothersome were these side effects?[2]
In the past 30 days, how often have others been worried about how you're handling your medications?[3]
In the past 30 days, how often have you been worried about how you're handling your medications?[3]
In the past 30 days, how much of your time was spent thinking about opioid medications (having enough, taking them, dosing schedule, etc.?[3]

Note: The average of each scale was used in the analyses

[1] Item taken from the PEG Scale [17]

[2] Item taken from the Prescribed Opioids Difficulties Scale [25]

[3] Item taken from the Current Opioid Misuse Measure [26]

Appendix

Appendix 2.

Study variables and items used in the post-intervention survey

Perceived effectiveness of tapering
Chronbach's alpha = 0.72
5-point scale: 1 = "Strongly Disagree" to 5 = "Strongly Agree"

Taking a lower dose of opioids can avoid or decrease negative side effects of opioids
Taking less opioid medication can improve one's quality of life
Taking less opioid medication can make it easier to tackle day-to-day tasks
Self-efficacy for tapering
Chronbach's alpha = 0.85
5-point scale: 1 = "Strongly Disagree" to 5 = "Strongly Agree"
I should be able to manage my pain with a lower dose of opioids
I can work with my doctor to figure out a plan to reduce my opioids
I can use alternative ways besides opioids to manage my pain
Post-intervention tapering intention
Chronbach's alpha = 0.92
5-point scale: 1 = "Strongly Disagree" to 5 = "Strongly Agree"
After watching the video/reading the pamphlet, how willing are you to try decreasing the amount of opioid medications you are taking?
After watching the video/reading this pamphlet, how likely is it that you will consider decreasing the amount of opioid medications you are taking?
After watching the video/reading this pamphlet, how likely is it that you will talk to your doctor about decreasing the amount of opioid medications you are taking?

Note: The average of each scale was used in the analyses

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Highlights

- Five thousand participants were screened to identify eligible US patients
- Patients randomized to view a narrative video or pamphlet about opioid tapering
- Perceived tapering effectiveness was higher in the video than the pamphlet group
- Perceived self-efficacy was higher in the video than the pamphlet group
- Post-intervention tapering intention did not differ between groups

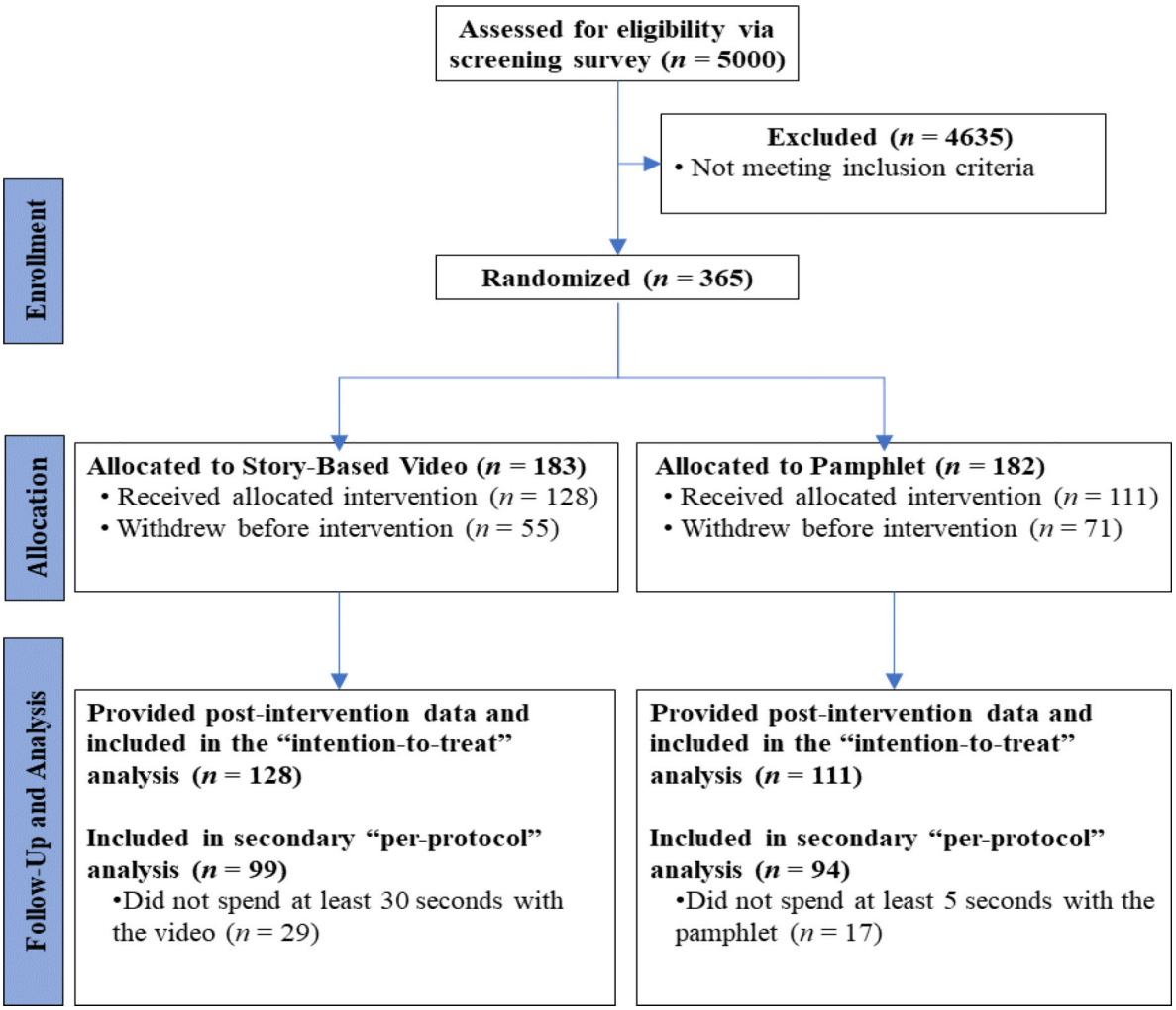

Figure 1.
Recruitment and allocation

Table 1.

Characteristics of storytellers (n = 7) in the narrative video and raters for the narrative video (n = 48)

	Storytellers (n = 7)	**Raters (n = 48)**
Age (years), *mean (SD)*	59.3 (5.4)	58.8 (9.0)
Male Gender, *n* (%)	3 (43%)	24 (50%)
Race, *n* (%)		
African-American	1 (14%)	1 (2%)
Caucasian	6 (86%)	43 (90%)
Other[1]	0 (0%)	4 (8%)
Hispanic, *n* (%)	1 (14%)	7 (15%)
Status of Opioid Tapering, *n* (%)		
Already Tapered	4 (67%)	18 (38%)
Currently Tapering	2 (29%)	14 (29%)
Recommended to Taper	1 (14%)	8 (17%)
Tapering Not Discussed	0 (0%)	8 (17%)
Education, *n* (%)		
High School or Less	1 (14%)	5 (10%)
Some College	2 (29%)	16 (33%)
AA/Technical Degree	3 (43%)	9 (19%)
Bachelor's Degree	1 (14%)	13 (27%)
Master's, Doctoral or Professional Degree	0 (0%)	5 (10%)
Employment, *n* (%)		
Self-employed	0 (0%)	3 (6%)
Full time	0 (0%)	13 (27%)
Part time	0 (0%)	1 (2%)
Out of work	0 (0%)	2 (4%)
Not able to work	4 (57%)	8 (17%)
Retired	3 (43%)	18 (38%)
Other	0 (0%)	3 (6%)
Income, *n* (%)		
< 40k	2 (29%)	10 (21%)
40k - 60k	1 (14%)	12 (25%)
60k - 80k	1 (14%)	6 (13%)
80k - 100k	2 (29%)	10 (21%)
> 100k	1 (14%)	10 (21%)
Average pain severity[2], *mean (SD)*	5.7 (2.5)	6.5 (1.9)
How long you have been suffering from chronic pain?[3], *n* (%)		
< 6 months	0 (0%)	2 (4%)
2 years - 5 years	0 (0%)	3 (6%)
5 years - 10 years	1 (14%)	12 (26%)
≥ 10 years	6 (86%)	30 (64%)

Note: Due to rounding percentages might not sum to 100.

[1] Includes Bi-racial, Mexican American, Greek, Indian.

[2] Measured using the PEG scale (range 0 to 10, with higher numbers reflecting more severe pain during the past week) [17]

[3] Data missing for 1 rater.

Table 2.

Characteristics for the participants included in the primary analyses (n = 239)

Characteristics	Total (n = 239)	Video Condition (n = 128)	Pamphlet Condition (n = 111)
Age (years), *mean (SD)*	37.1 (11.8)	37.3 (12.3)	37.0 (11.3)
Male Gender, *n* (%)	116 (49%)	63 (49%)	53 (48%)
Race, *n* (%)			
African-American	23 (10%)	13 (10%)	10 (9%)
Non-Hispanic Caucasian	154 (64%)	84 (66%)	70 (63%)
Other[1]	19 (8%)	10 (8%)	9 (8%)
Hispanic	43 (18%)	21 (16%)	22 (20%)
Education, *n* (%)			
High School graduate	30 (13%)	18 (14%)	12 (11%)
Some College	45 (19%)	25 (20%)	20 (18%)
AA/Technical Degree	23 (10%)	15 (12%)	8 (7%)
Bachelor's Degree	107 (45%)	54 (42%)	53 (48%)
Master's, Doctoral or Professional Degree	47 (18%)	15 (12%)	18 (16%)
Employment, *n* (%)			
Self-employed	44 (18%)	21 (16%)	23 (21%)
Full time	133 (56%)	76 (59%)	57 (51%)
Part time	29 (12%)	13 (10%)	16 (14%)
Out of work	8 (3%)	4 (3%)	4 (4%)
Not able to work or disabled	13 (5%)	8 (6%)	5 (5%)
Retired	10 (4%)	4 (3%)	6 (5%)
Other	2 (1%)	2 (2%)	0 (0%)
Income, *n* (%)			
Under 10k	11 (5%)	7 (6%)	4 (4%)
10k - 20k	28 (12%)	17 (13%)	11 (10%)
20k - 40k	54 (23%)	32 (25%)	22 (20%)
40k - 60k	66 (28%)	29 (23%)	37 (33%)
60k - 80k	41 (17%)	22 (17%)	19 (17%)
80k - 100k	23 (10%)	11 (9%)	12 (11%)
> 100k	16 (7%)	10 (8%)	6 (5%)
Average pain intensity[2], *mean (SD)*	6.8 (1.6)	6.8 (1.6)	6.8 (1.6)
How long you have been suffering from chronic pain?			
6 months - 1 year	73 (31%)	39 (31%)	34 (31%)
1 year - 2 years	56 (23%)	30 (23%)	26 (23%)
2 years - 5 years	47 (20%)	20 (16%)	27 (24%)
5 years - 10 years	25 (11%)	13 (10%)	12 (11%)
10 years +	38 (16%)	26 (20%)	12 (11%)

Note: Due to rounding percentages might not sum to 100.

[1] Includes American Indian or Alaska Native, Asian, Native Hawaiian or Pacific Islander.

[2]Measured using the 1-item pain intensity measure from the PEG scale (range 0 to 10, with higher numbers reflecting more severe pain during the past week)[17]

Table 3.

Comparison of pre-intervention measures for the two intervention conditions (n = 239)

	Video (n = 128)	Pamphlet (n = 111)	Video vs. Pamphlet*	
Variables	**Mean (SD)**	**Mean (SD)**	**Estimated Difference (SE) 95% CI**	***P*-value**
Pain intensity	6.79 (1.57)	6.75 (1.57)	0.04 (0.20) −0.36 to 0.44	0.84
Concerns about opioids	3.14 (0.97)	3.05 (0.99)	0.09 (0.13) −0.16 to 0.34	0.46
Pain-related interference	6.80 (1.61)	7.23 (1.78)	−0.43 (0.22) −0.86 to 0.01	0.054
Perceived opioid effectiveness	3.60 (0.73)	3.73 (0.68)	−0.12 (0.09) −0.30 to 0.06	0.18
Pre-invention tapering intention	3.54 (1.29)	3.44 (1.27)	0.10 (0.17) −0.23 to 0.43	0.55

*From two-sample t-tests

Table 4.

Zero-order Spearman correlations among variables (intention-to-treat sample; $n = 239$)

Variables	1	2	3	4	5	6	7	8
1. Pain intensity[1]								
2. Concerns about opioids[1]	0.48***							
3. Pain-related interference[1]	0.54***	0.38***						
4. Opioid effectiveness[1]	0.28***	0.31***	0.29***					
5. Pre-intervention tapering intention[1]	0.42***	0.64***	0.27**	0.32***				
6. Post-intervention tapering intention[2]	0.39***	0.63***	0.26**	0.31***	0.82***			
7. Perceived tapering effectiveness[2]	0.15*	0.16*	0.05	0.14*	0.18*	0.38**		
8. Tapering self-efficacy[2]	0.19*	0.31***	0.12	0.22***	0.31***	0.53***	0.67***	
9. Time viewing stimuli	−0.05	−0.16*	0.01	−0.09	−0.15*	−0.12	0.20*	0.09

Note:

*** $p < 0.001$.

** $p < 0.01$.

* $p < 0.05$.

[1] Variable measured in pre-intervention survey.

[2] Variable measured in post-intervention survey.

Table 5.

Comparison of post-intervention measures for the two intervention conditions (intention-to-treat sample; n = 239)

	Video (n = 128)	Pamphlet (n = 111)	Video vs. Pamphlet*	
Primary Outcomes	**Mean (SD)**	**Mean (SD)**	**Estimated difference (SE) 95% CI**	***P*-value**
Perceived tapering effectiveness	4.06 (0.72)	3.67 (0.84)	0.34 (0.10) 0.13 to 0.54	< 0.001
Perceived tapering self-efficacy	3.97 (0.87)	3.60 (1.05)	0.32 (0.12) 0.09 to 0.55	< 0.01
Post-invention tapering intention	3.46 (1.06)	3.33 (1.12)	0.03 (0.08) −0.12 to 0.19	0.66

*From linear regression models that included terms for group (dummy coded: video = 1, pamphlet = 0), participants' demographic characteristics (age, sex, race, educational level, employment status, and income), pre-intervention measures (pain intensity, pain-related interference with life, perceptions of opioid effectiveness, concerns about opioids, and their pre-intervention tapering intention).

Table 6.

Comparison of post-intervention measures for the two intervention conditions ("per-protocol" sample; n = 193)

	Video (n = 99)	Pamphlet (n = 94)	Video vs. Pamphlet*	
Primary Outcomes	**Mean (SD)**	**Mean (SD)**	**Estimated difference (SE) 95% CI**	***P*-value**
Perceived tapering effectiveness	4.15 (0.64)	3.66 (0.85)	0.45 (0.11) 0.23 to 0.67	< 0.001
Perceived tapering self-efficacy	4.00 (0.83)	3.57 (1.10)	0.36 (0.13) 0.10 to 0.61	< 0.01
Post-invention tapering intention	3.41 (1.13)	3.23 (1.17)	0.06 (0.09) −0.11 to 0.23	0.51

*From linear regression models that included terms for group (dummy coded: video = 1, pamphlet = 0), participants' demographic characteristics (age, sex, race, educational level, employment status, and income), pre-intervention measures (pain intensity, pain-related interference with life, perceptions of opioid effectiveness, concerns about opioids, and their pre-intervention tapering intention).

Table 7.

Zero-order Spearman correlations among variables (“per-protocol” sample; $n = 193$)

Variables	1	2	3	4	5	6	7	8
1. Pain intensity[1]								
2. Concerns about opioids[1]	0.50***							
3. Pain-related interference[1]	0.50***	0.36***						
4. Opioid effectiveness[1]	0.23**	0.25**	0.23**					
5. Pre-Intervention tapering intention[1]	0.40***	0.63***	0.24**	0.27***				
6. Post-intervention tapering intention[2]	0.39***	0.66***	0.23**	0.29***	0.86***			
7. Perceived tapering effectiveness[2]	0.14*	0.19*	−0.03	0.12	0.21**	0.38***		
8. Tapering self-efficacy[2]	0.18*	0.33***	0.07	0.20**	0.37***	0.56***	0.69***	
9. Time viewing stimuli	−0.10	−0.08	−0.05	−0.07	−0.04	−0.05	0.22**	0.13

Note:

*** $p < 0.001$.

** $p < 0.01$.

* $p < 0.05$.

[1] Variable measured in pre-intervention survey.

[2] Variable measured in post-intervention survey.

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