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Development and Validation of a Brief Interactive Educational Video to Improve Outpatient Treatment of Older Adults' Acute Musculoskeletal Pain

Timothy F. Platts-Mills, MD, MSc,

Department of Emergency Medicine, University of North Carolina Chapel Hill, Chapel Hill, NC

Benjamin R. Quigley,

Department of Emergency Medicine, University of North Carolina Chapel Hill, Chapel Hill, NC

Joseph P. Duronio,

Department of Emergency Medicine, University of North Carolina Chapel Hill, Chapel Hill, NC

Meredith V. Hoover,

University of South Carolina School of Medicine, Greenville, SC

Eric T. Burgh,

University of North Carolina School of Medicine, Chapel Hill, NC

Michael A. LaMantia, MD,

Department of Medicine, Indiana University, Indianapolis, IN

Sonia M. Davis, PhD,

Gillings School of Global Public Health, University of North Carolina Chapel Hill, Chapel Hill, NC

Mark A. Weaver, PhD, and

Department of Medicine, University of North Carolina Chapel Hill, Chapel Hill, NC

Sheryl Zimmerman, PhD

Cecil G. Sheps Center for Health Services Research and the School of Social Work, University of North Carolina Chapel Hill, Chapel Hill, NC

To the editor

Acute musculoskeletal pain is a common reason for emergency department (ED) visits, and pain that is not properly treated can become chronic.¹ Most ED patients with

Corresponding Author: Timothy F. Platts-Mills, MD, MSc, Department of Emergency Medicine, University of North Carolina Chapel Hill, 101 Manning Drive, CB #7010, Chapel Hill, NC 27599-7010, tplattsm@med.unc.edu.

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musculoskeletal pain are discharged home,² leaving the patient responsible for decisions regarding pain management. Since commonly-used pain medications have considerable risks and frequently cause side effects for older adults,³ patient education prior to discharge is important. A brief video has the potential to provide this education in a consistent, accessible manner without requiring time from medical providers.⁴ To meet this need, we developed and tested a brief educational video that presents information about the pharmacologic and non-pharmacologic management of acute musculoskeletal pain.

Content for the video was based on a review of literature and current guidelines, as well as input from experts in emergency medicine, geriatrics, pharmacology, physical therapy, and risk communication.^{5–7} The initial script was modified following feedback from 10 ED patients aged 50 years and older. The video is narrated by a professional actress wearing a laboratory coat, and includes graphics and key points displayed in writing; the reading level for the spoken content is 8.6 based on the Flesch-Kincaid readability test.

The video contains four sections: acetaminophen, nonsteroidal anti-inflammatory drugs (NSAIDs), opioids, and non-pharmacologic behaviors. For each pharmacologic treatment, information includes common examples, indications, contraindications, recommended doses, and side effects. The non-pharmacological behaviors include physical activity, sleep, social support, and relaxation. Each section concludes with one multiple-choice question to promote viewer interaction and reinforce learning. The final version, named the “Brief Educational Tool to Enhance Recovery from Pain” (BETTER from Pain), can be accessed at the following link: <https://media.med.unc.edu/emergmed/better/index.html>.

Impact of the video on patient knowledge and preparedness and confidence to treat pain was evaluated in a pilot study of 40 patients aged 50 years and older who presented to an ED in the southeastern US with a chief complaint of musculoskeletal pain. Patients were excluded if they were unable to read and understand English, were critically ill as defined by a triage score of 1 on the emergency severity index or the judgment of the treating physician, or had cognitive impairment as defined by a Six-Item Screener score less than four.^{8,9} Before and after viewing the video, we assessed patient knowledge about pain medications using 14 multiple choice questions, as well as preparedness and confidence to treat pain at home using 6 questions with responses on a 5-point Likert scale (Online Appendix). Eight of the knowledge questions were adapted from a patient knowledge assessment for patients with osteoarthritis.¹⁰ The local Institutional Review Board approved all study procedures and verbal informed consent was obtained from all participants.

The percentage of correct answers were calculated for all knowledge questions and for knowledge question subgroups (general treatment, acetaminophen, NSAIDs, opioids); average preparedness and confidence scores were calculated by treating the 5-point Likert scales as numeric values. Before and after scores were compared using the Wilcoxon signed-rank test. Scores were also assessed separately for younger (50–64 years) and older (≥ 65 years) patients. A sample size of 20 patients per age-group provided 80% power to detect a mean increase of 2 points in knowledge scores, assuming a standard deviation of 3 points for change in score, using a two-sided alpha of 0.05. We subsequently chose to present results as percent correct.

Of 53 ED patients screened, 44 were eligible and 40 (91%) consented to participate. Average time spent viewing the video was 13 minutes (range 8–18 minutes). Overall, 98% demonstrated improved knowledge after watching the video: average percentage of questions answered correctly increased from 37% to 65% out of 14 ($p<.001$). By age, pre- and post-video mean percentage of questions answered correctly were 43% and 74% for patients aged 50–64 years, and 30% and 54% for those 65 and older. One area of difficulty, even after watching the video, was categorizing NSAIDs (Motrin, 45% correct; Aleve and naproxen, 48% correct). Significant improvement was also observed for all 6 measures of preparedness and confidence, with averages scores increasing by about 0.5 points (Table). Improvements in preparedness and confidence post-video were similar for younger and older adults. All patients recommended the use of this video for others, and 93% reported the video to be useful or very useful.

In a sample of ED patients who viewed the BETTER from Pain video, we observed improvements in short-term knowledge, preparedness, and confidence in the self-treatment of pain. More research is needed to determine the impact of the video on behaviors, pain symptoms, side effects, and adverse events.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table

Average scores before and after viewing the video for knowledge, preparedness, and confidence (N=40).

Question Type	Pre-Video	Post-Video	p-value ^a
Percent correct, mean (SD)			
All (14 questions)	37 (27)	65 (24)	<.001
General (1 question)	25 (44)	45 (50)	.01
Acetaminophen (3 questions)	46 (34)	84 (25)	<.001
NSAIDs (7 questions)	34 (32)	56 (29)	<.001
Opioids (3 questions)	41 (42)	73 (33)	<.001
Preparedness, mean (SD)^b			
Selecting pain treatment	4.1 (0.9)	4.6 (0.7)	<.001
Timing of pain treatment	4.2 (1.0)	4.6 (0.8)	.004
Knowing side effects	3.9 (1.2)	4.4 (0.9)	.01
Confidence, mean (SD)^b			
Treating pain	4.2 (0.9)	4.4 (0.8)	.03
Recognizing side effects	4.2 (1.0)	4.5 (0.8)	.002
Expected pain relief	3.5 (0.8)	3.9 (0.8)	.009

^aCalculated using Wilcoxon signed-rank test

^bLikert scale from 1 to 5 where 1 indicates “not at all” and 5 indicates “very well” (preparedness) or “extremely” (confidence).