A Patient-Narrative Video Approach to Teaching Fibromyalgia

Frederic Stuart Leeds¹, Evan M Sommer¹, Wyatt J Andrasik¹,², Kareem M Atwa¹,³ and Timothy N Crawford¹,⁴

¹Department of Family Medicine, Boonshoft School of Medicine, Wright State University, Dayton, OH, USA. ²Cleveland Clinic Foundation Dermatology Residency Program, Cleveland Clinic, Cleveland, OH, USA. ³Bethesda Family Medicine Residency Program, TriHealth, Cincinnati, OH, USA. ⁴Department of Population and Public Health Sciences, Boonshoft School of Medicine, Wright State University, Dayton, OH, USA.

ABSTRACT

INTRODUCTION: Although fibromyalgia is one of the most common and clinically important rheumatologic entities, physicians frequently report that their training fails to prepare them to manage this disease. Many medical schools devote insufficient time and attention to the subject of fibromyalgia, resulting in training gaps that can manifest as failures of both knowledge and empathy. There is a need for evidence-based, time-efficient methods for teaching this important subject. We have developed a narrative-driven video presentation for clerkship students and sought to evaluate its impact on fibromyalgia-related knowledge and attitudes.

METHODS: Fibromyalgia: A Patient’s Perspective (FPP), a 13-minute video, was presented to third-year medical students (N = 54). Surveys of knowledge and attitudes were collected before and after the video. Composite scores, as well as Knowledge and Attitudes subscales, were computed, and paired t tests were used to compare pre/post means for these scales, as well as for individual questions. Mann-Whitney U and Kruskal-Wallis tests were used to identify correlations between survey scores and student sex and specialty of interest.

RESULTS: Between pre-experience and post-experience surveys, there were statistically significant differences for 11 of 15 questions (73%). The composite score increased from 3.8 (SD = 0.44) to 4.2 (SD = 0.47) (P < .0001). Knowledge and Attitude subscale scores also increased, from 4.0 (SD = 0.5) to 4.38 (SD = 0.5) (P < .0001) and 3.6 (SD = 0.5) to 3.93 (SD = 0.5) (P < .0001), respectively. Students reported favorable impressions of the video, with 87% agreeing that the video was helpful to learners and 79% disagreeing that a lecture would be preferable to the video. No differences in scores by sex or intended specialty were observed.

CONCLUSION: The FPP video demonstrates promise as a tool for enhancing both knowledge of and positive, empathic attitudes toward fibromyalgia in medical learners. It may serve as a useful resource for educators looking to further develop their clinical pain management curricula.

KEYWORDS: Fibromyalgia, instructional film and video, clinical clerkship, instructional methods

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Corresponding Author: Frederic Stuart Leeds, Department of Family Medicine, Boonshoft School of Medicine, Wright State University, 725 University Boulevard, Dayton, OH 45324, USA. Email: fstuart.leeds@wright.edu

Introduction

Fibromyalgia is one of the most common rheumatologic diseases; its prevalence in the general population is between 1% and 2%, with estimates as low as 0.16% and as high as 11.1%.¹,² Fibromyalgia is a disease of significant morbidity, producing a burden of pain and functional impairment comparable to that of rheumatoid arthritis.³ Despite the obvious clinical importance of this entity, practicing physicians frequently report inadequate training in the management of the condition, as well as skepticism about the legitimacy of the diagnosis itself.³,⁴ Such knowledge deficits appear to have their origin in predoctoral medical education, during which a large majority of medical schools in the United States and worldwide set aside insufficient time and resources for pain education in general, and fibromyalgia education in particular.⁵,⁶ As a result, fibromyalgia tends to be marginalized as a set of medically unexplained symptoms, with the consequence that students tend to lack not only knowledge but also empathy for the condition.⁷,⁸

Given the recent trends in medical education away from the traditional classroom lecture format,⁹ remediating the pedagogical gap for fibromyalgia might take several forms, including team- and problem-based learning, hands-on workshops, and electronic media resources. Because the diagnosis of fibromyalgia is frequently freighted with negative attitudes and factual misconceptions, a video format designed to present both core content and a patient narrative was of particular interest to our study group. Video has been used successfully in a variety of predoctoral educational settings and tends to compare favorably with lectures and other didactic formats, in terms of...
both efficacy and popularity with students. The video format may also be considered a form of patient-driven medical education and has proven effective as a means of promoting empathy in medical learners. Videos can also be quite time-efficient; an ideal presentation, prior to supplementary discussion or exercises, might only last 10 to 12 minutes.9,17

Given the many appealing characteristics of the video format, we begin with the hypothesis that presenting a brief, patient narrative–driven fibromyalgia video to clerkship–level medical students will result in measurable improvements in their understanding of the disease—and of the experiences of those who suffer from it.

Methods
A 13-minute, patient–centered narrative video entitled Fibromyalgia: A Patient’s Perspective (FPP) was designed and storyboarded by authors F.S.L. and E.M.S., with videography and production by E.M.S. (Sometime Creative). In June 2018, FPP was introduced as a component of the Wright State University Boonshoft School of Medicine (WSUBSOM) Pain Management didactic sequence presented to third–year medical students (MS3s) during their Family Medicine clerkship. Beginning in the second half of the school year, all MS3s completing the clerkship (N = 54) were given surveys before and after viewing FPP. The surveys explored their knowledge and attitudes regarding fibromyalgia and patients with fibromyalgia. Demographic data, including sex and top specialty/residency consideration, were also collected in the post–questionnaire, along with 2 rating questions about the video experience and a free–text box for general comments.

Statistical analysis
Data were analyzed using SAS version 9.4 (Cary, NC). Descriptive statistics were conducted to describe the study sample with means, standard deviations, and medians for all continuous– and ordinal–level variables, and frequencies and percentages for all categorical variables.

To assess changes in the pre– and post–survey questions, Wilcoxon signed rank tests were conducted for each of the 15 items. An overall mean scale score was created by averaging the 15 pre– and post–survey questions. Knowledge and Attitudes subscales were also created by averaging the relevant items. Questions 7, 8, 10, and 14 were reverse–coded, so the lower score was a negative response. Cronbach α values were used to assess the internal consistency and reliability of the overall scale and the Knowledge and Attitudes subscales. Paired t tests were conducted to assess pre–post differences in the composite scales and subscales. To assess differences in each questionnaire item by demographics, Mann–Whitney U tests and Kruskal–Wallis tests were conducted. For all statistical tests, values of P < .05 were regarded as statistically significant.

Results
There were 54 students across 3 clerkship rotations who participated in the study, with slightly more than half being women (Table 1). The students’ top specialty/residency considerations are also shown in Table 1 and demonstrate a diverse range, with a plurality favoring Family Medicine and Internal Medicine. Table 2 provides the responses to the 15 questions pre– and post–video. There were statistically significant score differences for questions 2, 4 to 11, 13, and 15 (11/15 questions, 73%). For the composite score, the Cronbach α values for pre– and post–video were 0.82 and 0.89, respectively, suggesting good internal consistency and reliability. The composite score increased from 3.8 (SD = 0.44) pre–video to 4.2 (SD = 0.47) post–video (P < .0001). The Knowledge subscale scores increased from 4.0 (SD = 0.5) pre–video to 4.38 (SD = 0.5) post–video (P < .0001). Cronbach α values for the Knowledge scale at pre– and post–video were 0.81 and 0.88, respectively. The Attitudes subscale scores increased from 3.6 (SD = 0.5) pre–video to 3.93 (SD = 0.5) post–video (P < .0001). Cronbach α values for the Attitudes scales were 0.57 and 0.67 at pre– and post–survey, respectively. Free–text comments about the course (voluntarily provided by 44% of participants) appear essentially “as–is” in Table 3, with minimal corrections to spelling and grammar.

Approximately 87.0% agreed/strongly agreed that the video was helpful. Approximately 79.0% disagreed/strongly disagreed that they would prefer a lecture over a video. There were no significant differences in responses to any of the questionnaire items by sex or by specialty/residency of interest.

Discussion
Fibromyalgia: A Patient’s Perspective was conceived and developed for medical learners, with a twofold purpose: to convey key fibromyalgia knowledge elements in a compact format, and to use the power of a patient’s personal narrative to ground the cognitive content in an affective context. That this approach can promote comprehension, retention, and sense of mastery is well supported in the literature. Patient–driven teaching tools like FPP can very organically embed objective data in an emotional framework and are likely to be effective in cultivating empathy as well. Ideally, these teaching tools should also be time–efficient, as well as appealing and enjoyable to students.

In this pilot study, we sought to determine whether exposure to FPP, a 13–minute video, would produce measurable differences among clerkship students in knowledge and attitudes with respect to fibromyalgia. We found significant post–experience changes in most of the survey questions, as well as in the composite, Knowledge subscale, and Attitudes subscale scores. In terms of knowledge objectives, students were more likely after watching FPP to report that fibromyalgia

(a) Is treatable, using evidence–based therapies and interventions.
(b) Responds to physical exercise as a key element of the treatment regimen.
(c) Has significant impact on functional status and quality of life.
(d) May be accompanied by objective physical examination findings.
### Table 1. Demographics (N=54).

|          | N (%) |
|----------|-------|
| **Sex**  |       |
| Male     | 23 (44.2) |
| Female   | 29 (55.8) |
| **Rotation** |   |
| 4        | 18 (33.3) |
| 5        | 19 (35.2) |
| 6        | 17 (31.5) |
| **Specialties of primary interest** | |
| Dermatology | 1 (1.9) |

(Continued)

### Table 1. (Continued)

|          | N (%) |
|----------|-------|
| **Emergency medicine** | 6 (11.1) |
| **Family medicine** | 11 (20.4) |
| **Internal medicine** | 13 (24.1) |
| **OBGYN** | 6 (11.1) |
| **Orthopedics** | 4 (7.4) |
| **Psychiatry** | 6 (11.1) |
| **Pediatrics** | 9 (16.7) |
| **Surgery** | 6 (11.1) |
| **Urology** | 3 (5.6) |

Abbreviation: OBGYN, obstetrics and gynecology.

(Continued)

### Table 2. Median fibromyalgia questions pre- and post-survey (N=54).

|                                          | PRE-SURVEY | POST-SURVEY | $p$ value |
|------------------------------------------|------------|-------------|-----------|
| **Fibromyalgia is a real disease and a legitimate diagnosis** | 4.3 (0.7) 4.0 (2.0, 5.0) | 4.4 (0.7) 4.5 (2.0, 5.0) | .07 |
| I feel that I understand the basic underlying cause or mechanism of the fibromyalgia syndrome | 2.8 (0.9) 3.0 (1.0, 4.0) | 3.8 (0.9) 4.0 (1.0, 5.0) | <.0001 |
| My colleagues and mentors believe fibromyalgia is a real disease and a legitimate diagnosis | 3.2 (1.0) 3.0 (1.0, 5.0) | 3.3 (1.0) 4.0 (1.0, 5.0) | .14 |
| Fibromyalgia has a major impact on functional status | 4.3 (0.6) 4.0 (2.0, 5.0) | 4.7 (0.6) 5.0 (3.0, 5.0) | <.0001 |
| Fibromyalgia is a treatable condition | 3.6 (0.8) 4.0 (2.0, 5.0) | 4.3 (0.6) 4.0 (3.0, 5.0) | <.0001 |
| Fibromyalgia has a major impact on quality of life | 4.5 (0.7) 5.0 (2.0, 5.0) | 4.7 (0.5) 5.0 (3.0, 5.0) | .003 |
| There are no reliable or reproducible physical examination findings in fibromyalgia | 2.6 (1.0) 2.0 (1.0, 4.0) | 2.2 (0.9) 2.0 (1.0, 4.0) | .009 |
| Fibromyalgia is a manifestation of a mood or somatoform disorder | 2.6 (1.0) 2.0 (1.0, 4.0) | 2.3 (1.1) 2.0 (1.0, 5.0) | .02 |
| Physical exercise is one of the mainstays of successful fibromyalgia treatment | 4.1 (0.7) 4.0 (2.0, 5.0) | 4.7 (0.5) 5.0 (3.0, 5.0) | <.0001 |
| Patients with fibromyalgia like to play the victim or “sick role” for attention | 2.1 (0.8) 2.0 (1.0, 4.0) | 1.8 (0.8) 2.0 (1.0, 5.0) | .003 |
| There are effective, evidence-based treatment options for fibromyalgia | 3.7 (0.9) 4.0 (2.0, 5.0) | 4.4 (0.7) 4.0 (2.0, 5.0) | <.0001 |
| It is important for fibromyalgia patients to take “ownership” of their condition and play an active role in their treatment plan | 4.6 (0.6) 5.0 (3.0, 5.0) | 4.7 (0.5) 5.0 (3.0, 5.0) | .30 |
| I feel empathetic toward those diagnosed with fibromyalgia | 4.1 (0.6) 4.0 (2.0, 5.0) | 4.4 (0.6) 4.0 (3.0, 5.0) | <.0001 |
| The majority of fibromyalgia patients have no chance for meaningful improvement | 2.0 (0.6) 2.0 (1.0, 4.0) | 1.8 (0.8) 2.0 (1.0, 5.0) | .17 |
| I would find it satisfying and fulfilling to take care of fibromyalgia patients | 3.2 (1.0) 3.0 (1.0, 5.0) | 3.6 (1.0) 4.0 (1.0, 5.0) | .004 |
| Knowledge subscale | 4.0 (0.5) 4.1 (2.9, 4.9) | 4.4 (0.5) 4.5 (3.0, 5.0) | <.0001 |
| Attitudes subscale | 3.6 (0.5) 3.5 (2.2, 4.5) | 3.9 (0.5) 4.0 (2.3, 4.8) | <.0001 |
| Composite scale | 3.8 (0.4) 3.8 (2.9, 4.6) | 4.2 (0.5) 4.3 (3.0, 4.9) | <.0001 |

Higher scores denote greater agreement.
(e) Is not a psychogenic or somatoform disorder.

With respect to attitudes and anticipated professional behaviors, post-video students were more likely to report empathy for patients with fibromyalgia, as well as positive feelings about treating them in the future. They expressed increased confidence in their understanding of the pathophysiology, and they were less inclined to attribution of attention-seeking "secondary gain" behaviors to patients with fibromyalgia.

As women are much more likely than men to be diagnosed with fibromyalgia, and because women tend to score better on standardized measures of empathy, we were also interested in potential differences in survey responses between male and female medical students. Similarly, medical specialty has been shown to correlate with empathy, as well as with subjective and objective measures of fibromyalgia competence—raising the question of whether intended specialty might influence the responses to survey questions. However, no correlation was observed between our demographic variables and the scores on the composite scale, subscales, or individual questions.

Students reported very favorable impressions of the video, with 87% agreeing or strongly agreeing that it was helpful to learners and 78% disagreeing or strongly disagreeing that a lecture would have been preferable to the video experience. There was no sex or specialty effect on the responses to these questions.

Almost half of the study group voluntarily provided free-text comments about the FPP session, which were overwhelmingly positive. Constructive feedback included recommendations for including supplementary printed material and for directing more attention to teaching the pathophysiology of the disease.

This study was constrained by a number of limitations. The post-experience questionnaire was administered immediately after the video and may reflect results that are not persistent in the longer term. We are, however, encouraged by the results of earlier

### Table 3. Post-video free-text comments.

| CLERKSHIP ROTATION | COMMENTS |
|--------------------|----------|
| 4                  | “Excellent; Very informative; Better recall than a lecture” |
| 4                  | “Great video; Great music” |
| 4                  | “Good to hear experience of successfully treated patient” |
| 4                  | “Curious about patients who self-diagnose based on TV commercials for fibromyalgia drugs, convince themselves they have this disease” |
| 4                  | “This video was useful; It always helps to see a real success story as opposed to just a lecture” |
| 4                  | “Well done” |
| 4                  | “Good video; Educational” |
| 4                  | “My mother has struggled with fibromyalgia for 20+ years and it was encouraging to see you (and hopefully other physicians) encourage and support and not give up on these patients; Thank you” |
| 4                  | “Enjoyed learning about this disease and how to manage it” |
| 5                  | “Video was very well done” |
| 5                  | “Very informative. Unfortunate that healthcare professionals have a misplaced judgement toward this illness” |
| 5                  | “Great Video” |
| 5                  | “Informative” |
| 5                  | “Much prefer video like this than lecture; lot more engaging and interesting” |
| 5                  | “Video is an effective tool to increase empathy for fibro patients” |
| 5                  | “Very well done” |
| 5                  | “Really well done video on an interesting topic. Would like to learn more” |
| 5                  | “Production quality was great; Dr.<name omitted> is a great teacher to both students and patients!” |
| 5                  | “I have definitely observed bias towards fibro pts by physicians, nursing staff, and others. Thank you for helping change my previously held biases” |
| 5                  | “Thank you! This video gave me good insight and helpful concrete treatment options” |
| 5                  | “Great video; may include a supplemental info sheet with sources and evidence supporting the pathophys and treatment modalities” |
| 5                  | “I would like more details on pathophys” |
| 6                  | “Well done” |
| 6                  | “Well done” |

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This study was constrained by a number of limitations. The post-experience questionnaire was administered immediately after the video and may reflect results that are not persistent in the longer term. We are, however, encouraged by the results of earlier
studies suggesting a sustained benefit from educational videos in the predoctoral setting. Future studies will assess the durability of FPP’s effect by examining time points as far out as a year after video exposure. It should also be noted that the FPP video featured both a volunteer patient and one of the authors (F.S.L.), who is a core faculty member at the medical school where the study was done. Although all student data were collected anonymously, biases related to students’ opinions or impressions of a faculty member cannot be excluded. As we plan to make FPP freely available to any accredited medical school that wishes to include it in their pain curriculum, we hope to study its impact without the potential bias of a “home field advantage.”

We also note that the absolute magnitudes of Knowledge, Attitude, and composite score increases, while statistically significant, were small. As the pre-video scores were higher than expected, this appears to reflect, in part, the relatively strong pre-extant knowledge base of our students with regard to fibromyalgia. As the test group was selected from students in the last half of their clerkship year, we might, therefore, anticipate a larger effect for students who have completed fewer rotations.

**Conclusion**

In this pilot study, we find that FPP, a brief patient narrative–centered educational video targeting the medical learner, demonstrates promise as an effective tool for increasing both knowledge of and positive, empathic attitudes toward fibromyalgia. As such, it may serve as a useful resource for medical educators looking to further develop their clinical pain management curricula.

**Authors’ Note**

To request a digital copy of the video *Fibromyalgia: A Patient’s Perspective* for use in clinical didactics, please contact the corresponding author.

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**Author Contributions**

All authors were involved in the design and implementation of the project and experimental protocol described herein. The initial draft of this paper was written by the first author, and all authors participated in reviews, revisions, and preparation of the final manuscript.

**Ethics Approval**

As this study was undertaken as part of an established clerkship didactic program, it was reviewed and classified as Exempt by the Wright State University Institutional Review Board. *Fibromyalgia: A Patient’s Perspective* was filmed and produced after obtaining explicit consent in writing from the participating patient, who has also given written permission to make the video available for any legitimate medical education purpose.

**ORCID iD**

Frederic Stuart Leeds https://orcid.org/0000-0002-8712-0915

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