



An Evaluation of Family Medicine Residents' Attitudes Before and After a PCMH Innovation for Patients With Chronic Pain

Lance Evans, PhD; John A. Whitham, DO; David R.M. Trotter, MA; Katie R. Filtz, MA

BACKGROUND AND OBJECTIVES: Prior research indicates that primary care physicians have predominantly negative attitudes toward chronic pain patients, and chronic pain patients have predominantly low satisfaction with the care and treatment they receive in primary care. This current state of affairs highlights the need for Patient-centered Medical Home (PCMH) innovations for the treatment of chronic pain in primary care. The purpose of this study was to determine if a PCMH innovation for the treatment of chronic pain in a family medicine residency program can improve resident attitudes toward chronic pain patients.

METHODS: From January 2010 to December 2010, 30 family medicine residents (two–three per month) participated in twice-a-month PCMH innovation for the treatment of chronic pain in primary care (“pain clinic”). De-identified data from a Likert-type measure of negative attitudes toward chronic pain patients were extracted from pain clinic evaluation information that was collected shortly before (pretest) and shortly after (posttest) the residents’ pain clinic participation. Using these data, we conducted a paired-samples *t* test to determine if residents’ negative attitudes toward chronic pain patients had improved.

RESULTS: The difference between residents’ pretest scores ($M=51.2$, $SD=10.9$) and posttest scores ($M=45.2$, $SD=9.2$) was significant, suggesting that residents’ negative attitudes toward chronic pain patients improved after participating in pain clinic.

CONCLUSIONS: A PCMH innovation for the treatment of chronic pain in primary care can improve family medicine residents’ attitudes toward chronic pain patients.

(*Fam Med* 2011;43(10):702-11.)

or conditions are likely to challenge the implementation process more than others. One such population is chronic nonmalignant pain (“chronic pain”) patients, which studies indicate is a population about which independent-practicing primary care physicians,³ residents,⁴ and medical students^{5,6} hold predominantly negative attitudes. Although the relationship between attitudes and behavior is complex—and researchers have generally found attitudes challenging to measure for predictive purposes⁷—prior research has demonstrated that physician attitudes toward chronic pain patients have a measurable influence on both their own and their patients’ behavior.⁸⁻¹⁰ As such, resident attitudes toward chronic pain patients may pose a significant challenge to family medicine educators’ attempts teach a PCMH approach to chronic pain. The purpose of this report is to describe a PCMH clinical innovation for the treatment of chronic pain in a family medicine residency program that resulted in improved resident attitudes toward chronic pain patients.

With the advent of the Patient-centered Medical Home (PCMH)¹ initiative, family medicine residency programs have been challenged to create clinical environments and educational experiences that produce graduates capable of competent practice and

leadership in a PCMH environment. While there are many factors and conditions that contribute to a residency program’s transformation into an effective PCMH training environment,² it is important to recognize that resident attitudes about certain patient populations

From the Department of Family and Community Medicine, Texas Tech University Health Sciences Center, Lubbock, TX (Dr Evans and Mr Trotter); Naval Health Clinic, Corpus Christi, TX (Dr Whitham); and Department of Psychology, Texas Tech University (Mr Trotter and Ms Filtz).

Primary Care and Chronic Pain Patients

Chronic pain is pain that has complex biological and psychosocial origins, is experienced beyond the usual course of disease or injury, and lasts for 3 months or more.¹¹ It encompasses a variety of diagnoses (eg, back pain, musculoskeletal complaints), is experienced by approximately 57% of the US population annually,¹² and is likely undertreated.¹³ The annual health care costs related to chronic pain are estimated to be \$85 to \$90 billion,¹⁴ with an additional estimated annual cost of \$61 billion related to lost worker productivity.¹⁵

A recent study indicates that approximately 52% of the adults who seek treatment for chronic pain do so in a primary care setting.¹⁶ However, despite this finding and other reports^{13,17} identifying chronic pain as one of the most commonly reported symptoms in primary care, results from several studies^{18,19} suggest that chronic pain patients are routinely dissatisfied with the care and treatment they receive in primary care settings. This dissatisfaction appears to be a function of multiple factors. For example, several studies,²⁰⁻²³ as well as a systematic review,²⁴ suggest that chronic pain patients' dissatisfaction is associated with a variety of unmet expectations regarding physicians' abilities to effectively alleviate pain; diagnose accurately and with confidence; provide an explanation for the pain with appropriate information, instructions, and documentation; and relate and communicate in a courteous and professional manner (eg, active listening, emotional support, empathy, respect, mutual trust, understanding, and believing and taking the patient seriously). Other researchers have identified relational conflict, the struggle for control in the patient-physician relationship, physician time spent with patient, and differing opinions as to the origins of chronic pain (biogenic versus psychogenic) as the source of patient dissatisfaction.^{18,25,26} Interestingly, despite conventional wisdom to the contrary, there is little evidence

that chronic pain patients' dissatisfaction is related to expectations regarding medications.²⁴

Primary Care Physicians' Attitudes Toward Chronic Pain Patients

Primary care physicians' attitudes toward chronic pain patients are predominantly negative, as indicated by one study that found that only 15% of practicing family physicians could agree with the statement: "I enjoy working with patients who have chronic nonmalignant pain."²⁷ Conceptually, these negative attitudes represent an orientation to chronic pain patients whereby the primary care physician expects the majority of chronic pain patients to be time-consuming, demanding, difficult, manipulative, deceitful, exploitive, non-adherent, abusive, drug-seeking, or impossible to please.^{3,17,28,29} Results from prior research suggest that these attitudes are formed as early as medical school^{5,6} and likely further develop as a result of residency training,⁴ independent practice,³ or both.

The process by which physicians develop these negative attitudes is unclear; however, a number of descriptive and qualitative studies provide some clues. Preliminary evidence suggests that personal characteristics such as intolerance of uncertainty, need for structure, authoritarianism, negative psychological orientation, self-esteem, and Machiavellianism may predispose both medical students⁵ and practicing physicians³⁰ to have negative attitudes toward chronic pain patients. More notable in the literature, however, are numerous reports on a variety of experiences that may influence or facilitate physician development of negative attitudes toward chronic pain patients. First, several researchers have suggested that medical students^{25,6,31,32} and residents³³ experience with the formal curriculum, the hidden curriculum, and medical culture is likely to encourage negative attitudes toward chronic pain patients. Second, results from several studies suggest

that actual clinical experience with chronic pain patients may foster negative attitudes. For example, both independent-practicing primary care physicians^{17,27,30,34} and residents^{4,35,36} rate their work with chronic pain patients as significantly less satisfying or rewarding than their work with other types of patients. Moreover, various researchers have reported that medical students,^{6,32} residents,⁴ and independent-practicing primary care physicians^{3,28,34} describe their clinical experience with chronic pain patients as "difficult" or "frustrating." However, given that these same student and physician groups both tend to rate their training, knowledge, and confidence around the care and treatment of chronic pain patients as insufficient,^{4,17,29,30,32,34,35,37-42} these findings are not surprising. Finally, a number of other experience-related issues that are likely to encourage negative attitudes toward chronic pain patients have been reported. For example, independent-practicing primary care physicians, residents, and medical students all report that their experiences with chronic pain patients are marked by difficult or challenging interpersonal interactions,^{3,4,32} issues, concerns, or uncertainty related to opioid prescribing practices (eg, addiction, diversion, regulatory scrutiny),^{4,5,17,27-30,34,37,38,40,42} and difficulties around psychiatric comorbidity.^{4,17,32,36} In addition, some of these same student and physician groups report that the experience of caring for chronic pain patients is inordinately time consuming,^{4,34,38} likely to induce tension and uncertainty over etiology (biogenic versus psychogenic),^{5,30} emotionally stressful,^{3,32} and likely to involve troublesome non-adherence issues.¹⁷

Family Medicine Pain Clinic As a PCMH Innovation for Chronic Pain Patients

The Department of Family and Community Medicine at Texas Tech University Health Sciences Center in Lubbock is home to a large primary care clinic that is staffed by faculty and resident family physicians, a psychologist, nursing personnel,

and a variety of other support and health-related personnel. The clinic also serves as a clerkship site for medical students, as well a primary care practicum site for doctoral students in psychology.

In June 2009, as part of ongoing departmental efforts to align our practice environment with PCMH principles, we made two observations with respect to our chronic pain population. First, anecdotal reports from our faculty and resident physicians, coupled with an informal internal review, suggested that our chronic pain population was substantial. Second, anecdotal data from our faculty and resident physicians and empirical attitudinal data (ie, Press-Ganey

reports) from our chronic pain patients were consistent with the negative attitudinal descriptions found in the literature for both physicians and chronic pain patients. Based on these observations, we recognized an opportunity to develop a PCMH innovation for our chronic pain population.

The process of developing the PCMH innovation for chronic pain patients was begun by reviewing the general principles of a PCMH. Briefly, a PCMH environment is marked by the provision of first contact, continuous, and comprehensive care by a personal physician who (1) develops a personal, ongoing, communicative relationship with patients and

(2) leads, coordinates, integrates, advocates, and takes responsibility for patient care that is safe, evidence-based, continuously improving, accountable, readily available and accessible, cost-effective and fair, and technologically advanced.¹ Next, we reviewed the practice guidelines^{43,44} for chronic pain and associated literature so as to compare our current practices to evidence-based practices. From these initial review processes, we developed the Family Medicine Pain Clinic (“pain clinic”) as a PCMH innovation for chronic pain patients.

The pain clinic was designed to target five critical areas (Table 1). Individually, the targeting of any one of these areas could hardly be called

Table 1: Rationale for Targeted Areas and Projected Physician Outcomes for Family Medicine Pain Clinic*

Targeted Area	Rationale	Projected Physician Outcomes
Increased appointment time	Due to the complex, multi-dimensional nature of chronic pain, ^{45,46} patients often require more time. ^{4,34,38,42,46}	More time facilitates a more complete physician understanding of patient condition, which may lead to decreased physician frustration, pressure, and stress.
Collaborative biopsychosocial approach	Due to the complex, multi-dimensional nature of chronic pain, ^{45,46} patients are often best treated with a collaborative biopsychosocial approach. ^{43,47-49}	A collaborative biopsychosocial approach broadens the epistemological basis of diagnosis and treatment, which may lead to decreased physician stress due to uncertainty. ⁵⁰ A collaborative biopsychosocial approach distributes the expertise and care burden appropriately, which may lead to decreased physician frustration, pressure, and stress.
Multi-modal treatment	Due to the complex, multi-dimensional nature of chronic pain, ^{45,46} patients often respond best to appropriate multi-modal treatment (ie, treatment that includes more than one discipline). ⁴³	Multi-modal treatment that is appropriately indicated is more efficacious, which may lead to greater physician satisfaction. Knowledge of multi-modal treatment options may lead to increased physician confidence and reduced frustration, pressure, and stress.
Interpersonal and communication skills	Because a positive physician-patient relationship (eg, effective communication, emotional support, shared decision making) is associated with better outcomes, ⁵¹⁻⁵⁴ and interactions with chronic pain patients are often interpersonally challenging and difficult ^{3,4,17,25,26,37,32} and require more effective communication and emotional support, ^{20,29,55} physicians need advanced interpersonal and communication skills and knowledge.	Advanced interpersonal and communications skills are likely to produce better outcomes, positive physician-patient relationships, and more effective and productive conversations around difficult issues (eg, behavior change, addiction issues, adherence, self-management of pain, explanations of pain, non-pharmacological treatment modalities, choice of medications), which may lead to reduced physician frustration, pressure, and stress and increased physician confidence and satisfaction.
Psychosocial and behavioral assessment	Due to the complex, multi-dimensional nature of chronic pain ^{45,46} and psychiatric comorbidity, ^{17,44,56} patients need a complete psychosocial and behavioral assessment. ⁴³	Psychosocial and behavioral information is likely to enhance physician understanding of patient condition and clarify diagnosis and treatment, which may lead to decreased physician frustration, pressure, and stress, and increased physician confidence and satisfaction

* For all targeted areas, the primary projected outcomes were improved clinical outcomes and patient satisfaction.

innovative; however, we are unaware of any instance in the primary care chronic pain literature where all five areas have been targeted collectively in an effort to provide a PCMH to chronic pain patients. Although the five critical areas were primarily selected for their propensity to improve clinical outcomes and patient satisfaction, they were also considered based on their potential to improve several of the likely core drivers (eg, negative clinical experiences, insufficient training, lack of time) of physician negative attitudes toward chronic pain patients. An explanation of each of the five targeted areas is presented in Table 2, and Table 3 provides a detailed description of the pain clinic process.

Objectives and Hypothesis

Although the primary purpose of the pain clinic was to align our practice environment with PCMH principles and improve clinical outcomes

and patient satisfaction for chronic pain patients, we were also interested as medical educators in the degree to which this PCMH clinical innovation would affect the historically negative attitudes of residents toward chronic pain patients. The literature suggests that these negative attitudes are largely a function of negative clinical experiences with chronic pain patients coupled with a lack of skill or training in knowing how to handle these types of situations.^{4,35,36,41} Given that the activities in the five targeted areas would provide the residents with new experiences and training specifically tailored to meet the needs and challenges of working with chronic pain patients, we hypothesized that residents' attitudes would improve after participating in pain clinic. Support for our hypothesis could have implications for resident attitude development toward chronic pain patients, as well as implications for resident

education around the treatment of chronic pain.

Methods

Setting and Participants

Eligible participants for this study included the two–three family medicine residents per month from January 2010 to December 2010 who participated in the pain clinic as part of a behavioral science rotation (30 total eligible participants). On average, each resident on the behavioral science rotation participated in two pain clinics per month. Each pain clinic had four patients scheduled; however, due to no-shows or cancellations, the average number of patients seen by each resident in pain clinic per month was four. The residents' training during pain clinic utilized a variety of teaching modalities such as modeling, shadowing, didactic discussion, and independent readings. For example, residents received a pain clinic handbook detailing the

Table 2: Explanation of Targeted Areas for Family Medicine Pain Clinic

Targeted Area	Explanation
Increased appointment time	Appointment times for chronic pain patients increased to 1 hour. Approximately 30 minutes of the 1-hour appointment is allocated to interaction with the faculty psychologist and one–two doctoral students in psychology, and approximately 30 minutes is allocated to interaction with the attending faculty physician and two–three resident physicians.
Collaborative biopsychosocial approach	The faculty psychologist, attending faculty physician, resident physicians, and doctoral psychology students work collaboratively to assess and care for patients, including a complete biopsychosocial evaluation and a collaborative treatment planning meeting.
Multi-modal treatment	Multi-modal treatment for chronic pain is explored with patients and, when appropriately indicated, is collaboratively provided within the family medicine clinic (eg, pharmacological management, psychological treatment, acupuncture, osteopathic manipulation, joint blocks, and trigger point injections) or with other providers in the Texas Tech University Health Sciences Center (eg, physical or restorative therapy, electrical nerve stimulation, intrathecal nonopioid injections, minimally invasive procedures).
Interpersonal and communication skills	The pain clinic is staffed by a faculty psychologist and an attending faculty physician who have extensive training and experience in patient-centered interviewing and communication skills, as well as extensive clinical experience working with chronic pain patients, difficult or challenging patients, or both. Discussions around interpersonal issues, effective communication, and potential barriers to relationship-building are part of the collaborative treatment planning meeting.
Psychosocial and behavioral assessment	Patients are given a complete behavioral and psychosocial assessment, including subjective ⁵⁷ and objective ⁵⁸ measures of pain and objective measures of depression, anxiety, somatization, ⁵⁹ quality of life, ⁶⁰ pain disability (functional status and psychosocial functioning), ⁶¹ potential for opioid abuse, ⁶² illness behavior and beliefs, ⁶³ and readiness to adopt a self-management approach to pain. ⁶⁴ Patients are also assessed for legal disability status, treatment expectations, psychosocial stressors, coping resources, and psychiatric history.

* Pain clinic occurs 2–3 half-days per month. Patients are referred to pain clinic by their family medicine primary care provider (PCP) for assessment, and then sent back to their PCP with a biopsychosocial treatment plan.

Table 3: Family Medicine Pain Clinic Processes

Process	Description
Pre-appointment	Chronic pain patients whose assessment requires more time than is available in a routine primary care appointment are identified by family medicine primary care providers and referred to family medicine pain clinic; patients are sent a welcoming letter along with an intake form and several non-proprietary psychosocial assessment instruments; ^{57,58,61-64} patients are asked to complete the form and assessments prior to their arrival at pain clinic.*
Initial greeting and psychosocial assessment	Patient is greeted and met by a pain clinic team (ie, the faculty psychologist, a doctoral student in psychology, and a resident physician) and escorted to an exam room; the team explains the purpose and process of the pain clinic, conducts a brief psychosocial interview, and administers two additional proprietary psychosocial assessment instruments; ^{59,60} nursing staff collects basic patient information and obtains vital signs.
History and physical	The patient is evaluated by the attending faculty physician and a resident physician; faculty psychologist and doctoral students in psychology score psychosocial assessment instruments and prepare a brief psychosocial report.
Collaborative treatment planning meeting	Attending faculty physician, faculty psychologist, resident physicians, and doctoral students in psychology participate in a collaborative treatment planning meeting; brief psychosocial report is distributed; discussions include both content issues (eg, diagnoses, co-morbidities, medications, treatment options) and process issues (eg, effective communication, interpersonal issues, potential barriers to relationship building, motivation to change, or adherence).
Conclusion	Attending faculty physician and a resident physician meet with patient to collaboratively discuss and implement treatment plan.
Debrief	Attending faculty physician and faculty psychologist meet with resident physicians and doctoral students in psychology to debrief the appointment (eg, reactions, what went well, what could be improved, unanticipated outcomes).
Consultation with family medicine primary care provider	Resident physician meets with patient's family medicine primary care provider to follow up and discuss treatment plan.

* Approximately 85% of patients scheduled for pain clinic arrive with their intake form and non-proprietary psychosocial assessment instruments complete. When this is not the case, patients complete the forms and assessment instruments after the brief psychosocial interview.

five targeted areas of the pain clinic initiative, participated in collaborative pre-visit reviews of patient charts with the attending faculty physician and faculty psychologist, conducted joint (with the attending faculty physician) history and physical examinations with the patients, and participated in the collaborative treatment planning meetings. During down time due to no-shows or cancellations, residents participated in didactic discussions with the pain clinic faculty around the five targeted areas of the pain clinic initiative. As part of our efforts to assess the educational efficacy of pain clinic, various types of evaluation and demographic data were collected each month from the residents

participating in pain clinic, including information on attitudes toward chronic pain patients. The educational purpose behind the collection of these data, as well as the voluntary nature of providing it, was explained to residents prior to pain clinic participation. For each resident, these data were solicited shortly before (pretest) and again shortly after (posttest) participating in pain clinic. Following approval by the institutional review board, these data were retrospectively de-identified and analyzed for the purposes of this study.

Instrument

Due to the unavailability of a validated instrument measuring negative attitudes toward chronic pain

patients, the residents' attitudes were assessed using the Orientation to Chronic Pain Patients Scale (OCPPS),⁵ an unvalidated, 13-item, self-report educational survey instrument intended to measure "expectation of success in treating these patients [chronic pain patients], beliefs about ability to control treatment outcomes, professional satisfaction with patients' treatment outcomes, and negative stereotypical beliefs about the patient with chronic pain." The 13 items (Table 4) are presented as statements, and respondents are asked to indicate the degree to which they agree or disagree with each statement based on a 7-point Likert scale. Scores on the OCPPS are derived by summing the

Table 4: Orientation to Chronic Pain Patients Scale⁵

Statement
1. When I treat a chronic pain patient, I feel that the chances for a successful outcome are low.
2. Chronic pain patients are less likely to be compliant than other patients.
3. I am almost always more optimistic when treating any other patients than when treating a chronic pain patient.
4. Most of the medical problems of chronic pain patients are beyond anyone's control.
5. Chronic pain patients are more likely to be dissatisfied than other patients.
6. I feel that chronic pain patients expect too much from me.
7. I look forward to treating chronic pain patients in my practice.*
8. You can't win when you treat chronic pain patients.
9. It's very difficult to feel satisfied with the treatment outcomes of most chronic pain patients.
10. Chronic pain patients are usually incompetent to judge the quality of their treatment.
11. I enjoy interacting with chronic pain patients.*
12. Success in treating chronic pain patients is largely a matter of luck.
13. In general, my contact with chronic pain patients has been very satisfying.*

7-point rating scale for each statement: 1=strongly disagree, 4=neither agree or disagree, and 7=strongly agree.

* Reversed scored

Copyright Southern Medical Journal 2000. Reprinted with permission from Wolters Kluwer Health.

Likert values associated with each statement. Scores can range from 13–91, with higher scores suggesting more negative attitudes toward chronic pain patients.

Data Analysis

Analyses were conducted using SPSS (version 18, 2009, SPSS, Inc, Chicago). Demographic responses were analyzed by frequency, and descriptive statistics were calculated. To check for attitudinal differences based on gender, postgraduate year, or ethnicity, preliminary one-way ANOVAs were conducted based on these variables for both the pretest and posttest administrations of the OCPPS. Our primary hypothesis was tested via a paired samples *t* test for each of the 13 OCPPS items as well as the total OCPPS score.

Results

Complete pretest and posttest data were available for all eligible participants (n=30). Demographic characteristics of the residents are presented in Table 5. The preliminary one-way ANOVAs for the pretest and posttest administrations of the OCPPS indicated no significant attitudinal differences based on

Table 5: Resident Demographics

Demographic	n	%
Gender		
Male	14	46.7
Female	16	53.3
Postgraduate year (PGY)		
PGY-1	12	40.0
PGY-2	8	26.7
PGY-3	10	33.3
Race/ethnicity		
White	13	43.4
Asian	12	40.0
Hispanic or Latino	4	13.3
Black or African-American	1	3.3

Mean age = 30.27, standard deviation = 4.01

n=30

gender, postgraduate year, or ethnicity (Table 6).

Consistent with our hypothesis, the paired samples *t* test indicated a significant improvement in resident attitudes (Table 7). This improvement was present for eight of the 13 statements on the OCPPS, as

well as for the total OCPPS score. The pretest-posttest differences for the remaining five statements were lower on the posttest than the pretest; however, none of the differences were significant. There were no other significant findings.

Table 6: Mean Score Differences on the Orientation to Chronic Pain Patients Scale (Total Score)

Demographic	Pretest			Posttest		
	M	SD	P Value	M	SD	P Value
Gender			.748			.646
Male	50.5	12.5		44.4	9.6	
Female	51.8	9.6		45.9	9.0	
Postgraduate year (PGY)			.285			.697
PGY-1	49.1	9.0		43.4	8.7	
PGY-2	48.8	13.3		46.6	8.3	
PGY-3	55.7	10.4		46.2	10.8	
Race/ethnicity			.746			.388
White	51.9	12.7		44.2	9.3	
Asian	52.0	10.0		48.3	9.8	
Hispanic or Latino	49.3	9.0		41.5	5.3	
Black or African American	40.0	—		36.0	—	

Orientation to Chronic Pain Patients Scale—total scores range from 13–91, with higher scores suggesting more negative attitudes toward chronic pain patients.

n=30

Discussion

Explanation of Findings

Although the primary purpose of the pain clinic was to align our practice environment with PCMH principles and improve clinical outcomes and patient satisfaction for chronic pain patients, efforts to assess these variables are still ongoing and will be reported at a later date. The purpose of the study presented in this paper was to explore whether the negative attitudes of residents participating in pain clinic would improve as a result of their participation. As hypothesized, our results indicate that the residents' negative attitudes toward chronic pain patients (OCPPS total score) did improve after participating in pain clinic. Thematic analysis⁶⁵ of the eight statements that showed significant improvement suggests that the residents' attitudinal improvement was most likely associated with increased satisfaction (statements 7, 9, 11, 13), decreased pessimism and frustration

(statements 1 and 3), and decreased negative stereotypical beliefs (statements 2 and 6) with respect to chronic pain patients.

Because we were concerned that our hypothesized attitudinal improvement may have been confounded by gender, postgraduate year, or ethnicity, we checked for attitudinal differences based on these variables for both the pretest and posttest administrations of the OCPPS; however, no significant differences were identified. Thus, the improvement in residents' attitudes appears to be largely unaffected by these variables.

The exploratory nature of this study limits our ability to offer concrete explanations for the attitudinal improvement among residents. However, as we originally theorized, it may be that the residents' attitudinal improvement is attributable to the specialized training and positive new experiences they receive while participating in the pain clinic initiative. For example, it is possible that

the residents' increased satisfaction with treating chronic pain patients is attributable to the expanded appointment time and the collaborative biopsychosocial approach used in the pain clinic. Indeed, anecdotal reports suggest that this theory may have merit, as residents frequently comment on their enhanced understanding and confidence around the treatment of chronic pain patients as a result of the increased appointment times, physician and psychologist modeling behaviors, and the integration of complete psychosocial information into the clinical picture.

Educational and Attitudinal Implications

The results of our study may have implications for resident education around the treatment of chronic pain. For example, the literature suggests that primary care physicians have predominantly negative attitudes toward chronic pain patients,^{3,17,27-29} and chronic pain

patients have predominantly low satisfaction with the care and treatment they receive in primary care.^{18,20-26} Although there are many factors that contribute to this state of affairs, it is unfortunately not likely to improve until, at a minimum, residency programs consistently produce future primary care physicians capable of providing a PCMH to chronic pain patients. To do this will likely require residency programs to reform their chronic pain practices in a manner that produces measurable improvement in both physician attitudes and patient satisfaction. Although it has not yet been determined if our pain clinic initiative is a useful model for improving patient satisfaction among chronic pain patients (though anecdotal and preliminary reports suggest it may be), the results of our study suggest that it may be a useful model for improving residents' attitudes toward chronic pain patients.

Though it represents only half of the equation, it is an important first step, given the influence of physician attitudes toward chronic pain patients on clinical behavior.⁸⁻¹⁰ While aspects of our pain clinic initiative may not be financially or operationally feasible for some programs (eg, 1-hour appointment times, personnel to patient ratio, time to patient ratio) until other PCMH initiatives (eg, payment reform) are implemented, it nevertheless provides some initial insights into the kinds of clinical training and educational activities that influence resident attitudes toward chronic pain patients in a positive direction.

The results of our study may also have implications for resident attitude development toward chronic pain patients. Again, the literature suggests that primary care physicians' attitudes toward chronic pain patients are predominantly

negative,^{3,17,27-29} and that these attitudes inevitably develop over time as a result of negative clinical experiences and a lack of skill or training in knowing how to handle these types of situations.^{3-6,17,27-41} However, our results suggest that specialized training and positive new experiences with chronic pain patients can influence residents' attitudes in the positive direction and halt what the literature suggests is an inevitable process.

Limitations

The results of this study are subject to several limitations. First, the study lacked a control group and utilized an unvalidated self-report, retrospective survey to measure negative attitudes toward chronic pain patients. While adequate for our exploratory purposes, the self-report, retrospective survey is susceptible to participant distortion and imprecise

Table 7: Orientation to Chronic Pain Patients Scale: Pretest-Posttest Comparison

	Pretest		Posttest		t value	P Value
	M	SD	M	SD		
Statement 1	4.4	1.3	3.3	1.0	4.9	.000
Statement 2	3.8	1.4	3.5	1.0	1.8	.047
Statement 3	4.8	1.4	4.0	1.1	3.3	.003
Statement 4	3.0	1.3	2.9	1.3	0.4	.687
Statement 5	4.5	1.8	4.0	1.2	1.5	.134
Statement 6	4.2	1.4	3.6	1.2	2.6	.014
Statement 7	4.8	1.3	4.2	1.1	2.3	.026
Statement 8	3.3	1.3	3.2	1.2	0.3	.783
Statement 9	4.1	1.6	3.4	1.3	2.2	.037
Statement 10	2.5	1.3	2.4	1.0	-0.1	.899
Statement 11	4.6	1.4	4.1	1.1	2.2	.033
Statement 12	2.9	1.3	2.6	1.1	1.2	.234
Statement 13	4.3	1.3	3.7	1.0	2.4	.024
Total Score	51.2	10.9	45.2	9.2	3.6	.001

Orientation to Chronic Pain Patients Scale—higher scores suggest more negative attitudes toward chronic pain patients; scores for each statement range from 1–7; total score ranges from 13–91.

n=30

measurement, and the absence of a control group weakens our ability to attribute the residents' attitudinal changes to participation in pain clinic. Another limitation involves the use of a convenience sample of family medicine residents from a single university-based residency program. As such, our results may have been subject to cohort effects and may not be generalizable to other primary care resident populations or residents who are not training in a university-based setting. Finally, the timing of the posttest (immediately after the pain clinic intervention) leaves unanswered the question of whether or not the pain clinic experience improved resident attitudes for the long term or if the improvement was simply a short-lived result of having just experienced a positive treatment interaction with chronic pain patients.

Conclusions

Of all the population groups treated in primary care, perhaps no group is more in need of PCMH reform than chronic pain patients. Prior research indicates that primary care physicians have predominantly negative attitudes toward chronic pain patients, and chronic pain patients have predominantly low satisfaction with the care and treatment they receive in primary care. To have a lasting effect, reform must start at the residency level and target both physician attitudes and patient satisfaction. Although it has yet to be determined if the reform described in this paper is a useful method for improving patient satisfaction among primary care chronic pain patients, the results of our study suggest that our pain clinic initiative may be useful for improving resident attitudes toward chronic pain patients. More research is needed to confirm our findings, as well as to investigate the impact of our pain clinic initiative on patient satisfaction, clinical outcomes, and long-term attitude changes in resident physicians. In the interim, however, our results

highlight the need among residency-based medical educators for a better understanding of how resident attitudes toward chronic pain patients impact patient care as well as how those attitudes may be improved through a PCMH initiative.

ACKNOWLEDGMENTS: A brief presentation partially based on this manuscript was presented at the 2011 Forum for the Behavioral Sciences in Family Medicine Conference in Chicago.

CORRESPONDING AUTHOR: Address correspondence to Dr Evans, Texas Tech University Health Sciences Center, Department of Family and Community Medicine, 3601 4th Street, Lubbock, TX 79430-8143. 806-743-1100, ext. 262. Fax: 806-743-3955. lance.evans@ttuhsc.edu.

References

- Kellerman R, Kirk L. Principles of the Patient-centered Medical Home. *Am Fam Physician* 2007;76(6):774-5.
- Carney PA, Eiff MP, Saultz JW, et al. Aspects of the Patient-centered Medical Home currently in place: initial findings from Preparing the Personal Physician for Practice. *Fam Med* 2009;41(9):632-9.
- Matthias MS, Parpart AL, Nyland KA, et al. The patient-provider relationship in chronic pain care: providers' perspectives. *Pain Med* 2010;11:1688-97.
- Chen JT, Fagan MJ, Diaz JA, Reinert SE. Is treating chronic pain torture? Internal medicine residents' experience with patients with chronic nonmalignant pain. *Teach Learn Med* 2007;19(2):101-5.
- Weinstein SM, Laux LF, Thornby JI, et al. Medical students' attitudes toward pain and the use of opioid analgesics: implications for changing medical school curriculum. *South Med J* 2000;93(5):472-8.
- Griffith CH, Wilson JF. The loss of student idealism in the 3rd-year clinical clerkships. *Eval Heal Prof* 2001;24(1):61-71.
- Eagly AH, Chaiken S. *The psychology of attitudes*. Fort Worth, TX: Harcourt Brace Jovanovich, 1993.
- Coudeyre E, Rannou F, Tubach F, et al. General practitioners' fear-avoidance beliefs influence their management of patients with low back pain. *Pain* 2006;124:330-7.
- Linton SJ, Vlaeyen J, Ostelo R. The back pain beliefs of health care providers: are we fear-avoidant? *J Occup Rehabil* 2002;12(4):223-32.
- Poiraudeau S, Rannou F, Baron G, et al. Fear-avoidance beliefs about back pain in patients with subacute low back pain. *Pain* 2006;124:305-11.
- International Association for the Study of Pain. Classification of chronic pain: descriptions of chronic pain syndromes and definitions of pain terms. *Pain* 1986;24(Suppl 1):S1-S226.
- Peter D. Hart Research Associates. Americans talk about pain: a survey among adults nationwide conducted for Research!America. August 2003. <http://www.researchamerica.org/uploads/poll2003pain.pdf>. Accessed January 25, 2011.
- Green CR, Wheeler JRC, Marchant B, LaPorte F, Guerrero E. Analysis of the physician variable in pain management. *Pain Med* 2001;2(4):317-27.
- Carter C, Goldfarb NI, Hartman CW, Roumm AR, Vallow SM, Durkin M. Chronic pain management in managed care organizations: a national survey of medical directors. *Pharmacol Ther* 2003;28(3):179-215.
- Stewart WF, Ricci JA, Chee E, Morganstein D, Lipton R. Lost productive time and costs due to common pain conditions in the US workforce. *JAMA* 2003;290(18):2443-54.
- Breuer B, Cruciani R, Portenoy RK. Pain management by primary care physicians, pain physicians, chiropractors, and acupuncturists: a national survey. *South Med J* 2010;103(8):739-47.
- Upshur CC, Luckman RS, Savageau JA. Primary care provider concerns about management of chronic pain in community clinic populations. *JGIM* 2006;21:652-5.
- Upshur CC, Bacigalupe G, Luckman R. "They don't want anything to do with you:" patient views of primary care management of chronic pain. *Pain Med* 2010;11(12):1791-8.
- Cherkin D, Deyo RA, Berg AO. Evaluation of a physician education intervention to improve primary care for low-back pain. II: Impact on patients. *Spine* 1991;16(10):1173-8.
- Kirby K, Dunwood L, Millar R. What type of services do patients with chronic pain want from primary care providers? *Disabil Rehabil* 2009;31(18):1514-9.
- Werner A, Malterud K. It is hard work behaving as a credible patient: encounters between women with chronic pain and their doctors. *Soc Sci Med* 2003;57:1409-19.
- McIntosh A, Shaw CFM. Barriers to patient information provision in primary care: patients' and general practitioners' experiences and expectations of information for low back pain. *Health Expect* 2003;6:19-29.
- Haugli L, Strand E, Finset A. How do patients with rheumatic disease experience their relationship with their doctors? A qualitative study of experiences of stress and support in the doctor-patient relationship. *Patient Educ Couns* 2004;52:169-74.
- Verbeek J, Sengers MJ, Riemens L, Haafkens J. Patient expectations of treatment for back pain: a systematic review of qualitative and quantitative studies. *Spine* 2004;29(20):2309-18.
- Eggy S, Tzelepis A. Relational control in difficult physician-patient encounters: negotiating treatment for pain control. *J Health Commun* 2001;6:323-33.
- Kenny DT. Constructions of chronic pain in doctor-patient relationships: bridging the communication chasm. *Patient Educ Couns* 2004;52:297-305.

27. Potter M, Schafer S, Gonzalez-Mendez E, et al. Opioids for chronic nonmalignant pain: attitudes and practices of primary care physicians in the UCSF/Stanford Collaborative Research Network. *J Fam Pract* 2001;50(2):145-51.
28. Dobscha SK, Corson K, Flores JA, Tansill EC, Gerrity MS. Veterans Affairs primary care clinicians' attitudes toward chronic pain and correlates of opioid prescribing rates. *Pain Med* 2008;9(5):564-71.
29. Glajchen M. Chronic pain: treatment barriers and strategies for clinical practice. *J Am Board Fam Pract* 2001;14:211-8.
30. Weinstein SM, Laux LF, Thornby JI, et al. Physicians' attitudes toward pain and the use of opioid analgesics: results of a survey from the Texas Cancer Pain Initiative. *Southern Med J* 2000;93(5):479-87.
31. Murinson BB, Nenortas E, Mayer RS, et al. A new program in pain medicine for medical students: integrating core curriculum knowledge with emotional and reflective development. *Pain Med* 2011;12(2):186-95.
32. Wilson JF, Brockopp GW, Kryst S, Steger H, Witt WO. Medical students' attitudes toward pain before and after a brief course on pain. *Pain* 1992;50:251-6.
33. Wear D, Aultman JM, Zarconi J, Varley JD. Derogatory and cynical humour directed towards patients: views of residents and attending doctors. *Med Educ* 2009;43(1):34-41.
34. Ponte CD, Johnson-Tribino J. Attitudes and knowledge about pain: an assessment of West Virginia family physicians. *Fam Med* 2005;37(7):477-80.
35. Yanni LM, Weaver MF, Johnson BA, Morgan LA, Harrington SE, Ketchum JM. Management of chronic nonmalignant pain: a needs assessment in internal medicine resident continuity clinic. *J Opioid Manag* 2008;4(4):201-11.
36. Barnett DR, Bass PF, Griffith CH, Caudill TS, Wilson JF. Determinants of resident satisfaction with patients in their continuity clinic. *J Gen Intern Med* 2004;19:456-9.
37. Bendtsen P, Hensing G, Ebeling C, Schedin A. What are the qualities of dilemmas experienced when prescribing opioids in general practice? *Pain* 1999;82:89-96.
38. Tafor S, Kern T, Oswalt K. Primary care physician attitudes toward managing patients with chronic pain. *Am J Med Sci* 2007;333(2):93-100.
39. Darer JD, Hwang W, Pham HH, Bass EB, Anderson G. More training needed in chronic care: a survey of US physicians. *Acad Med* 2004;79(6):541-8.
40. Green CR, Wheeler JRC, Marchant B, LaPorte F, Guerrero E. Analysis of the physician variable in pain management. *Pain Med* 2001;2(4):317-27.
41. Blumenthal D, Gokhale M, Campbell EG, Weissman JS. Preparedness for clinical practice: reports of graduating residents at academic health centers. *JAMA* 2001;286(9):1027-34.
42. Barry DT, Irwin KS, Jones ES, et al. Opioids, chronic pain, and addiction in primary care. *J Pain* 2010;11(12):1442-50.
43. American Society of Anesthesiologists Task Force on Chronic Pain Management. Practice guidelines for chronic pain management. *Anesthesiology* 2010;112:810-33.
44. Jackman RP, Purvis JM, Mallett BS. Chronic nonmalignant pain in primary care. *Am Fam Physician* 2008;78(10):1155-62.
45. Gamsa A. The role of psychological factors in chronic pain. I: A half century of study. *Pain* 1994;57:5-15.
46. Turk DC, Monarch ES. Biopsychosocial perspective on chronic pain. In: Turk DC, Gatchel RJ, eds. *Psychological approaches to pain management: a practitioner's handbook*, second edition. New York: Guilford Press, 2002:3-29.
47. Smith BH, Hopton JL, Chambers WA. Chronic pain in primary care. *Fam Pract* 1999;16(5):475-82.
48. Chelminski PR, Ives TJ, Felix KM, et al. A primary care multi-disciplinary program for opioid-treated patients with chronic non-cancer pain and a high burden of psychiatric comorbidity. *BMC Health Serv Res* 2005;5:3. Available at <http://www.biomedcentral.com/1472-6963/5/3>.
49. Flor H, Fydrich T, Turk DC. Efficacy of multidisciplinary pain treatment centers: a meta-analytic review. *Pain* 1992;49:221-30.
50. Evans L, Trotter DRM. Epistemology and uncertainty in primary care: an exploratory study. *Fam Med* 2009;41(5):319-26.
51. O'Brien EM, Staud RM, Hassinger AD, et al. Patient-centered perspective on treatment outcomes in chronic pain. *Pain Med* 2010;11(1):6-15.
52. Stewart MA. Effective physician-patient communication and health outcomes: a review. *Can Med Assoc J* 1995;152(9):1423-33.
53. Stewart MA, Brown JB, Donner AD, et al. The impact of patient-centered care on outcomes. *J Fam Pract* 2000;49(9):796-804.
54. Alamo MM, Moral RR, de Torres LAP. Evaluation of a patient-centered approach in generalized musculoskeletal chronic pain/fibromyalgia patients in primary care. *Patient Educ Couns* 2002;48:23-31.
55. Frantsve LME, Kerns RD. Patient-provider interactions in the management of chronic pain: current findings with the context of shared medical decision making. *Pain Med* 2007;8(1):25-35.
56. Gatchel RJ, Dersh J. Psychological disorders and chronic pain: are there cause-and-effect relationships? In: Turk DC, Gatchel RJ, eds. *Psychological approaches to pain management: A practitioner's handbook*, second edition. New York: Guilford Press, 2002:30-51.
57. Cleeland CS. *Brief Pain Inventory (Short Form)*. Houston, TX: University of Texas MD Anderson Cancer Center, 1991.
58. Dworkin RH, Turk DC, Revicki DA, et al. Development and initial validation of an expanded and revised version of the short-form McGill Pain Questionnaire (SF-MPQ-2). *Pain* 2009;144:35-42.
59. Tollison CD, Langley JC. *Pain Patient Profile (P-3): Manual*. Minneapolis: NCS Pearson, 1995.
60. Frisch MB. *Quality of Life Inventory (QOLI): Manual and treatment guide*. Minneapolis: NCS Pearson, 1994.
61. Anagnostis C, Gatchel RJ, Mayer TG. The Pain Disability Questionnaire: a new psychometrically sound measure for chronic musculoskeletal disorders. *Spine* 2004;29(20):2290-302.
62. Butler SF, Fernandez K, Benoit C, Budman SH, Jamison RN. Validation of the Revised Screener and Opioid Assessment for Patients With Pain (SOAPP-R). *J Pain* 2008;9(4):360-72.
63. Chaturvedi SK, Bhandari S, Beena MB, Rao S. Screening for abnormal illness behavior. *Psychopathology* 1996;29:325-30.
64. Kerns RD, Rosenberg R, Jamison RN, Caudill MA, Haythornwaite J. Readiness to adopt a self-management approach to chronic pain: The Pain Stages of Change Questionnaire (PSOCQ). *Pain* 1997;72:227-34.
65. Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol* 2006;3:77-101.