

Medical Trainees' Experiences of Treating People With Chronic Pain: A Lost Opportunity for Medical Education

Kathleen Rice, PhD, Jae Eun Ryu, Cynthia Whitehead, MD, PhD, Joel Katz, PhD, and Fiona Webster, PhD

Abstract

Purpose

Evidence suggests that physicians' opinions about patients with chronic pain become progressively negative over the course of medical training, leading to decline in empathy for these patients. Few qualitative studies have focused on this issue, and thus the experiences shaping this process remain unexplored. This study addressed how medical trainees learn about chronic pain management through informal and formal curricula.

Method

This study adopted a constructive qualitative approach informed by the theoretical lens of the hidden curriculum. Thirteen open-ended interviews were

conducted with medical students and residents at various training stages; interviewees had experience treating patients with chronic pain, shadowing the care of these patients, or both. Interviews elicited information about stage of medical training, general descriptions of work, and concrete experiences of managing patients with chronic pain. All interviews were collected in Toronto between June and August 2015.

Results

Most interviewees described the management of chronic pain as challenging and unrewarding and attributed this at least in part to their perception that pain was subjective.

Trainees also recounted that their inability to cure chronic pain left them confused about how to provide care, and voiced a perception that preceptors seemed to view these patients as having little educational value.

Conclusions

Specifically because chronic pain is subjective and incurable, listening and communication become crucial for patient care. Instead of sheltering trainees, medical educators should be offered the opportunity to reflect on the skills that are required to provide patient-centered care for this population. This approach has the potential to greatly benefit both trainees and patients.

Chronic pain is a serious health problem, both in Canada^{1,2} and globally.^{3,4} For example, a recent Canadian study found the rate of chronic pain to be 18.9% in adults over the age of 18.¹ Effective response to this pain crisis is an ongoing challenge for the Canadian health care system. Examples of the challenges that chronic pain care entails

included addressing long wait times for treatment,⁵ as well as physicians' concerns about the potential for opioid addiction and overdose.^{6,7} There are many suggestions as to why medicine is struggling to respond adequately to the chronic pain crisis, including the high prevalence of chronic pain, risks associated with opioid prescriptions, and inadequate training in chronic disease management.^{1,8}

In this challenging context, surveys of physician attitudes toward patients with chronic pain suggest that physicians find these patients frustrating, and many profess to be uncomfortable treating and managing them.^{9,10} Research on the experiences of patients with chronic pain suggests that there are patient concerns about poor patient–physician rapport and decreased empathy from caregivers for these patients.^{11,12}

Furthermore, a growing body of evidence suggests that medical trainees become not only less idealistic but also less empathetic^{13–15} and less patient centered^{16–18} over the course of their training. Moreover, studies surveying

medical students' attitudes toward patients with chronic pain suggest that they are mainly negative.^{9,10} This is in keeping with the findings of a comprehensive scoping review¹⁹ on medical education in chronic pain management that was undertaken by our research team as a component of a large ethnographic study called COPE (Finding the complex patient in patient-centered care). COPE focuses on the management of complex patients in the primary care setting.²⁰ In the review we found that trainees report reduced rapport, concern, and empathy for chronic pain patients as they progress through their training.¹⁰ More broadly, the scoping review indicates that medical education about chronic pain tends to be fragmentary; that most students, trainees, and educators consider current training programs inadequate; and that most programs place heavy emphasis on prescribing opioid pain medication while providing little instruction about nonpharmacological approaches to chronic pain management.¹⁹

To better comprehend the factors that may account for this hardening of

Please see the end of this article for information about the authors.

Correspondence should be addressed to Fiona Webster, Institute of Health Policy Management and Evaluation, Dalla Lana School of Public Health, University of Toronto, 155 College St., Room 632, Toronto, Ontario M5T 1P8; e-mail: fiona.webster@utoronto.ca.

Copyright © 2017 The Author(s). Published by Wolters Kluwer Health, Inc. on behalf of the Association of American Medical Colleges. This is an open-access article distributed under the terms of the Creative Commons Attribution-Non Commercial-No Derivatives License 4.0 (CCBY-NC-ND), where it is permissible to download and share the work provided it is properly cited. The work cannot be changed in any way or used commercially without permission from the journal.

Acad Med. 2018;93:775–780.

First published online November 14, 2017
doi: 10.1097/ACM.0000000000002053

Supplemental digital content for this article is available at <http://links.lww.com/ACADMED/A509>.

attitude toward patients with chronic pain, we undertook a qualitative study to examine how chronic pain management is framed and taught to medical students and residents, and explored residents' and medical students' experiences being involved with the treatment of patients with chronic pain. This approach is timely because most relevant studies have relied on self-reported quantitative data,¹⁴ meaning that the experiences that shape this decline in empathy remain largely unexplored. To address this lacuna, our study was designed to capture the contexts and experiences that shape physicians' attitudes toward patients with chronic pain, with the aim of informing medical education on the topic of chronic pain. For the purposes of this study, we use the Canadian Pain Coalition's definition of chronic pain, meaning "pain that persists over three months, beyond when an injury should have healed. Chronic pain can be intermittent (occurs in a pattern) or persistent (lasting more than 12 months) and can be considered a disease itself."²¹

Method

We employed a generic, constructivist qualitative methodology.^{22,23} All data were collected by a medical student and research trainee with previous experience in qualitative interviewing (J.E.R.). Throughout the data collection process, this author was under the supervision of a medical sociologist (F.W.) and a postdoctoral medical anthropologist (K.R.), both of whom have extensive experience with qualitative research in health care settings.

In May 2015, a postgraduate support assistant sent our recruitment e-mail to all medical students and residents affiliated with our university via departmental listserv. This e-mail invited all interested individuals to contact the first author (K.R.) to arrange a time and place for the interview. Individuals who received the invitation but choose not to participate in the study were not required to decline the invitation. We included all individuals who responded to the invitation in the research study.

Between June and August 2015, we conducted a total of 13 open-ended qualitative interviews with medical students and residents at various stages of training. Interviews ranged between

40 and 90 minutes in length, and we obtained written consent using a consent form that was approved as a component of our research ethics board application. All participants were given a copy of the consent form for their records.

Eight interviewees were medical students at the University of Toronto, and the remaining five were residents at hospitals in the Toronto area. Two medical students were enrolled in the university's joint MD/PhD program. All medical students had completed at least two years of training, all had had explicit in-class instruction in pain management (notably during an interdisciplinary Pain Week), and all had some practical experience treating or shadowing the treatment of patients with chronic pain. The pain-related conditions that these trainees had shadowed or treated were diverse and included conditions such as fibromyalgia, postsurgical pain, pediatric sickle cell-related pain, and rheumatoid arthritis, among others.

Three residents had completed medical school internationally before coming to Canada for their residency, while the remaining two had done their medical school training at Canadian universities. In all cases, interviewees' residency training involved placements in pain-focused specialties (e.g., anesthesia).

As per the requirements of our review ethics board, we did not collect demographic information on interview participants, and we asked no explicit questions regarding their ethnic and gender identities. One interviewee spoke unprompted about personal experience of suffering from chronic pain, while two others discussed having family members who had chronic pain. Each participant was given a coffee shop gift card valued at 25 Canadian dollars as a token of appreciation.

A semistructured interview guide was developed collaboratively by the research team (see Supplemental Digital Appendix 1 at <http://links.lww.com/ACADMED/A509>). Following Eakin and Mykhalovskiy's²⁴ recommendations for assessing the quality of qualitative research, we chose interview questions that were appropriate to our overarching research question. We piloted the guide with two participants (both residents) in May 2015. The objective of this pilot

testing was to confirm the length of each interview and to ensure that the questions were clear and comprehensible. After the first two pilot interviews, several members of our research team (F.W., K.R., and J.E.R.) met to debrief on the suitability of the interview guide. Broad topics covered in the interviews included stage of medical training, general descriptions of work, training in treating patients with chronic pain specifically, and concrete experiences of managing patients with chronic pain. All recruited participants were strangers to members of the research team at the time of interview. Interviews were audio recorded and transcribed verbatim by a professional transcriptionist who was bound by a confidentiality agreement. In the interest of participant privacy, all identifying information was removed by the transcriptionist at the time of transcription. Beyond anonymizing transcripts, we employed several strategies to ensure the safety of all research participants. Firstly, we ensured that the recruitment e-mail and the consent form emphasized that participation in the research study was voluntary, that participants could withdraw without penalty at any point in the study, that interviewees could respond to some interview questions and not others, and that all data would be anonymized. Furthermore, digital audio files and original transcripts were stored in digital format only on a secure departmental network located behind institutional firewalls. As per the requirements of our university's research ethics board, all study files will be deleted five years after the completion of the study.

Rigorous qualitative health research requires researchers to go beyond mere counting to reach an informed interpretation of the data.^{24,25} To accomplish this, we employed a thematic analysis approach²⁶ to identify themes within and across the interviews and to analyze the data. This involved the following steps: becoming familiar with the data; generating initial codes from the data; categorizing codes into initial themes; identifying the key themes related to the research objective and questions; defining and naming the key themes; and producing an analysis.

This process entailed each research team member (F.W., K.R., J.E.R.)

independently reading the pilot interviews to identify codes. We then met to compare our independent preliminary analyses and develop a coding framework that was used to assist in the subsequent analysis. Two of us (J.E.R. and K.R.) coded the remaining interviews using this coding framework, and the team regularly met to collaborate in identifying patterns, combining codes into themes, and discussing the implications of these themes for medical education and chronic pain management.

Qualitative interview data are produced dialogically between actors who are positioned in social networks of power.²⁷ This means that rigorous qualitative research must involve practicing reflexivity at all stages of data collection and analysis.²⁸ As a component of practicing reflexivity in our data collection and analysis, during these meetings we shared our different experiences of, reactions to, and interpretations of the data. We also shared our findings with a broader team, which included a family physician with a PhD in medical education (C.W.) and a pain psychologist (J.K.). We used NVivo10, a qualitative data software program (QSR International Pty Ltd., 2014), to support data management during the analysis phase. All aspects of this study, including the interview guide and recruitment e-mail, were approved by the research ethics board of the University of Toronto (reference number 31676, approved June 10, 2015).

We used the concept of the hidden curriculum as a theoretical lens through which to interpret our findings. The concept of the hidden curriculum is taken from the work of Hafferty^{29,30} and refers to the content that is not explicitly taught, but is nevertheless learned by medical students through their medical training. As Hafferty explains, the notion of the hidden curriculum challenges medical educators to acknowledge their training institutions as both cultural entities and moral communities intimately involved in constructing definitions about what is “good” and “bad” medicine.

Results

We have organized our findings around three themes: the subjective nature of pain; the inability to cure chronic conditions; and the perceived lack of educational value by preceptors of patients with chronic pain.

The perceived subjectivity of pain

Nearly all of the 13 interviewees found treating patients with chronic pain to be a particularly challenging aspect of medical practice, and a number of participants attributed this in part to the notion that pain is subjective. Interviewees explained that treating chronic pain is less straightforward than treating many other ailments because pain cannot be tested, measured, identified, or quantified. One participant observed:

I think one of the hardest things about pain is that it's so subjective. And we can't feel what our patients are feeling, and we have scales where we measure pain, but we don't really have a way of knowing.... Sometimes, if the patient is like “I'm in pain, I need more pain medication,” I'm like “they don't really need more pain medication. They're just being a suck [a wimp] or something like that.” And, then I feel bad saying that, because how do I know what pain they're in? [And] we really don't know how to test [pain]. We can't do a blood work level and know exactly what we should do to treat it. (Interview 1, resident)

In the above account, the participant struggles with the legitimacy of the patient's experience, noting that it is difficult to know how to appropriately respond and treat the patient because the patient's pain cannot be measured and quantified except through the patient's own narrative. This exemplifies a challenge that was common to all the trainees we interviewed: the difficulty in believing their patients' accounts of their own pain alongside the trainee's inability to objectively “know” the patient's experience. Similarly, the comment was made:

The thing with pain, [is] it's such a subjective thing. You have your one patient that sits [talking] on their phone and tells you they're at a 10 out of 10 pain, or they're sleeping soundly and telling you they're in a 10 out of 10 pain. In your mind ... those two things don't go together.... I think that's another challenge that I saw ... dealing with chronic pain, it's such a subjective thing. (Interview 13, medical student)

Inability to cure chronic conditions

Chronic conditions generally cannot be cured, and this is true for many who suffer with chronic pain. A number of interviewees noted that chronic pain patients are challenging specifically *because* they often cannot be cured

of their pain. This inability to cure a patient's pain was a source of dismay and dissatisfaction for several of our study participants. One observation was:

I feel like I'm being emotionally supportive, but at the same time I don't feel like they're getting better. You never really discharge them from your service. Whereas, it's much more satisfying to treat something that has a definitive event, like, you come in with a UTI and you get better with Azithromycin, and the next time I see you, you're no longer in pain and the problem has improved. (Interview 10, resident)

This interviewee expressed a similar sentiment:

Just the frustration of the nature of this condition, that it's so hard to make it go away 100%. And I think our inclination as a doctor is to fix problems, and sometimes maybe you can't fix problems, for whatever the reason. Maybe you can't control pain all the way. (Interview 1, resident)

Several interviewees linked this disappointment to their medical training, which they felt had placed emphasis on curing the patient over caring for the patient as the cornerstone of good medical practice. One interviewee remarked:

Within the curriculum itself we don't use the word care. We say we provide care to patients but we don't talk about how to actually care for someone without trying to cure them, but just trying to take care of them. Which is [the case with] a lot of people with chronic diseases and chronic pain. (Interview 7, resident)

Chronic pain patients lack educational value

Although most interviewees expressed a desire to learn more about chronic pain patients, many participants perceived that their supervisors and preceptors had shielded them from chronic pain patients. Consider the following reflection:

I remember thinking how odd it was that, as we were going through issues that the patient had, we mentioned the pain syndrome as [mentor and I] were going through the past medical history. But, when we were making our day-to-day plans, though she was still experiencing discomfort, that pain management never really came up as an issue that we were addressing. And I think it was because no one was necessarily comfortable addressing that issue, although clearly, it was still a problem for the patient. (Interview 8, resident)

Through experiences like these, and potentially through more explicit mentorship, trainees developed the impression that these patients have limited educational value. For instance, a participant noted:

A pattern that I saw a lot while being in clerkship this year, these patients that seem to have chronic pain, often times they don't let medical students deal with them. I think there is a reputation that patients with chronic pain are very difficult to deal with and it's kind of more like a punishment than a reward to deal with these patients. Definitely, many times during my year, I would be told by different staff, oh, don't worry about it, you don't need to see them, this is my patient to see, this is not useful for you. (Interview 13, medical student)

Similarly, a different interviewee reflected that frustration at being unable to cure chronic pain patients carried into their medical training, giving the impression that chronic pain is an annoying, “nuisance” condition:

A lot of times the way that I was taught, is that chronic pain is almost like a nuisance. I think it's frustration mostly . . . as we don't know how to treat it. We're not very good at it. We don't have the one answer that helps everybody and the patient feels the same way, that they never really get true relief from their pain. (Interview 7, resident)

This notion that patients with chronic pain are “difficult” or “a nuisance” surfaced occasionally in the reflections of most interviewees, regardless of stage of training. For example, this medical student offered the following example of her experience shadowing a family physician's treatment of a fibromyalgia patient:

Unfortunately, there wasn't much we could do for her. So, she was quite dissatisfied and tearful. I think she left feeling like we didn't do much for her. . . . She was dead-set on finding that magic bullet, finding that pill that was going to take away her pain. We were quite convinced that didn't exist. That does not bring a family doctor much job satisfaction, that kind of patient. (Interview 5, medical student)

Discussion

Taken from the work of Hafferty,^{29,30} the concept of the hidden curriculum refers to the content that is not explicitly taught, but is nevertheless learned by

medical students through their medical training. Taking a hidden curriculum perspective means acknowledging that medical training institutions are cultural environments where trainees are socialized to develop skills and knowledge, and to make moral judgments about health and medicine in ways that go beyond what is explicitly articulated in medical curricula. In our study, we extended this concept to include informal training that students receive about patients who might be considered challenging, such as those who suffer with chronic pain.

In our study the patient's private experience of pain—which interviewees termed “subjective”—was problematized by medical trainees and residents because it aligns poorly with their training in biomedical diagnostics. They are trained primarily to objectively measure, diagnose, and cure,^{31,32} yet interviewees struggled with their inability to accurately perceive and measure their patient's private experience of pain. The medical trainees in our study found this subjective dimension of pain complex to negotiate, and found their training inadequate to address this important component of clinical care. This supports the work of other researchers who have articulated the need for an extended medical curriculum to support students to better manage chronic disease.^{33–35}

Chronic pain also challenged trainees' capacity to trust their patients, and most admitted to having felt skeptical of their patients' expressed knowledge of their conditions and bodies. Many students voiced suspicion that their patients' accounts might be insincere. In the absence of a definite test to “prove” under the biomedical model that this pain was as the patients were describing, medical students struggled to integrate two competing standards of medicine: the formal curriculum's moral and ethical obligations to believe and respect the patient's experiences, and the “hidden” curriculum's portrayal of the “difficult” patient who is seen as a barrier to effective health care. This portrayal was perceived by trainees to affect rapport between patients and care providers, and influenced how medical students and residents felt about caring for patients with chronic pain.

The impression that these patients are difficult is especially troublesome given that medical education around chronic pain increasingly focuses on teaching trainees to identify and manage the misuse—or potential misuse—of opioid narcotics.¹⁹ Although training in the appropriate prescription and management of opioids is important, a hidden curriculum that portrays patients being prescribed opiates as difficult combined with a formal curriculum that frames them primarily through the lens of opioid misuse risks imparting the perception that chronic pain patients are difficult, drug seeking, and manipulative. This is potentially stigmatizing and is a great disservice to patients, all of whom are entitled to pain relief and to compassionate care.

Research on patient-centered care shows that listening and good communication are important to patients^{36–38} and matter for patient outcomes.^{38,39} Yet our data suggest that trainees are sheltered from patients with chronic pain and therefore have little opportunity to cultivate these skills in the context of chronic pain management. This is troubling, given that the lack of objective measures of pain means that communication of patients' experience is especially important in this case.

Furthermore, trainees struggled to accept that they often cannot make patients with chronic pain “better,” and they reflected that preceptors had often sheltered them from treating these patients. In so doing, trainees learned that because these patients are often difficult to diagnose and are often incurable, they are therefore not valuable educationally. These challenges are certainly difficult, but it is precisely *for this reason* (among others), we argue, that chronic pain patients have *exceptional* educational value. Because the goal is often to live as comfortably as possible with a chronic condition that is best accessible through the patient's narrative, chronic pain patients present an excellent opportunity to learn how to listen and communicate well. Indeed, unlike patients with acute conditions, these patients are, as Holman^{33(p1057)} notes, “experienced [and] . . . often more knowledgeable than the physician about the effects of the disease and its treatment.” In the absence of objective tests and measures, this experience must be accessed through effective communication. Although challenging,

these communication skills can be taught and can be improved on through practice. Shielding trainees from these patients denies them the opportunity to learn such skills.

Trainees' opinions of patients with chronic pain decline over the course of their medical training. Because their chronic pain is private and the condition is likely permanent, empathetic listening and effective communication are crucial for the care of such patients. These skills have already been acknowledged as essential components of physician expertise, yet our research suggests that these skills are viewed as secondary in some pedagogical environments. Drawing on our findings, we contend that chronic pain patients present an excellent opportunity to learn these skills through practice.

Instead of sheltering trainees, medical educators should be offered the opportunity to reflect on the skills that are required to provide patient-centered care for this population. Given that our interviewees were confronted with a hidden curriculum that suggested that chronic pain patients are too difficult, such opportunities should perhaps include reflection on connections and disjunctures between formal training and informal learning that takes place in the context of workplace mentorship. This approach has the potential to greatly benefit both trainees and patients.

Like most rigorous qualitative health research, our methodological and theoretical approach is based on the premise that all qualitative data are socially produced, meaning we do not aim for generalizability, reproducibility, or objectivity. Rather, quality was assured by ensuring that our team practiced reflexivity throughout the research process.^{27,28} As an exploratory qualitative study, our findings may not, therefore, be generalizable to other settings.

Although we interviewed medical students and residents who had previously trained at different institutions, all were working in the same large Canadian city at the time of being interviewed and were affiliated with the same department of academic medicine. Moreover, all self-selected to participate. Future researchers may also want to undertake a longitudinal approach to data collection, to explore the alleged decline in empathy that has been identified

in the literature over the course of medical training. This was unfortunately beyond the scope of this study.

Funding/Support: This study was funded by three grants held by the senior author (F.W.): a Canadian Institutes of Health Research (CIHR) operating grant, New Investigator Award held by the senior author (F.W.), and a grant awarded through the Comprehensive Research Experience for Medical Students (CREMS) at the University of Toronto. The medical student (J.E.R.) was supported by a grant held by F.W. through the Comprehensive Research Experience for Medical Students at the University of Toronto. J.K. is supported by a Canada Research Chair in Health Psychology.

Other disclosures: None reported.

Ethical approval: Ethical approval was gained from the research ethics board of the University of Toronto (reference number 31676, approved June 10, 2015).

K. Rice is a postdoctoral fellow, Institute of Health Policy Management and Evaluation, Dalla Lana School of Public Health, University of Toronto, Toronto, Ontario, Canada.

J.E. Ryu is a medical student, Faculty of Medicine, University of Toronto, Toronto, Ontario, Canada.

C. Whitehead is director and scientist, Wilson Centre, University Health Network, associate professor, Department of Family and Community Medicine, University of Toronto, vice president for education, Women's College Hospital, and BMO Financial Group Chair, Health Professions Research, University Health Network, Toronto, Ontario, Canada.

J. Katz is professor and Canada Research Chair in Health Psychology, Department of Psychology, York University, Toronto, Ontario, Canada.

F. Webster is associate professor, Institute of Health Policy Management and Evaluation, Dalla Lana School of Public Health, University of Toronto, scientist, Wilson Centre, University Health Network, and academic fellow, Centre for Critical Qualitative Health Research, University of Toronto, Toronto, Ontario, Canada.

References

- Schopfloch D, Taenzer P, Jovey R. The prevalence of chronic pain in Canada. *Pain Res Manag.* 2011;16:445–450.
- Reitsma ML, Tranmer JE, Buchanan DM, Vandekerckhof EG. The prevalence of chronic pain and pain-related interference in the Canadian population from 1994 to 2008. *Chronic Dis Inj Can.* 2011;31:157–164.
- Phillips CJ. The cost and burden of chronic pain. *Rev Pain.* 2009;3:2–5.
- Goldberg DS, McGee SJ. Pain as a global public health priority. *BMC Public Health.* 2011;11:770.
- Lynch ME, Campbell F, Clark AJ, et al. A systematic review of the effect of waiting for treatment for chronic pain. *Pain.* 2008;136:97–116.
- Allen MJ, Asbridge MM, Macdougall PC, Furlan AD, Tugalev O. Self-reported practices in opioid management of chronic noncancer pain: A survey of Canadian family physicians. *Pain Res Manag.* 2013;18:177–184.
- Morley-Forster PK, Clark AJ, Speechley M, Moulin DE. Attitudes toward opioid use for chronic pain: A Canadian physician survey. *Pain Res Manag.* 2003;8:189–194.
- Darer JD, Hwang W, Pham HH, Bass EB, Anderson G. More training needed in chronic care: A survey of US physicians. *Acad Med.* 2004;79:541–548.
- Matthias MS, Parpart AL, Nyland KA, et al. The patient-provider relationship in chronic pain care: Providers' perspectives. *Pain Med.* 2010;11:1688–1697.
- Yanni LM, McKinney-Ketchum JL, Harrington SB, et al. Preparation, confidence, and attitudes about chronic noncancer pain in graduate medical education. *J Grad Med Educ.* 2010;2:260–268.
- Upshur CC, Bacigalupe G, Luckmann R. "They don't want anything to do with you": Patient views of primary care management of chronic pain. *Pain Med.* 2010;11:1791–1798.
- Jackson JE. Stigma, liminality, and chronic pain: Mind-body borderlands. *Am Ethnol.* 2005;32:332–353.
- Nunes P, Williams S, Sa B, Stevenson K. A study of empathy decline in students from five health disciplines during their first year of training. *Int J Med Educ.* 2011;2:12–17.
- Pedersen R. Empirical research on empathy in medicine—A critical review. *Patient Educ Couns.* 2009;76:307–322.
- Newton BW, Barber L, Clardy J, Cleveland E, O'Sullivan P. Is there hardening of the heart during medical school? *Acad Med.* 2008;83:244–249.
- Bombeke K, Symons L, Debaene L, De Winter B, Schol S, Van Royen P. Help, I'm losing patient-centredness! Experiences of medical students and their teachers. *Med Educ.* 2010;44:662–673.
- Tsimtsiou Z, Kerasidou O, Efstathiou N, Papaharitou S, Hatzimouratidis K, Hatzichristou D. Medical students' attitudes toward patient-centred care: A longitudinal survey. *Med Educ.* 2007;41:146–153.
- Woloschuk W, Harasym PH, Temple W. Attitude change during medical school: A cohort study. *Med Educ.* 2004;38:522–534.
- Webster F, Bremner S, Oosenbrug E, Durant S, McCartney CJ, Katz J. From opiophobia to overprescribing: A critical scoping review of medical education training for chronic pain. *Pain Med.* 2017;18:1467–1475.
- Webster F, Bhattacharyya O, Davis A, et al. An institutional ethnography of chronic pain management in family medicine (COPE) study protocol. *BMC Health Serv Res.* 2015;15:494.
- McMaster Health Forum. Evidence brief: Supporting chronic pain management across provincial and territorial health systems in Canada. <https://macsphere.mcmaster.ca/bitstream/11375/14861/1/fulltext.pdf>. Published 2009. Accessed October 25, 2017.
- Giacomini M. Theory matters in qualitative health research. In: Bourgeault I, Dingwall R, de Vries R, eds. *The Sage Handbook of Qualitative Methods Health Research*. London, UK: Sage Publications Ltd.; 2010:1–45.
- Merriam SB. *Qualitative Research and Case Study Applications in Education*. San Francisco, CA: John Wiley & Sons; 1998.

- 24 Eakin JM, Mykhalovskiy E. Reframing the evaluation of qualitative health research: Reflections on a review of appraisal guidelines in the health sciences. *J Eval Clin Pract.* 2003;9:187–194.
- 25 Dowell J, Huby G, Smith C. Scottish Consensus Statement on Qualitative Research in Primary Health Care. Tayside Centre for General Practice. Dundee, UK: University of Dundee; 1995.
- 26 Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol.* 2006;3:77–101.
- 27 Tanggaard L. The research interview as a dialogical context for the production of social life and personal narratives. *Qual Inq.* 2009;15:1498–1515.
- 28 Mauthner NS, Doucet A. Reflexive accounts and accounts of reflexivity in qualitative data analysis. *Sociology.* 2003;37:413–431.
- 29 Hafferty FW. Beyond curriculum reform: Confronting medicine's hidden curriculum. *Acad Med.* 1998;73:403–407.
- 30 Hafferty FW, Franks R. The hidden curriculum, ethics teaching, and the structure of medical education. *Acad Med.* 1994;69:861–871.
- 31 Kuper A, D'Eon M. Rethinking the basis of medical knowledge. *Med Educ.* 2011;45:36–43.
- 32 Whitehead C. Scientist or science-stuffed? Discourses of science in North American medical education. *Med Educ.* 2013;47:26–32.
- 33 Holman H. Chronic disease—The need for a new clinical education. *JAMA.* 2004;292:1057–1059.
- 34 Holman HR. The inadequacy of medical education. *Chronic Illn.* 2009;5:18–20.
- 35 Bogetz JF, Rassbach CE, Berekyei S, Mendoza FS, Sanders LM, Braddock CH 3rd. Training health care professionals for 21st-century practice: A systematic review of educational interventions on chronic care. *Acad Med.* 2015;90:1561–1572.
- 36 Collins LG, Schrimmer A, Diamond J, Burke J. Evaluating verbal and non-verbal communication skills, in an ethnogeriatric OSCE. *Patient Educ Couns.* 2011;83:158–162.
- 37 DiMatteo MR, Taranta A, Friedman HS, Prince LM. Predicting patient satisfaction from physicians' nonverbal communication skills. *Med Care.* 1980;18:376–387.
- 38 Levinson W, Lesser CS, Epstein RM. Developing physician communication skills for patient-centered care. *Health Aff (Millwood).* 2010;29:1310–1318.
- 39 Ha JF, Longnecker N. Doctor–patient communication: A review. *Ochsner J.* 2010;10:38–43.