Educational Exchange

The Weight of Pain: What Does a 10 on the Pain Scale Mean? An Innovative Use of Art in Medical Education to Enhance Pain Management

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Abstract

Context. Art and museum spaces offer a novel educational platform for exploring the subjective elements inherent to the understanding and treatment of pain. Physicians and museum educators collaborated on an educational model using art to explore the metacognitive dimensions of pain management.

Objectives. Sessions used inquiry-based strategies to increase clinician awareness of implicit biases and build clinically applicable metacognitive skills that might influence how clinicians respond to patients in pain.

Methods. Two sessions led by museum educators and physician facilitators were held at the Museum of Art, Rhode Island School of Design. Through exercises that used works of art as the basis for guided discussions rooted in constructivist learning theory, participants explored how personal experiences, communication, and tolerance for uncertainty shape their interpretations. These sessions created unique, nonjudgmental opportunities for clinicians to make connections between their experience and how they perceive, interpret, and respond to the subjective experiences of patients in pain. Optional surveys were distributed.

Results. Participants at both sessions noted the event impacted how they think about making observations and communication—elements of practice inherent to pain management. The majority reported the experience could lead to a change in their practice. At the first session, 100% were interested in future sessions and 100% at the second would recommend it.

Conclusions. Facilitated, reflective experiences with works of art have the capacity to challenge clinicians to become aware of their implicit biases, thought processes, and communication with potential importance for improving pain management and providing more compassionate care. J Pain Symptom Manage 2019;57:1182–1187.

Key Words
Pain management, medical education, museum, humanities

Background

The effective and compassionate treatment of pain and its measurement is a challenge for physicians in any specialty.[1] Physicians must recognize and balance many factors that influence their understanding of pain and their responses to it. These include, but are not limited to, culture, gender, age, bias, socioeconomic status, emotion, and the recent specter of the opioid crisis.[1–3]

Physicians must make a conscious effort to examine their thought processes and decision-making in the treatment of pain. The mind is predisposed to take mental shortcuts when making decisions. Physicians are not only prone to such heuristics when caring

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Accepted for publication: March 18, 2019.

0885-3924/$ - see front matter
https://doi.org/10.1016/j.jpainsymman.2019.03.016

for patients, they are likely to be unaware that these biases and emotions might influence their thought processes.[3,4] Pain management is not spared from this bias-prone process, especially when there is limited information available.[3,4] Croskerry states, "Perceptual accuracy, therefore, requires attention. We need to be thinking about how we think and feel."[4]

The pain scale is commonly used to translate a patient's experience into a clinical assessment. However, the pain scale has been described as an example of a "language gap" between patients and medical providers.[5] In *The Pain Scale,* Eula Biss provides a patient's perspective of this gap: "…determining the intensity of my own pain is a blind calculation. On my first attempt, I assigned the value of 10 to a theoretical experience—burning alive. Then, I tried to determine what percentage of the pain of burning alive I was feeling."[6]

This "language gap" is further complicated by the fact that the pain scale is designed to solely capture intensity. In *On the Language of Pain*, Melzak and Torgerson point out, "To describe pain solely in terms of intensity, however, is like specifying the visual world in terms of light flux only, without regard to pattern, color, texture, and the many other dimensions of the visual experience."[7] Ultimately, responsible pain management depends on understanding the person in pain—a process that goes far beyond assigning a number to their experience.

The subjective nature of pain and the need for interpretation by providers makes pain management ripe for personal bias and presents a constant challenge to practicing physicians. Elaine Scarry captured this fundamental challenge when she wrote, "…to have great pain is to have certainty; to hear that another person has pain is to have doubt."[8]

Recent trends in medical education have explored the use of museums to encourage comfort with uncertainty, enhance visual diagnostic skills, and inspire learners to critically examine what they "know" and how their experiences influence decision-making.[9–12] In their study using abstract art with medical students, Pamela Schaff et al. describe how in the worlds of both art and medicine, individuals imagine experiences beyond their own and test hypotheses by integrating their own prior knowledge and intuition and by comparing their evidence with that of others.[9]

Through discussion about a work of art, people discover what they "see" is actually their subjective point of view and that others might see things quite differently.[13] Awareness of their habits of mind and interpretive tendencies potentially protects against bias and the insidious and indeliberate use of heuristics.

Physicians strive to base clinical decision-making on objective data. However, transforming pain into a working fund of knowledge can never completely capture another person's experience. It requires a practitioner to become conscious of possible biases, judgments, and emotions that may be influencing their decision-making process. Croskerry calls the process of evaluating one's decision-making "cognitive debiasing."[14] This project builds on previous work in the field and asks whether museum-based sessions with art educators can impact how clinicians understand their own thinking patterns when it comes to pain and pain management.

Methods

Two three-hour sessions were held at the Museum of Art, Rhode Island School of Design led by museum educators and physician facilitators guiding discussion relevant to clinical practice with each group. Attending physicians, residents, and mid-level providers from the emergency medicine department were invited to the first session. The second session invited Palliative Care and Internal Medicine providers, fellows, and residents. In the first session, 14 participants examined one artwork. Museum educators led the participants through writing, drawing, and discussion exercises based on constructivist learning theory. Constructivist teaching in this setting relies on the learner's active participation to make connections and construct understanding in a process designed to engage the development of ideas rather than offering a prescribed solution.[9] Exercises were designed to allow opportunities for clinicians to become aware of how they consciously and subconsciously made decisions.

For example, participants reviewed an abstract work, which included layered marks of oil crayon on canvas. Participants were invited to select one line in the painting and capture it from beginning to end. Participants then used close looking and copying as a basis for reflection on their own process of meaning making and shared their interpretations of the art with one another. The exercises fostered consideration of how observations are made, interpreted, and ascribed meaning. Discussions revealed how interpretations lead to certain deductions and ultimately to the creation of personal narratives and judgments. Participants also examined the influence of learning information about an artwork or the artist versus the impact of emotions evoked by the artwork on their decision-making. The role of communication and how the opinions of others may change perceptions were also reviewed.

Guided discussion linking these exercises to pain management reviewed how we create perceptions about our patients in pain and the need to examine what we take for granted as "knowledge" about an

individual and their experience of pain. Participants were encouraged to evaluate what "data" they rely on to support a treatment plan and the pitfalls of the pain scale as a clinical tool.

Based on feedback, 17 participants viewed two pieces at the second session. At the first, they developed a question they felt would further their ability to interpret or make meaning of the work. The question could be directly related to formal aspects of the piece or could be conceptual and based on their perception of the intended meaning of the artwork as a whole. For example, in the piece by *É*douard Manet, *Le Repos*, participants often queried, "Why does she look so upset?"

Participants were invited to consider an answer to this question in the context of a second piece. Some related a sense of foreboding or disorder in answer to this question when viewing *Holocaust* by Helen Frankenthaler. This exercise was designed to encourage participants to stretch their ability to make meaning and to better assess their individual reactions and habits of mind. Participants compared approaches to creating questions and constructing meaning.

After this exercise, museum educators and clinicians facilitated group discussion about the process of managing uncertainty and how this process is inherent to pain management and assessing suffering. Participants then drew on their museum experiences to identify challenges in treating pain and what they learned at the session that may help improve their current practice. Clinicians facilitated a final discussion at both sessions on how the treatment of pain might be improved through increased self-awareness of heuristics, thought patterns, and personal bias. When examining the process of finding layers of meaning within an artwork, discussion led to the multidimensional nature of pain and need for identifying pain that is not just physical, but spiritual and emotional as well. In addition, participants reviewed skills they had garnered through the session and how they might apply to their practice of pain management (Table 1 lists examples).

Optional anonymous surveys were distributed at both sessions. A pre-event survey was offered before the second session but was not used for comparison because of limited responses. This project was Institutional Review Board exempt.

Results

Survey completion was optional and anonymous. At the first session, an incomplete survey was excluded for a total of 13 responses. At the second, a response was excluded as the participant was not a clinician for a total of 16 responses. The first session survey was narrative based. If the individual did not indicate an explicit "yes" or "no" response or provide an example that could be interpreted, then the response was determined to be "uncertain." Two observers reviewed these data to insure interobserver agreement. This survey also allowed participants to respond to questions regarding how to improve the event and its organization. Feedback was used to make changes in the second session.

Given the inherent difficulty in interpreting narrative results and expansion of the goals of the project, a survey instrument was designed for the second session and allowed participants to circle "yes" or "no." Furthermore, the final question was changed to "Would you recommend this session to a colleague?" Questions were formulated to elucidate a link between

Table 1
Examples of the Interface Between Facilitated Activities With Artwork and Guided Discussion Related to Pain

Activity With Museum Educator	Guided Discussion Questions
Independent observation of an artwork for five minutes	Do you ever find that you have to make a conscious attempt to make further observations after forming an initial impression of a patient?
Sharing of individual initial impressions of the piece and exploration of whether perceptions changed after hearing the observations of others.	What happens to your initial thought process when you hear the observations of another person about an individual's pain?
What was it like to just sit with a piece of artwork and observe for five minutes?	What do you think you would take away from just observing your patients for this length of time?
What helped you to form an interpretation? Personal memories? A positive or negative association? Certain visual cues?	What is your understanding of how personal perspective and experience influences the understanding of a patient and their pain?
	What "cues" do we look for?
Reflect on the possibility that after forming an initial impression, that we should routinely "push" ourselves to make further observations.	How do you know what you think you know about another person's pain—what is your assessment based on?
How do our inherent biases and subconscious feelings influence these impressions?	What does the experience of pain do to one's ability to form experiences and observations? Exploring the idea that people in pain may not interact with us the way they would at baseline.
Closing discussion after activity	Please share any difficulties you have experienced treating pain
	Did you recognize any tools from the session that would be useful in daily practice?

what was learned in the session with observation and communication and to further demonstrate practicing clinicians felt what they learned has the potential to impact pain management. For the purpose of simplifying interpretation with a small data set, the results were rounded to the nearest whole number with positive responses rounded down and negative/unclear responses rounded up where possible to reduce the effect of bias.

Most participants at the first session felt that it impacted how they think about communication (Table 2). Most participants felt that what they learned about observation relates to the evaluation of pain (Table 2). Importantly, 77% positively responded that they will make changes to their practice based on this session (Table 2). All participants at the first session stated they would be interested in future sessions.

At the second session, the survey instrument demonstrated the session helped participants think differently about communication and making observations; 81% and 100%, respectively (Table 2). All participants felt these elements play a role in pain management (Table 2). They were directly asked if the event would lead to a possible change in their clinical practice and the majority (62%) circled "yes." All the participants at the second session would recommend it to a colleague. The comments from participants spoke to the impact of the sessions, such as "…Reminds us that observation and perception are paramount in the evaluation of our patients." Another stated, "More information can change sympathy…-what you observe in a situation." A particularly powerful observation from one participant, "I think it will enhance my ability to be…empathetic/open minded and a better clinician."

Discussion

Museum-based sessions support medical education through improving observational, reflective, and reasoning skills crucial to the practice of medicine.[9–12] Our project used an inquiry-based model for the purposes of providing practicing clinicians with an educational museum experience that supports increased metacognitive awareness with an emphasis on application to pain management through guided discussions. Our results from both sessions demonstrate that participants could discern a relationship between pain management and the influences of communication and observation on their clinical assessments by participating in reflective activities and art-based discussion utilizing constructivist learning theory. The majority felt the sessions helped them to think differently about these elements of daily clinical practice. Importantly, most participants at each session felt they would make changes based on their experience.

As outlined in Table 1, participants took part in facilitated discussions relating their experiences in the museum with clinical practice and challenges regarding pain management. Comments regarding pain included "We see things differently depending on how much information you have" and "situations are often more complex than seen at first glance." Another planned to start "taking more time to balance all sources of information with emotion/personal bias." These comments underscore the impact the session had on participant self-reflection and how it could be applied to future practice.

The use of open-ended, inquiry-based teaching techniques designed to encourage clinicians to examine their communication and biases provided

Table 2
Results of Surveys From Each Session

Results of Survey from Session 1				
Type of response	Has the session helped you think differently about communication?	Will you make changes based on this session?	Do you see a link between what you learned about observation and the evaluation of pain?	Would you be interested in future sessions?
Positive	92%	77%	84%	100%
Negative	0%	8%	8%	0%
Uncertain	8%	15%	8%	0%

Results of Survey from Session 2					
Response	Has this session helped you think differently about communication?	Has this session helped you think differently about making observations?	Do you feel observations and communication play a role in pain management?	Do you think this event will lead to a change in your clinical practice?	Would you recommend this session to a colleague?
Yes	81%	100%	100%	62%	100%
No	13%	0%	0%	19%	0%
Unsure	6%	0%	0%	19%	0%

participants with a greater appreciation for how their interpretations are formed through an aggregation of objective observation, subjective individual habits of mind, and the influence of the thoughts and opinions of others. Discussion reviewed the subjectivity of the pain assessment. As one participant stated: "[the session] has definitely reignited my desire to understand/check how my own biases affect my communication…in our work, we need to address this again and again."

Several physicians who work with mid-level providers commented that they had not realized how differently each participant may view the same artwork or how much their clinical impression of a patient's pain could be influenced by hearing the assessment of another provider. As one attending noted, "hearing about a patient is not the same as gathering the information yourself." This may represent increased awareness of the influence of an "information cascade," where people incorporate information about the choices of others into their decision-making processes in a "sequential decision-making situation."[15] This awareness is of particular importance in pain management as each member of an interdisciplinary team has a role in providing feedback. Notably, all participants were interested in future sessions (session 1) or would recommend it to a colleague (session 2). Participants were professionals who voluntarily gave their time and devoted their attention to the sessions, which demonstrates that this type of educational platform offers an experience that practicing clinicians are willing to participate in and has potential for future applications.

Limitations of this work include the small sample sizes. To make results less confusing given the use of simple statistics, we rounded to the nearest whole number. To limit the impact of bias, where possible, we rounded as previously described. In addition, the first survey was designed to elicit narrative responses to provide feedback on how to improve the session rather than as a research instrument. Because these responses required interpretation, they may have been subject to bias even with efforts to achieve interobserver agreement for categorization. Finally, we may have identified a population of clinicians interested in the humanities and predisposed to respond positively.

Future directions include providing these sessions to a broader audience of medical professionals, increasing sample size, and building more activities into the session. Data analysis can be strengthened with pre-event and post-event questions and more sophisticated qualitative statistical analysis applied to detect finer differences in knowledge and attitudes. Ideally, a delayed post-event survey could be administered to evaluate if participants changed their practice as anticipated.

Our results suggest that clinicians feel that this form of education has value and helped them think differently about pain management. One participant noted what they learned about the potential role of bias in making observations, "Reminds me to stay open and consider possibilities aside from first impressions." The majority felt they would apply what they learned to their future practice. Another participant said, "I think it will make me more mindful of the patient as a whole person."

This type of educational intervention has the potential to provide clinicians with techniques to guard against the use of heuristics and influence of bias, which may facilitate more mindful practice and careful analysis of what we "know" about a patient in pain and how that knowledge is constructed. Therefore, these types of sessions hold promise as a means to provide clinicians with cognitive tools for their practice of pain management and may also be a window into building what Croskerry describes as "perceptual accuracy."[4]

Conclusion

Guided experiences with art provide a novel approach to educating clinicians about the inherent subjectivity, bias, and mental shortcuts that influence decision-making when it comes to treating patients in pain. Our sessions slowed down and probed habits of observation and communication through multimodal reflective exercises designed to encourage participants to self-reflect and examine their own processes for building a body of knowledge with facilitated discussions to review how what they learned may apply to their clinical practice in pain management. Provider feedback supports the continued use of this educational model with responses indicating it has the capacity to influence pain management practice behaviors. This educational model works toward providing clinicians with skills beyond the pain scale that may allow for more mindful practice in pain management and demonstrates promise for further development and application.

Disclosures and Acknowledgments

S. H. M. and S. G. B. contributed to the development of the methods, specifically in the teaching of the museum sessions. The authors acknowledge the Rhode Island School of Design Museum faculty and staff. This project was funded through a University Emergency Medicine Foundation (UEMF) Resident Education and Service Grant.

Dr. Marr reports grants from University Emergency Medicine Foundation (UEMF), during the conduct of the study, entitled "Resident Education and Service Grant" that was used entirely to fund the sessions themselves and two of the coauthors were employees of the RISD Museum at the time of the project and had previously participated in the development of projects with the medical school. Their participation is included in the Disclosures and Acknowledgment section of this article. Dr. Baruch, Dr. Ganz Blythe, and Ms. Mickey have nothing to disclose.

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