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INNOVATIONS REPORT

The utility of an online discussion board for reflective writing in an emergency medicine rotation

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Abstract

Background: Narrative analysis and reflection have been found to support professional identity formation (PIF) and resilience among medical students. In the emergency department, students have used reflective practice to process challenging clinical experiences, such as ethical dilemmas or moral distress. An online discussion board, however, has not been described as a curricular component of emergency medicine (EM) rotations. The objective of this educational innovation was to support medical students in an EM clinical rotation via an online discussion board for reflecting on and debriefing clinical experiences with faculty and peers.

Methods: Fifty-two medical students enrolled in the pass/fail EM elective between May 13, 2019, and October 30, 2020. Each cohort of six students took part in a cohort-specific discussion using the Canvas learning management system. Students were encouraged to post about any observations, reflections, or emotions after their shifts. Faculty course directors responded to each post using concepts of debriefing, coaching, and trauma-informed teaching.

Results: Over 18 months, 49 of 52 (94%) students participated in the discussion board. Of 346 total posts, half were by students, and the other half were faculty responses. Students posted 3.27 times each, on average. Students rarely raised questions about scientific knowledge content, fact-based aspects of patient care, or specific skills. Rather, they often posted about intensely affective reactions to experiences that left them with complex emotions. Upon review of posts by the course directors, the majority (54%) of students' posts contained a range of affective responses. Students appreciated faculty responses and supported each other in their written responses to peers.

Conclusions: An online discussion board can be used successfully for asynchronous reflective practice to debrief clinical experiences during an EM rotation, if designed incorporating faculty and peer support using trauma-informed teaching principles to bolster well-being and PIF.

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NEED FOR INNOVATION

Students experience emotionally intense clinical encounters in the emergency department (ED), which may negatively impact both student well-being and professional identity formation (PIF), if students are not adequately supported. Reflective writing during clinical rotations supports well-being through the processing of intense experiences and PIF as a contributing member of the health care team managing emergent patient cases.[1–3] Previous emergency medicine (EM) rotations have utilized reflective essay writing,[1–3] but without the student–faculty and student–peer interactions found in an online discussion board format. Including these interactions may further enhance student well-being and PIF.

BACKGROUND

The cognitive dissonance between ideal and actual clinical circumstances may cause psychological stress on students.[1] Reflection has been linked to supporting PIF and resilience[4] as well as improved student performances, including interactions with standardized patients,[5–7] and may also improve intangible attributes in medical students such as empathy, humanism, professionalism, and PIF.[8–11]

In the ED, students have used reflective practice to process challenging clinical experiences, such as ethical dilemmas or moral distress.[1,2] Such reflection not only serves to allow EM learners to process unexpected, stressful clinical situations but to share these experiences with peers and faculty.[3] The sharing of experiences forms a basis for discussion-based learning, which may improve practical clinical knowledge and learner satisfaction, compared to traditional lecture-based or solitary learning.[12–14] Previous EM intern workshops utilizing reflective practice allowed self-direction of learning and improvement in clinical and ethical decision-making skills.[15] Studies exploring reflection in the ED suggest that attending emergency physicians can apply reflection in the clinical setting as well, allowing self-monitoring, coping with the unexpected, and quick thinking to solve complicated clinical issues.[3]

Technological advances in online communication have facilitated connection among learners. Medical students have used extracurricular blogs to reflect on and share their experiences, especially regarding distressing situations during clinical rotations.[16] Medical educators have increasingly utilized web-based tools to overcome physical and geographical barriers to achieve high interactivity with rapid dissemination of content.[17] Students have used online discussion to reflect on and share cognitive aspects of clinical experiences, leading to supportive interactions.[18] A digital learning platform for logging "clinical pearls" and brief "learning moments" in the ED was found to encourage sharing of knowledge and experiences within a community of practice.[19] Similar strategies have been used among EM residents to reflect and discuss clinical experiences online and asynchronously with faculty.[20] One study found a similar depth of reflection between private submissions and social media formats, when comparing reflections shared with peers and comments given on peers' writing.[21]

OBJECTIVE OF INNOVATION

The objective of this educational innovation was to support medical students in a 5-day EM clinical elective rotation via an online discussion board for reflecting on and debriefing clinical experiences with faculty and peers.

DEVELOPMENT PROCESS

Based on the aforementioned educational literature, multiple practices were brought together to innovate a solution to our need: reflective practice in medical education, learning by group discussion, debriefing challenging clinical experiences, peer-to-peer feedback and support, and faculty responses to online reflections. This culminated in an online discussion board for medical students to reflect on and debrief clinical experiences during an EM rotation. This curricular element has not yet been described in the literature.

Discussion groups were created in the Canvas learning management system for each rotation. Each discussion group included a maximum of six students and two course directors. Course directors determined that student participation would be encouraged but not required, that students could choose the timing and location of their participation, that posts would not be assessed for grading purposes, and that students were welcome to respond to peers' posts. All students were in the same medical school class but had varying degrees of prior interaction with their peers.

IMPLEMENTATION PHASE

During an in-person orientation session on Day 1 of the rotation, students were informed about the purpose of the discussion board, the logistics of the platform, expectations regarding participation, and grading. Using an initial open-ended prompt, students were encouraged to post about their clinical experiences, including reactions to challenging or memorable encounters. Following their posts, additional prompts were used to facilitate further reflection. No protected health information was shared on the board.

Each cohort had one or two faculty respondents, and students were not always introduced to all faculty respondents prior to engagement with the board. Course directors and faculty monitored student participation via email, as posts were automatically pushed to faculty emails. Students were told that faculty would respond to student posts as soon as possible and, in general, faculty responded to each student post within 48 h. Each discussion board was closed 48 h after the last day of the rotation.

Initially, course directors responded to discussion board posts using their prior experience and training in precepting doctoring

courses, small-group facilitation, and debriefing strategies. Course directors then worked with educational leaders to develop guiding principles for moderation of the discussion board (Table S1), based on literature on debriefing,[22,23] coaching,[24] assessment of reflective writing,[3] and trauma-informed teaching.[25] Junior faculty were introduced to the discussion board and these guiding principles for moderation of the board via one-on-one orientation sessions, followed by real-time supervision and assessment by a senior faculty member who provided guidance and feedback.

Trauma-informed teaching is increasingly cited in the literature as an important instructional frame in medical education, not least as an extension of the trauma-informed care practitioners aspire to bring to doctor–patient interactions.[26,27] Drawing on a growing body of literature on the importance of trauma-informed teaching practices during the pandemic, the course directors' decision to more intentionally draw on trauma-informed principles in their responses also emerged from their experience working and teaching through the pandemic.[28] Though student posts were not formally assessed, faculty utilized principles of reflective writing assessment in their responses to promote the growth of reflective ability.[3] Discussions focused on process rather than content of each reflection, such as how an experience challenged a learner's mental model or the extent to which new perspectives were explored.[3] Typical faculty responses demonstrating these principles can be found in Table S1.

OUTCOMES

This study has been designated as exempt from institutional review board approval, by our institutional IRB. Between May 13, 2019, and October 30, 2020, a total of 49 of 52 (94%) students participated in the discussion board. Of 346 total posts, half were by students, and the other half were faculty responses. Students posted 3.27 times each, on average. Discussion board posts were reviewed by the course director to identify common themes. These themes were later echoed in students' course evaluations comments and a postrotation survey about the discussion board. A formal thematic analysis of the discussion board posts is currently under way, and this paper focuses on the implementation and preliminary findings.

Although students were not directed on which aspects of their clinical experiences they should reflect on, students rarely raised questions about scientific knowledge content, fact-based aspects of patient care, or specific skills. Rather, they often posted about intensely affective reactions to experiences that left them with complex emotions (see Table 1 for excerpts from the discussion board posts and comments from course evaluations and a survey about the discussion board). There were two categories of comments: affective reactions to clinical experiences and appreciation for supportive faculty/student engagement. Similar themes emerged from both the discussion board posts and from student comments from course evaluations and surveys. Upon review of posts by the course directors, the majority (54%) of students' posts contained a range of affective responses, including frustration, sadness, satisfaction, surprise, fear, dismay, confusion, excitement, disappointment, embarrassment, and joy. Students later commented on the impact of the discussion board via surveys about the clerkship/discussion board. Comments from students about their experience with the discussion board reveal connections between their emotional reactions and how they make meaning and communicate with others.

REFLECTIVE DISCUSSION

An online discussion board can be used successfully for reflective practice to debrief clinical experiences during an EM rotation. The incorporation of faculty and peer support using trauma-informed teaching principles into the design of the discussion board seemed to bolster well-being and PIF.

This educational innovation is simple, inexpensive, feasible, and transferable, given the universal adoption of online learning management systems. This innovation can be used to augment traditional debriefing methods that may not always suit the emotional readiness of the participants. The asynchronous nature of the discussion board meant that students could choose to participate when it met their needs best. Faculty could also choose to engage when their schedules allowed. Remote participation ensured that both students and faculty could participate from locations that best suited them, including a comfortable and secure home environment. Student responses to peers may facilitate camaraderie and peer-to-peer support. The small group size (six students and two faculty) allowed for meaningful discussion. Smaller or larger groups may need to be modified to reach optimal engagement.

Our medical students were experienced in reflective writing as a result of their preclinical curriculum,[29,30] leading to more meaningful reflections. Students without such experience may require training in reflective writing prior to engagement with the discussion board. Although there were no instances of inappropriate student behavior either in initial reflection or in response to fellow students, unprofessional comments on the platform would have been addressed offline through one-on-one engagement directly by the course directors with all involved parties.

The effectiveness of this educational innovation may be limited by faculty availability for participation, discussion board facilitation skills, and training to increase those skills. Quality of faculty responses can be ensured through faculty development in small-group facilitation and debriefing strategies, instructor notes and guidelines, and supervision by an experienced educator.

There were differences in level of student engagement and posting habits between different cohorts. For example, some students posted reflections but did not respond to peers' posts. When faculty responded to posts with comments and further questions, some students responded back, but many did not. Some students posted several reflections simultaneously on the last day of the rotation,

TABLE 1 Excerpts and comments demonstrating affective reactions to clinical experiences and appreciation for student/faculty engagement.

	Excerpts from discussion board posts	Comments from students about their experience with the discussion board
Affective reactions to clinical experiences	"It's really hard to perform a bedside ultrasound on a patient and find that there is no intrauterine pregnancy. Breaking this news in real time can be very difficult. I think my attending did a great job at approaching each case with empathy and tactfulness, which I hope to emulate moving forward." "I saw a need for help with chest compressions as one of the providers was tiring, and once I began, immediately felt a surge of adrenaline as I realized I was solely responsible for her blood flow, and thus any organ damage she may experience (if only for a minute). It was exhausting. Within 45 seconds my whole body ached, and 2 minutes could not come soon enough. When it came time for the pulse check, I felt my heart beat hammering in my whole body." "It led to a mixture of emotions—I felt anxious about making sure that I didn't make any mistakes in a crucial moment, I felt excited to be directly involved in such acute care, and I felt concern for the patient."	"It gave me the chance to stop and reflect on all the new experiences I was having … I looked back at the discussion board posts, and it reminded me of the strong feelings and reactions that I had had but since forgotten. It reminded me of what I ultimately find meaningful in medicine." "It was very validating because I felt like my ED shifts were pretty emotionally taxing …" "It was helpful to hear what other students were experiencing and how they were feeling. As this was very early in the clinical year, it helped contextualize my own experience and make me a bit more comfortable talking about things that had happened." "I thought writing those posts were great because it was an emotional outlet for the (sometimes disturbing) things that I saw on MCY …"
Appreciation for supportive faculty/student engagement	"I think this is a great, very actionable tip that I can start to try to incorporate into my flow." "This was definitely a challenge for me as well. I found myself having to return to the room once I realized there was something important I didn't ask, or an exam maneuver I should have done." "I agree this was a great experience. I was also very grateful I had the help of a teammate, and realized how reassuring it is to have someone to consult with during these time sensitive situations!"	"It was validating that the faculty and students either related to what I wrote or gave me advice on how you cope." "Dr. X supported me … especially on the discussion board. She replied in a timely fashion to our confusions or unique encounters … and pushed us to think more deeply, and then shed light on our reflections." "The big thing for me was the faculty replies that were so thoughtful and made me feel better." "Reading the posts from my classmates was a unique opportunity to hear their perspectives. We posted mandatory reflections at the end of each clerkship, but we had never posted multiple, real-time reflections in a span of a week. Reading their posts made me realize I wanted to have more conversations with my peers about what we were seeing on the wards."

limiting the opportunity for group discussion. A few students did not participate in the discussion board.

The written and public format of the discussion board has inherent limitations. Compared to face-to-face discussion, these written communications lacked tone of voice, facial expression and body language, increasing the chances of miscommunication. Social desirability bias may have caused students to post reflections that were more likely to generate positive reactions in course directors and peers, compared to private reflections.

Despite these limitations, student comments showed that the discussion board effectively supported reflective practice. Future iterations could expand the learner cohort beyond medical students to include interns or residents. Resident physicians could be trained as respondents, given the beneficial nature of near-peer learning.[4]

Next steps include a thematic analysis of posts, currently under way, of the connections of discussion board posts to PIF. Student posts could be more formally assessed, such as with the REFLECT rubric.[21] Student learning and well-being, debriefing effectiveness, and faculty attitudes and skills could also be assessed, to better understand the broader impact of the discussion board.

AUTHOR CONTRIBUTIONS

Kiran Pandit: study concept and design; acquisition of the data; analysis and interpretation of the data; drafting of the manuscript; critical revision of the manuscript for important intellectual content; statistical expertise; administrative, technical, or material support; study supervision. David L. Chu: critical revision of the manuscript for important intellectual content; administrative, technical, or

material support. Roxanne Russell: study concept and design, acquisition of the data, analysis and interpretation of the data, critical revision of the manuscript for important intellectual content. Melissa Wright: study concept and design, acquisition of the data, analysis and interpretation of the data, critical revision of the manuscript for important intellectual content. Lauren Titone: study concept and design, acquisition of the data, critical revision of the manuscript for important intellectual content. Tomas Diaz: study concept and design, critical revision of the manuscript for important intellectual content. Jimmy Truong: critical revision of the manuscript for important intellectual content. Tiffany Murano: critical revision of the manuscript for important intellectual content, study supervision. Daniel J. Egan: study concept and design, critical revision of the manuscript for important intellectual content, study supervision.

CONFLICT OF INTEREST STATEMENT

The authors declare no conflicts of interest.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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