coefficient 0.66 [95% CI: 0.51, 0.81]; more than once, coefficient 1.74 [95% CI: 1.59, 1.90]; overall \( P < .0001 \), higher disengagement score (reference: never; once, coefficient 0.29 [95% CI: 0.20, 0.39]; more than once, coefficient 0.71 [95% CI: 0.61, 0.81]; overall \( P < .0001 \), and higher odds of career regret (reference: never; once \( OR 1.35 \) [95% CI: 1.12, 1.63]; more than once \( OR 1.87 \) [95% CI: 1.56, 2.23]; overall \( P < .0001 \) on the Y2Q. More positive emotional climate reported on the Y2Q was associated with lower exhaustion score (for each 1 point, coefficient −0.05 [95% CI: −0.08, −0.02]) and lower disengagement score (for each 1 point, coefficient −0.04 [95% CI: −0.06, −0.02]) on the QG. More positive faculty interactions on the Y2Q were associated with higher empathy score on the GQ (for each 1 point, coefficient 0.02 [95% CI: 0.001, 0.05]). Better student–student interactions were associated with lower odds of career regret during year 4 of medical school (for each 1 point, OR 0.97 [95% CI: 0.95, 1.00]).

**Discussion:** Medical students who experienced mistreatment and who perceived the learning environment less favorably were more likely to subsequently develop higher levels of exhaustion and disengagement, lower levels of empathy, and career regret in comparison with medical students with more positive experiences. Strategies to improve student well-being, empathy, and experience should include approaches to eliminate mistreatment and improve the learning environment.

**Significance:** Medical students who experienced mistreatment and who perceived the learning environment less favorably were more likely to subsequently develop higher levels of exhaustion and disengagement, lower levels of empathy, and career regret in comparison with medical students with more positive experiences. Our findings suggest strategies to improve student well-being, empathy, and experience should include approaches to eliminate mistreatment, optimize faculty–student interactions, build peer support, and enhance students’ self-efficacy.

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**References**


**Improve Student Understanding of Clerkship Expectations With an Online, Interactive Frame-of-Reference Training Module**

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**Purpose:** Assessment of medical students during clerkships is largely driven by clinical performance ratings, but many students perceive clinical evaluations to be “unfair” and call for more training of evaluators. Limitations in self-assessment may contribute to this perception, and frame-of-reference training may improve students’ ability to recognize different levels of performance. The objective of this study was to determine if an online, frame-of-reference training module can improve students’ understanding of clerkship expectations for clinical performance in the medicine clerkship.

**Methods:** Core faculty in the medicine clerkship developed multiple case presentations that demonstrated different levels of performance in the Reporter, Interpreter, Manager, and Educator (RIME) components of our clerkship evaluation form. The case presentations were revised in an iterative fashion to reach a consensus in defining each of the case presentations as below, at, or exceeding expectations for clerkship students. Using these presentations, an online, interactive frame-of-reference training tool was developed where students, before starting clerkships, rated a set of case presentations, compared their ratings with those determined by core faculty (correct ratings), and received feedback about why a given presentation merits a particular rating. At the start of the clerkship, students completed another training module with a new set of case presentations, either remotely on their own (odd-numbered clerkship blocks) or in-person with group discussion facilitated by the clerkship director (even-numbered blocks). We used chi-square tests to compare proportion of students choosing correct ratings on case presentations at baseline versus in-clerkship training and to compare student responses between remote versus in-person training groups with an end-of-clerkship survey on the effect of training on their understanding of clerkship expectations.

**Results:** All rising third-year students (N = 177) completed baseline training, and 140 students (100% enrolled in blocks 1–6 of medicine clerkship) completed the in-clerkship training. Students enrolled in blocks 7 and 8 were excluded due to COVID-related cancelations/rescheduling of clinical rotations. Overall, the percentage of cases answered correctly at baseline...
was 64.8% and improved to 74.5% at in-clerkship training ($P < .001$). In looking at individual domains of RIME, improvements were seen for all domains except interpreter: reporter 55.7% to 67.6% ($P = .002$), interpreter 74.3% to 62.8% ($P = .001$), manager 68.0% to 82.5% ($P < .0001$), and educator 62.5% to 85.1% ($P < .0001$). The pattern of improvement was not statistically different between remote versus in-person training groups. The majority of students agreed or strongly agreed that the online training improved their understanding of clerkship expectations (66.0% of remote versus 75.0% of in-person training groups, $P = .604$).

**Discussion:** In this study of frame-of-reference training for students, we found a significant increase in proportion of cases rated correctly from baseline to in-clerkship training. The lack of improvement in the interpreter domain likely reflects the challenges posed by clinical reasoning required for interpreter, which is a component of RIME students are most uncomfortable with during preclinical years, and a skill most heavily emphasized in the medicine clerkship. Repeating the training module at the end of the medicine clerkship may have shown different results. Our finding that student perception regarding usefulness of the training was similar between remote versus in-person training is worth noting because faculty time and effort, which are often seen as barriers to many educational efforts, in this case did not significantly improve effectiveness of training.

**Significance:** While much of the effort to improve clinical evaluations has focused on rater training, this study assessed whether training students can improve their understanding of clerkship expectations. Our findings show that a brief, online, frame-of-reference training tool can improve student understanding of different levels of clinical performance.

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**Qualitative Assessment of Medical Student Concerns About the COVID-19 Pandemic: A Multicenter Study Exploring Medical Student Perspectives**

Somtochukwu Ukwuani, Nicole Kloosterman, Catherine Hammack-Aviran, JD, MA, Mario Davidson, PhD, and Luke Finck, EdD

**Purpose:** Medical school poses numerous stressors and challenges that can affect student well-being.¹ Medical students are a vulnerable population within the system and may have a difficult time reporting concerns and questions to administration, particularly during the COVID-19 pandemic.² We aimed to highlight medical student perspectives by assessing the priorities and most pressing concerns of medical students during the global pandemic via an online questionnaire.

**Methods:** This is a cross-sectional qualitative study using a survey of medical students in 21 medical schools throughout the United States. Qualitative responses to open-ended questions assessing student’s concern during the pandemic were analyzed as part of a standardized iterative approach. All data were reviewed by 2 members of the research team, who independently used an inductive process to identify emergent themes. The data were analyzed and then coded by 2 authors who independently reviewed and applied codes to the 1 transcript and then met to compare code applications, resolved disagreements, and revised the codebook. The coders then independently coded designated sections of each transcript, maintaining periodic intercoder agreement at >80% on 23.8% of responses.

**Results:** In total, 1,005 responses were collected. Seven core themes were identified regarding medical student concerns about the COVID-19 pandemic: medical education training, missed events not related to medical education training, financial considerations, student value and contribution, health and safety, systemic concerns, and topics not otherwise covered. COVID-19 had caused many concerns for medical students particularly as it relates to education and health and safety. One hundred one (10.05%) students expressed concern about their own personal safety, safety of direct contacts (111; 11.04%), safety of society (77; 7.66%), and access to personal protective equipment (60; 5.97%). Additionally, 481 (47.86%) respondents cited undergraduate medical training, 149 (14.82%) cited the United States Medical Licensing Examination training, 172 (17.11%) cited transition to graduate training, and 25 (2.49%) cited other educational concerns as their primary concerns during the pandemic.

**Discussion:** This survey represents the most comprehensive assessment of U.S. medical students’ concerns during the first wave of COVID-19 in the United States. As key stakeholders in this evolving curriculum, it is imperative to ensure that medical students feel adequately protected and supported in their current roles through transparency in evolving educational curricula, tuition and other financial aid, community wellness initiatives, and personal health and safety measures.

**Significance:** The long-lasting nature of this pandemic reinforces the need...