Empathy in Medicine

Self and Other in Medical Education: Initial Emotional Intelligence Trend Analysis Widens the Lens Around Empathy and Burnout

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Context: Integral to emotional intelligence (EI), empathy is frequently studied in medical students. While important, given the implications for patient safety and physician well-being, traits such as self-regard may also affect physician efficacy. Emotional intelligence offers a holistic framework from which to study empathy, allowing it to be explored with coexisting traits and offering opportunities to identify related risk factors.

Objective: To identify trends in osteopathic medical student EI to help mitigate burnout, with specific attention to empathy and self-regard.

Methods: Eight hundred eighty-five students at Western University of Health Sciences College of Osteopathic Medicine of the Pacific from classes 2014-2016 were offered the Emotional Quotient Inventory 2.0 (EQ-i) at the start of school, completion of their second year, and at graduation. Participants completed all 3 inventories, yielding a response rate of 16.3%. Repeated measurement analysis of variance analyses were conducted using SAS software for Windows version 9.3.

Results: A total of 144 students participated. The total EI score shifted from mean (SD) 100.2 (12.4) at baseline to 96.1 (12.8) midway to 96.8 (13.3) at graduation (P=.0161) with significant decreases between baseline and midway (P<.001) and baseline and final administrations (P<.001). Empathy declined from 103 (13.1) to 99.9 (12.7) to 99.6 (12.6) (P=.0481) with significant decreases between baseline and midway (P<.001) and baseline and final administrations (P<.001). Self-regard declined from 98.6 (14.1) to 95.8 (15.1) to 95.5 (14.7) (P=.135) with significant decreases between baseline and midway (P=.0021) and baseline and final administrations (P<.001).

Conclusion: This study's findings support further investigation of potential roles played by EI, empathy, and self-regard in physician burnout.

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Emotional intelligence (EI) refers to capacities that enable self-regulation. Decreased EI in physicians has been linked to burnout,[1,2] which adversely affects patient care in key areas such as safety, satisfaction, treatment outcomes, physician turnover, morale, and financial performance.[3-10] An aspect of EI, empathy has

generally been found to decline during medical school.[11,12] While empathy is a frequent subject of study, literature[13-15] suggests that reduced capacity in other EI areas, such as self-regard and social responsibility, may also contribute to physician impairment. With burnout reported as a growing epidemic,[10] it is important for medical educators to identify and mitigate such risk factors.

Burnout is a state of "vital exhaustion,"[16] characterized by loss of enthusiasm for work, depersonalization, lack of purpose, and a low sense of accomplishment.[1,17,18] Symptoms can include chronic fatigue, impaired judgment, reduced compassion and empathy, depression, anxiety, substance abuse, lost productivity, and apathy.[17,18] In extreme cases, it may lead to suicide.[1] In 2015, physician burnout reached an all-time high of 55%, jumping 10% in just 3 years.[19] Research suggests that underlying foundational patterns for burnout get established in medical school.[20] Fatigue and reduced empathy are already present in resident physicians,[21] with depression rates ranging from 28.8% to 43.2%.[22] With burnout beginning to form during early physician development, medical educators have a window to implement strategies aimed at reshaping this trajectory. The identification of risk factors involved in this process, however—other than empathy—is lacking.

Empathy is defined as "recognizing, understanding, and appreciating how others feel"[23] Declining empathy in allopathic medical students has been widely studied and substantiated[11,24] There are fewer empathy studies among osteopathic medical students, however, with mixed results.[25-27] This lack supports the need for further empathy research in the DO student population. However, empathy is only 1 possible risk factor for burnout, and it does not exist in a vacuum. Emotional intelligence is a multifaceted construct that includes empathy while encompassing other important traits (**Figure 1**).[23] Emotional intelligence can permit empathy to be better understood by allowing it to be studied in context, thereby widening the lens in the search for burnout precursors.

Experts suggest that reduced self-confidence also starts during medical school and is a potential vulnerability.[20] The EI trait self-regard, defined as "respecting oneself while understanding and accepting one's strengths and weaknesses," is "associated with feelings of inner strength and self-confidence."[23] Symptoms of burnout could play a role in a distorted sense of self, affecting self-perception and worth. A study of physician self-esteem found that it was negatively correlated with burnout.[28] Self-efficacy was shown to be a factor in medical students' and physicians' ability to acquire patient-centered communication skills.[29]

This preliminary study is part of a larger on-going longitudinal investigation that seeks to incorporate a broader range of inter- and intrapersonal traits into the quest to identify and mitigate burnout risk factors by exploring osteopathic medical students' EI trends. Given the prominence of both empathy and self-regard in the EI and burnout literature as outlined above, as well as earlier vetting by the team pinpointing both traits, the goal of this initial trend analysis was to specifically assess EI, empathy, and self-regard as primary risk factors.

Methods

This prospective cohort study is approved by the Western University of Health Sciences' (WesternU) institutional review board and supported by a grant from the American Osteopathic Association. With a nonexperimental design, the study used a convenience sample of in-coming medical students in the classes of 2014-2016. The Western U College of Osteopathic Medicine of the Pacific (WesternU-COMP) research team began collecting data with the class of 2014. The study has expanded to include the WesternU Colleges of Dentistry, Optometry, Podiatry, Graduate Nursing, the Physical Therapy program, medical military students from Rocky Vista College of Osteopathic Medicine and Kansas City University of Medicine and Biosciences, and an Osteopathic Postdoctoral Training Institution-West residency site, affording opportunities

for interprofessional and interinstitutional comparisons and postmatriculation analyses. However, it was determined that an initial trend analysis of preliminary osteopathic medical student data could be helpful in guiding the larger scale study.

The team used the Bar-On Emotional Intelligence Inventory/Emotional Quotient Inventory 2.0 (EQ-i 2.0) for Higher Education by Multi-Health Systems (MHS). This inventory is globally recognized and considered valid and reliable. Initially published by Reuvan Bar-On in 1997, the current version has a normative sample of 4000 adults across the United States and Canada, representative of the population of these countries.[23] It consists of 133 items in a self-report format that takes 10 to 15 minutes to complete online. It yields an overall EI score and calculates scores in 5 domains and 15 subscales (**Figure 1**).[23] Participants received individualized, confidential summary reports.

The instrument was administered at 3 critical junctures: the start of medical school (baseline), completion of the second year (midway), and at graduation. Upon beginning medical school, the students take a course titled Integrated Skills for the Study of Medicine.

Figure 1.
Multi-Health Systems, Inc EQ-I 2.0 model depicting 5 emotional intelligence domains and 15 trait subscales. Reprinted with permission.

During this window, EI is introduced as an important aspect of physician efficacy. Multiple surveys are given during this time to include learning styles and attitudes about osteopathic professional identity, thereby allowing EI to be introduced within an appropriate context. With the first tenet of osteopathic medicine stating "the person is a unit of body, mind, and spirit," the notion of holistic development for medical students was presented as being consistent with the DO approach to patient care. During EI orientation, students were informed of the study intent, duration, confidentiality, and use of information. They were provided an overview of research on physician performance, a model of professional identity development, and follow-up resources. While it was expected that students complete the Integrated Skills for the Study of Medicine surveys offered, they were provided the email address of the principle investigator for confidential questions or concerns. The course directors understood that students could opt out in this capacity without penalization. After orientation, students were emailed the inventory link using their school email addresses. The agreement used by MHS to access the assessment, which stated the voluntary nature of the survey, was used to obtain informed consent. Students were welcomed to use identification numbers if that was more comfortable. Because initial attempts to hold in-class administrations overloaded the system, students were provided a 2-week timeframe for completion. This strategy encouraged participation, because students were able to take their inventories in private settings where they could thoughtfully reflect. Participants received 2 more emails with links to complete assessments: at the end of their second year and at graduation. With the second and third administrations, strategies to decrease attrition included participation in a drawing with a chance to win 1 of 3 $100 gift cards. Students were informed of the drawing in the email and sent 2 reminders. In addition, subsequent institutional review board approval was granted to offer course points.

All statistical analyses were conducted using the SAS Institute software for Windows version 9.3. Descriptive

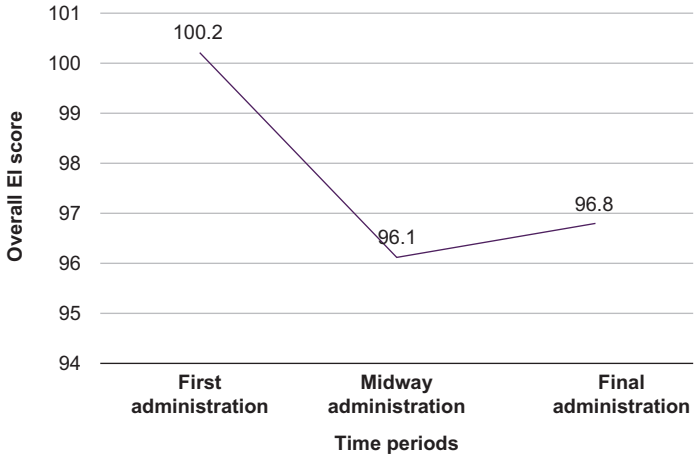

Figure 2.
Statistical trend of total emotional intelligence (EI) across medical school matriculation.

statistics were presented as mean (SD) for continuous variables and frequencies and proportions for categorical variables. A time variable with the 3 categories, baseline, mid-way, and "at graduation" was created. Repeated measurement analyses of variance were conducted to identify possible longitudinal patterns. A plot of the average of the outcomes (y axis) against time periods (x axis) was used. A score of 100 was considered average; 90, low average; and 110, high average. All statistical analyses were 2-sided. $P<.05$ was considered statistically significant.

Results

A total of 885 students from the classes of 2014-2016 were invited to participate on 3 occasions: 881 students completed the first survey (99.5%), 361 completed the second (40.8%), and 233 completed the third (26.3%). One hundred forty-four participants (16.3%;75 women and 69 men) completed all 3 surveys and were included in this analysis.

Results suggested statistically significant downward trends for baseline to midway and baseline to final administrations, and nonsignificant trends for midway to final administrations. Specifically, total EI went from 100.2 (12.4) to 96.1 (12.8) to 96.8 (13.3) ($P=.0161$), with significant decreases between baseline and midway ($P\leq.001$) and baseline and final administrations ($P<.001$), and nonsignificant findings between midway and final administrations ($P=.3978$; **Figure 2**). Empathy, typically a higher scoring area at baseline, declined from 103 (13.1) to 99.9 (12.7) to 99.6 (12.6) ($P=.0481$), with significant decreases between baseline and midway ($P=.0005$) and baseline and final administrations ($P<.001$), and a nonsignificant decrease between midway and final administrations ($P=.6917$). Self-regard declined from 98.6 (14.1) to 95.8 (15.1) to 95.5 (14.7) ($P=.135$), with significant decreases between baseline and midway ($P=.0021$) and baseline and final administrations ($P=.0004$), and a nonsignificant decrease between midway and final administrations ($P=.7415$; **Figure 3**).

Discussion

It is hypothesized that when osteopathic medical students infuse the distinct osteopathic philosophy into their professional identities, their patients benefit from this holistic osteopathic approach, which recognizes persons comprising body, mind, and spirit. REF: - AOA website: https://osteopathic.org/about/leadership/aoa-governance-documents/tenets-of-osteopathic-medicine/ However, if

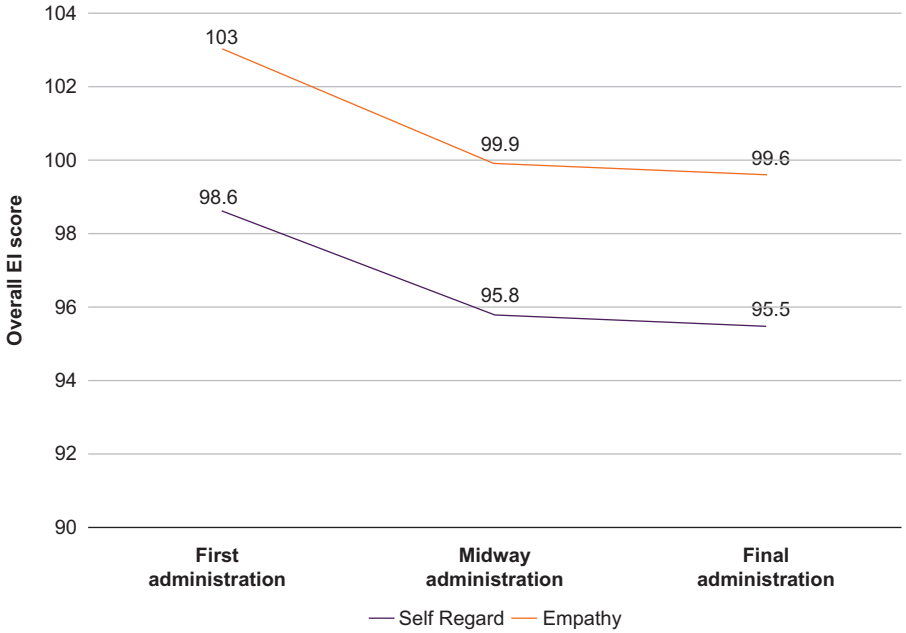

Figure 3.
Statistical trend of primary identified risk factors across matriculation. *Abbreviation*; EI, emotional intelligence.

EI traits decline during medical school, it would be challenging to study whether taking the osteopathic approach makes a difference, as lower EI could be a confounding variable. A concurrent decline in self-regard could shed light on decreasing empathy. If one doubts his or her worth, the motivation to express empathy may be affected. Interventions to promote compassion toward oneself may be explored as a way to bolster empathy, as supported by an emerging body of literature on "self-compassion.[30] Self-compassion includes "self-kindness, connection to humanity, and mindfulness"; research has linked it to empathy, altruism, reduced burnout, and improved well-being.[31-33] A full review of the psychological construct of self-compassion is beyond the scope of this report; however it may be useful to explore it as an effective tool in combination with empathy and resiliency training in a multifaceted intervention, particularly during preclinical education.

There are several limitations to this study. First, with a sample size of 144, generalizability is limited. However, at the time of this publication, data collection was ongoing. Second, there is no criterion standard for measuring EI. The majority of studies use self-report inventories, lending to concern that participants may respond in a positive manner. Thus the instrument has a built-in corrective scale. Participants can self-select. Those who have an interest may be more inclined to participate, lending to attrition, particularly with subsequent administrations. During the course of data collection, the instrument evolved from a 1.0 to a 2.0 version. Consultations with the MHS Research and Development Team confirmed "a very strong relationship"[23] and comparability between versions, strong to very strong positive correlations for overall EI and the subscales of interest, and the newer version's improved ability to measure the core constructs (verbal and written communication, December 2017). Last, interinstitutional research would be needed to generalize any eventual findings to the broader osteopathic medical student population.

Conclusion

With osteopathic distinctiveness grounded in whole patient care, EI offers a way to measure and promote "whole student" education to ensure the development of commensurate capacities. Successful completion of this research will inform the construction of a pilot program aimed at determining whether EI risk factors can be successfully mitigated. This initial trend analysis was meant to guide further exploration. With results supporting the need for further investigation, the research team is excited to learn whether these early findings may be pinpointing self-regard as an elucidating factor in the drive to reduce burnout and maintain physician empathy. A comprehensive strategy incorporating mindfulness, empathy, resiliency, and self-compassion training during preclinical education, with outcomes measured by EI scales, could hold promise.

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