Medical Humanities Coursework Is Associated with Greater Measured Empathy in Medical Students

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ABSTRACT

PURPOSE: The primary focus of the study was to determine whether coursework in the medical humanities would ameliorate students’ loss of and failure to develop empathy, a problem known to be common during medical education.

METHODS: Students were offered an elective course in the Medical Humanities for academic credit. The Jefferson Scale of Empathy Student Version (JSE-S) was administered at the beginning and end of an academic year in which humanities courses were offered. Changes in JSE-S scores among students who studied Medical Humanities were compared with changes in student who did not take any humanities coursework.

RESULTS: Medical humanities coursework correlated with superior empathy outcomes among the medical students. Of students not enrolled in humanities courses, 71% declined or failed to increase in JSE-S score over the academic year. Of those who took humanities coursework, 46% declined or failed to increase in JSE-S scores. The difference was statistically significant (P = .03). The medical humanities curriculum correlated with favorable empathy outcomes as measured by the JSE-S.

CONCLUSIONS: Elective medical humanities coursework correlated with improved empathy score outcomes in a group of US medical students. This may reflect a direct effect of the humanities coursework. Alternately, students’ elective choice to take medical humanities coursework may be a marker for students with a propensity to favorable empathy outcomes.

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This study aimed to determine whether, compared with the usual decline in empathy among medical students, coursework in the humanities was associated with a desirable increase in a measure of medical student empathy.

Empathy among physicians is valued by society, patients, and families.1 In addition to being an intrinsic professional value, greater physician empathy also correlates with better clinical outcomes.2,3 Students with lower empathy scores tend to be averse to uncertainty, and these students also are known to choose specialty training away from direct patient care.2 Deficient empathy also is related to professional burnout in practicing physicians.4,5

Empathy is known to decline, rather than grow, during medical education.6,7 Surveys of patients have found that distressing numbers of patients say that their physicians lack sufficient empathy and compassion.8 If empathy and compassion are desired outcomes in medical education, research is needed to design curricula that preserve or improve students’ empathy.

Medical humanities have been proposed as an activity that might improve empathy in medical students by fostering skills such as the interpretation of narratives and

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the ability to manage situations where there is no single correct answer.\textsuperscript{5,9} Humanities coursework for medical students has been shown to improve some clinical skills. For example, time spent viewing fine art is associated with improved observational skills in physical diagnosis.\textsuperscript{10-12} Recent data suggest that reading literary fiction enhances “theory of mind,” a cognitive capacity that enables persons to understand the mental state of others, a skill that engenders empathetic clinical relationships.\textsuperscript{13}

Some neuropsychologic research exists regarding the mechanisms by which literature and humanities may influence empathy,\textsuperscript{14,15} but few prior data sets examine the impact of humanities studies on medical student empathy. The few data that exist are conflicting. By using the Jefferson Scale of Empathy Student Version (JSE-S), Rosenthal and colleagues\textsuperscript{16} found that a mandatory multicomponent “Humanism and Professionalism” course was associated with preserved empathy scores, but those data did not compare students in the course with students without such an experience. Yang and Yang\textsuperscript{17} found that a 4-hour experience with interpreting paintings did not influence medical students’ scores on the JSE-S and called for further experimental investigations. Potash et al\textsuperscript{18} compared a group of students who made art with a group of students who experienced a “problem-solving” workshop; empathy declined in both groups, without a statistical difference in outcome.

**CLINICAL SIGNIFICANCE**

- Medical students who took Humanities courses had favorable measures of empathy compared with students who did not take the courses.
- Medical humanities coursework may engender favorable empathy outcomes among medical students.
- Students with interest in studying the medical humanities may be those with a propensity to favorable empathy outcomes.

**MATERIALS AND METHODS**

**Groups Compared**

Our central research question was whether empathy scores would be preserved among students who took humanities coursework or their empathy scores would decrease, as appears typical of US medical students. Therefore, we compared a group of students who took humanities coursework with peer students in the same year and the same medical school program who did not take any medical humanities coursework.

**Measure Compared**

We selected the JSE-S because of its wide use and prior validation, having been used in 83 countries and 53 languages. The JSE-S uses a 20-item scale to measure empathetic attributes in health professionals. Three versions exist, one for practicing physicians, one for health professionals such as dentists and pharmacists, and one framed for medical students. The versions are similar, mainly differing by the phrasing adjusted to ask questions in a grammar appropriate to the respective respondent categories. The JSE-S produces a score on an ordinal scale from 20 to 140 possible points. Although projects with large sample sizes have successfully analyzed JSE-S scores as if they were continuous interval data, at our smaller number of respondents we did not assume any standard distribution. Therefore, we planned in our design to treat the JSE-S scores as true ordinal data and categorized respondents’ scores in a binary fashion by whether their JSE-S score increased, vis-à-vis whether their JSE-S score declined or failed to grow over the course of a year in medical school. We acquired students’ empathy scores on the JSE-S\textsuperscript{19} at the beginning and the end of an academic year of medical school. We assessed the changes in each student’s JSE-S score over the year. We compared the group of students who enrolled in elective medical humanities coursework with the group of students who did not take any humanities courses.

**Intervention**

An elective course in the medical humanities was offered to the students in 2013 and 2014. The course had 10 in-class contact hours of a broad survey of the humanities in medicine. Topics included social and cultural studies, the history of western medicine, and exercises in the interpretation of visual arts and literature. Courses were early evening discussion seminars. Students were assigned pre-readings to discuss in session. In addition, films and art were viewed and discussed in-session. The core activity in all sessions was an in-session participatory discussion based on the art or literature chosen for the session.

**Data Collection**

We collected a cross-sectional measure of enrolled medical students’ JSE-S scores at 2 different times: at the beginning and end of the academic year. One researcher (LMB) approached all enrolled students with a request to complete the online JSE-S. The participants were asked to complete the JSE-S during the first month of the academic year and again at the end of their academic year.

**Participant Protection and Ethical Consideration**

The project was approved before beginning by the Institutional Review Board. Each participant was given an anonymizing coded identifier to enter their responses on a
web-based JSE-S test. The login codes were separated from any student’s specific identifying details. The invitation to complete the JSE-S scale also informed participants that taking the JSE-S was entirely voluntary. Participants were assured that their scores or decision to participate would have no relation to their evaluations or academic grades.

### Data Handling

Only the participants who completed both tests, providing a score at both the beginning and the end of the year, were included in the data analysis. Participants who did not complete either the beginning or ending JSE-S were excluded from the final analysis. Students whose end-of-year JSE-S result was lower or unchanged compared with the beginning of the year were defined as having a decline or failure to grow in empathy scores. Students recording a higher JSE-S score at the end of the year than the beginning were defined as having a gain in score.

### Statistical Measures

We applied a 2 × 2 Pearson’s chi-square test, comparing those enrolled or not enrolled in humanities coursework with whether their JSE-S scores gained or declined over the year.

### RESULTS

Studying medical humanities correlated with increased JSE-S outcomes at the end of the school year. Of 88 students invited to participate, 68 completed the JSE-S instrument at both the beginning and the end of the year. Of these 68, 25 enrolled in medical humanities coursework and 43 did not. Twenty eligible participants did not complete the JSE-S and were excluded from the analysis. Of 43 students who did not participate in medical humanities coursework, 12 (28%) demonstrated an increase in empathy scores as measured by the JSE-S. The other 31 (72%) of these students demonstrated JSE-S scores that failed to grow or declined by the end of the school year. Among the 25 students who enrolled in medical humanities electives, 14 (56%) had increased or preserved scores and 11 (44%) had unchanged or reduced empathy scores over the year (Figure). The Pearson’s chi-square for this difference was statistically significant \((P = .03)\).

### DISCUSSION

To our knowledge, these are the first data associating medical humanities coursework with favorable empathy outcomes among students. Medical humanities studies may ameliorate the “hardening of the heart” known to occur during medical school education. In our study, medical humanities coursework correlated with favorable scores of clinical empathy.

We suggest 2 major mechanisms to explain our finding of favorable empathy score outcomes among humanities students. First, humanities coursework may directly cultivate empathic reasoning and cognitive skills, which are neglected in standard curricula. For example, reading fiction requires the student to try to see a situation from another person’s point of view, an important component of empathy. Second, students enrolled in humanities coursework were necessarily exposed to faculty physicians who valued interpretation and reflection in the humanities. This interpersonal exposure may have affected the students’ empathy scores at year’s end.

### Study Limitations

Our data have significant limitations. With this small sample size, we could not test whether factors such as student age, gender, or social background influenced empathy outcomes. Also, our study was done among students during the preclinical phase of medical school, and the later clinical years may have more negative impact on their empathy. Another limitation is that 20 eligible participants did not complete the JSE-S, and these nonrespondents may represent an important subgroup of students with high or low empathy outcomes. It is possible that the 43 measured students not enrolled in humanities courses were exposed to an

![Figure](image_url) Relative changes in JSE-S over an academic year among students who did or did not take humanities coursework \((P = .03)\). JSE = Jefferson Scale of Empathy.
unidentified experience that actively reduced empathy scores in that group. Last, the humanities coursework was optional, so our findings may partly reflect selection bias: Students who choose humanities courses may be predisposed to favorable empathy outcomes.

CONCLUSIONS
Despite these limitations, our overall positive results suggest that medical humanities coursework may improve empathy as an educational outcome. Future research should evaluate whether humanities coursework that is required, instead of elective, has a similar correlation with favorable empathy scores. Second, the relationship between studying humanities and higher empathy scores should be examined in the later clinical phase of medical school. Ongoing study will improve medical curricula to cultivate and preserve empathy, rather than diminish the empathy of our future physicians.

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