

## Empathy in Osteopathic Medical Students: A Cross-Sectional Analysis

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**Context:** Empathy is fundamental to patient care. Research studies of allopathic medical students have found a statistically significant decrease in empathy levels by the third year. Levels of empathy in osteopathic medical students have not been evaluated to determine whether a similar decline occurs in this group.

**Objectives:** To determine whether there were differences according to year of schooling in mean levels of empathy among osteopathic medical students, as assessed with the Jefferson Scale of Physician Empathy–Student Version (JSPE-S), and, secondarily, to compare these measures of empathy in osteopathic medical students with those reported elsewhere for allopathic medical students.

**Methods:** The JSPE-S was distributed to students during regularly scheduled classes at the end of the academic year at the University of Medicine and Dentistry of New Jersey–School of Osteopathic Medicine in Stratford. Responses were anonymous. Data were analyzed by year in osteopathic medical school, sex, planned specialty, and ethnicity. Scores were compared with those of allopathic medical students reported elsewhere.

**Results:** Of the 415 respondents, 405 (98%) returned questionnaires with complete information, including 187 men (46%) and 218 women (54%). Of these respondents, 208 (51%) were white, 124 (31%) were Asian, and 73 (18%) were of another ethnicity. There were no statistically significant differences by year of schooling in respondents' sex, ethnicity, or specialty orientation and no statistically significant differences by year of schooling in the mean JSPE-S scores.

**Conclusion:** Levels of empathy in osteopathic medical students were not found to decrease significantly by year of schooling, as reported in other studies for allopathic medical students. However, mean JSPE-S scores for first- and second-year osteopathic medical students were lower than those for first- and second-year allopathic medical students.

*J Am Osteopath Assoc.* 2012;112(6):347-355

The aim of medical school education is to provide future physicians not only with knowledge about pathology and disease but also with experiences that will help them develop a good bedside manner, a term that refers to a physician's understanding, professionalism, respect, and empathy.<sup>1</sup> A higher level of empathy in physicians has been associated with increased engagement in care and compliance with therapy among patients and more accurate diagnoses by physicians.<sup>2</sup> Since the inception of the field, the emphases of osteopathic medical education have included the need for a biopsychosocial approach to medicine, the use of musculoskeletal manipulation for managing health issues, and an empathic bedside manner. In fact, the osteopathic medical profession recognizes empathy as a required element of professionalism in its set of fundamental osteopathic medical competencies; these guidelines state that physicians should have "a willingness to listen to patients and respect their views by exhibiting elements of altruism and empathy."<sup>3</sup>

For Hojat and his associates at Thomas Jefferson University in Philadelphia, Pennsylvania, empathy is described as a cognitive attribute involving an understanding of a patient's unspoken expectations coupled with the ability to communicate this understanding to the patient.<sup>4-6</sup> Some

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**Financial Disclosures:** Financial support for the study was provided by the Center for Teaching and Learning, the Department of Academic Affairs, and the Department of Psychiatry at the University of Medicine and Dentistry of New Jersey–School of Osteopathic Medicine. The authors have no conflicts of interest relevant to the study topic.

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Submitted August 17, 2011; final revision received February 10, 2012; accepted February 14, 2012.

researchers have reported that there is a decline in empathy levels among allopathic medical students as they progress through their medical school education, especially between the ends of the second and the third years of medical school<sup>5-9</sup> and into resident training.<sup>10,11</sup> Newton et al<sup>9</sup> also described a progressive decline in empathy levels beginning in the first year of medical school. Previous studies with allopathic medical students have also found that women are more empathic than men,<sup>7,12</sup> and some have found statistically significant differences in empathy levels among ethnic and age groups.<sup>5,6,11,13</sup> In a 2001 study by Hojat et al,<sup>6</sup> intended specialties, which may also predict empathy levels, were identified as either people-oriented specialties (including primary care specialties, obstetrics and gynecology, emergency medicine, psychiatry, and medical subspecialties) or technology-oriented specialties (including anesthesiology, pathology, radiology, orthopedic surgery, surgery, and surgical subspecialties).

Many theories have been suggested for the decline in student empathy between the end of the first and fourth years of medical school. For example, the emphasis on technological and data-driven medical decision making may diminish the connection between patient and physician<sup>14</sup>; the term “laptop docs” was coined by Spiro<sup>4</sup> to describe this phenomenon. The mixed messages that students receive during their clinical experiences, such as being encouraged by supervising physicians to assess patients as soon as possible and to consider diagnostic treatment codes that maximize reimbursement, may contribute to declines in empathy.<sup>13,15,16</sup> Other potential factors are long work hours, dependence on technology, negative experiences, burnout, and limited bedside interactions.<sup>12,14,17-23</sup>

A 2011 study by social psychologists<sup>17</sup> showed that American college students have been scoring lower and lower on a standardized empathy test during the past 3 decades. Some educators may even believe that empathy lies outside the scope of evidence-based medicine<sup>24</sup> and thus would not stress the importance of empathy in patient care. A recent study examining the relationship between physician empathy and patient outcomes found that diabetic patients treated by physicians identified as more empathic had better clinical outcomes, which stresses the importance of empathy in the patient-physician relationship.<sup>25</sup>

The primary purpose of the present study was to determine whether there were differences in beliefs about how important it is for a physician to empathize with his or her patients between first-, second-, third-, and fourth-year osteopathic medical students, as indicated by mean scores on the Jefferson Scale of Physician Empathy–Student Version (JSPE-S).<sup>8</sup> The JSPE-S is the self-report instrument that has been widely used to assess empathy in allopathic

medical students.<sup>6</sup> A secondary purpose was to compare the mean levels of self-reported empathy among osteopathic medical students, as assessed with the JSPE-S, with those reported by Hojat et al<sup>6</sup> for allopathic medical students. The study was also designed to ascertain whether mean levels of empathy were higher for female osteopathic medical students and those planning to enter people-oriented specialties than for male students and those planning to enter technology-oriented specialties, respectively, as has been previously found with allopathic medical students,<sup>5</sup> and whether these levels differed with respect to ethnicity.

### Methods

The study was reviewed and approved by the Institutional Review Board of the University of Medicine and Dentistry of New Jersey–School of Osteopathic Medicine. The JSPE-S was distributed to all osteopathic medical students at the end of regularly scheduled classes that occurred at the close of the academic year, in either late May or early June 2011. The students were not asked to provide any unique personal identifying information and were explicitly told that completing the JSPE-S was voluntary. The questionnaires were placed on a table for collection by the instructor as the students exited the classroom.

### Instrument

The JSPE-S,<sup>6</sup> which has been translated into at least 38 languages,<sup>12</sup> was used to measure the medical students' levels of empathy. A 20-item self-report instrument, the JSPE-S asks respondents to use a 7-point Likert scale, ranging from 1 (strongly disagree) to 7 (strongly agree), to describe their extent of agreement or disagreement with each statement. The 20 statements rated in the JSPE-S are listed in *Table 1*. Ten of the scale's items are scored in reverse, and the ratings are then summed, after subtracting the rating of each reversely scored item from 8, to yield a total score that can range from 0 to 140. Higher scores indicate more empathy. The reliability and validity of the JSPE-S have been supported by findings from various allopathic medical schools, where the JSPE-S score has been found to have statistically significant correlations with other measures of empathy and to have high levels of internal consistency as measured by Cronbach coefficient  $\alpha$ .<sup>12</sup> The Cronbach coefficient  $\alpha$  of the JSPE-S total scores for the present sample of osteopathic medical students was .83, a value that Cicchetti<sup>26</sup> considers “good” for assessment purposes; the items are consistently measuring a reliable underlying construct of empathy.

The students were also presented with a list of 21 medical specialties and asked to indicate which one they planned to enter. The list of specialties was distributed with the JSPE-S forms that were purchased from Jefferson

Medical College. The specialties were categorized as either people or technology oriented, following the coding scheme described by Hojat et al<sup>6</sup> and Chen et al<sup>7</sup> and shown in *Table 2*.

### Statistical Analysis

The sex, ethnicity, and specialty-orientation compositions of the 4 classes were compared using  $\chi^2$  tests of independence to determine whether any of these characteristics might need to be controlled for before we compared the mean JSPE-S scores of the 4 classes. Cramer V and  $\phi$  correlations were used to estimate the effect sizes of the  $\chi^2$  test relationships. To compare the 4 classes according to the mean ages of students at the end of their first year in medical school and the mean JSPE-S scores by year in medical school, 1-way analyses of variance were performed, and partial  $\eta^2$  values were used to estimate the effect sizes. The ages of the second-, third-, and fourth-year students at the end of their first year in medical school were calculated by subtracting 1, 2, and 3 years, respectively, from these students' current ages to make them comparable to the ages of the first-year students. In comparing the present mean JSPE-S scores with those reported in the literature for allopathic medical students, *t* tests for independence were calculated with the Cohen *d* statistic<sup>27</sup> to determine the magnitude of the mean differences. If the variances for the 2 groups were significantly heterogeneous, the Welch *t* statistic was used. The minimum level of significance was set at the .05 level, 2 tailed, for all of the statistical tests.

### Results

A total of 415 students, representing 80.5% of the current student population at UMDNJ-SOM, completed the JSPE-S. Of those respondents, 9 students (2%) did not provide complete demographic information about themselves, and 1 student (<1%) provided complete demographic information but did not rate any of the JSPE-S statements. There were no demographic differences between respondents and nonrespondents. The final sample included 127 first-year students (31%), 105 second-year students (26%), 88 third-year students (22%), and 85 fourth-year students (21%). These students represented 83%, 80%, 81%, and 77%, respectively, of all students currently registered in the first- (*n*=153), second- (*n*=131), third- (*n*=108), and fourth-year (*n*=111) classes.

*Table 1* presents the frequencies with which the total sample of students gave each possible response to each statement; the ratings for the 10 statements whose ratings are reversed when summed to yield the JSPE-S total scores have not been reversed in *Table 1*. For example, 191 students (47%) strongly agreed with item 20, "I believe that empathy is an important therapeutic factor in medical treatment,"

and 184 students (45%) strongly disagreed with item 12, "Asking patients about what is happening in their personal lives is not helpful in understanding their physical complaints." The responses to these 2 items suggest that the students were paying attention to how the statements were worded. *Table 1* also indicates that the items with the most varied ratings were statements that addressed beliefs and behaviors associated with empathy but were not manifestly indicative of empathy per se, such as item 19, "I do not enjoy reading nonmedical literature or the arts."

As *Table 3* indicates, the study included 187 men (46%) and 218 women (54%). The mean (standard deviation [SD]) age of students in the 4 classes at the end of their first year in medical school was 26.0 (3.1) years. With respect to ethnicity, 208 students (51%) were white, 124 (31%) were Asian, 43 (11%) were African American, 27 (7%) were Hispanic American, 2 (<1%) were American Indian, and 1 (<1%) was Hawaiian. To satisfy the statistical assumptions for conducting a  $\chi^2$  analysis (ie, expected percentages >5% per cell), the students were coded into the white, Asian, and "other" categories shown in *Table 3*. With respect to the selection of specialty, 88 students (22%) had not yet decided on a specialty; the majority of the undecided students were in their first (46 [52%]) or second (37 [42%]) years. Only 4 third-year students (1%) and 1 fourth-year student (<1%) were undecided. *Table 3* shows that of 317 students (78%) who had decided on a specialty, 254 (80%) had chosen a specialty oriented toward people, and 63 (20%) a specialty oriented toward technology. *Table 3* also includes the means and SDs of the adjusted ages of the students at the end of their first year of medical school. There were no statistically significant differences in the percentages across the 4 years with respect to sex, ethnicity, and specialty orientation, and there were no statistically significant differences with respect to age. As *Table 3* shows, all of the effect sizes were small. Therefore, it was concluded that the sexual, ethnic, age, and specialty-orientation compositions of the osteopathic medical students across the 4 years were comparable, and none of these background characteristics had to be controlled for in the subsequent comparison of the students' mean JSPE-S scores across the 4 years.

As *Table 4* shows, the mean (SD) JSPE-S scores for the first-, second-, third-, and fourth-year osteopathic medical students were comparable across the 4 years ( $F_{3,401}=1.57$ ;  $P=.196$ ;  $\eta^2=0.01$ ). *Table 4* also lists the mean (SD) JSPE-S scores reported by Hojat et al<sup>24</sup> for first-, second-, third-, and fourth-year allopathic medical students from the Jefferson Medical College of Thomas Jefferson University in Philadelphia, Pennsylvania. These mean JSPE-S scores were chosen for comparative purposes because Hojat et al<sup>24</sup> presented unadjusted means and SDs for all 4 years of medical school, instead of focusing on only 1 or 2 years,

**Table 1.**  
**Responses of Osteopathic Medical Students (N=405) to Jefferson Scale**  
**of Physician Empathy–Student Version, No. (%)<sup>a</sup>**

Item <sup>b</sup>	Strongly Disagree				Strongly Agree		
	1	2	3	4	5	6	7
1. Physicians' understanding of their patients' feelings and the feelings of their patients' families does not influence medical or surgical treatment.	127 (31)	116 (29)	62 (15)	46 (11)	23 (6)	15 (4)	16 (4)
2. Patients feel better when their physicians understand their feelings.	3 (1)	1 (<1)	2 (<1)	15 (4)	31 (8)	120 (30)	233 (58)
3. It is difficult for a physician to view things from patients' perspectives.	37 (9)	93 (23)	87 (21)	97 (24)	69 (17)	15 (4)	7 (2)
4. Understanding body language is as important as verbal communication in physician-patient relationships.	4 (1)	2 (<1)	10 (2)	28 (7)	55 (14)	126 (31)	180 (44)
5. A physician's sense of humor contributes to a better clinical outcome.	10 (2)	24 (6)	24 (6)	89 (22)	84 (21)	100 (25)	74 (18)
6. Because people are different, it is difficult to see things from patients' perspectives.	45 (11)	86 (21)	88 (22)	86 (21)	69 (17)	20 (5)	11 (3)
7. Attention to patients' emotions is not important in history taking.	184 (45)	113 (28)	47 (12)	27 (7)	14 (3)	13 (3)	7 (2)
8. Attentiveness to patients' personal experiences does not influence treatment outcomes.	130 (32)	123 (30)	76 (19)	37 (9)	22 (5)	12 (3)	5 (1)
9. Physicians should try to stand in their patients' shoes when providing care to them.	8 (2)	9 (2)	16 (4)	64 (16)	97 (24)	117 (29)	94 (23)
10. Patients value a physician's understanding of their feelings, which is therapeutic in its own right.	6 (1)	8 (2)	4 (1)	51 (13)	96 (24)	125 (31)	115 (28)
11. Patients' illnesses can be cured only by medical or surgical treatment; therefore, physicians' emotional ties with their patients do not have a significant influence in medical or surgical treatment.	129 (32)	118 (29)	89 (22)	39 (10)	14 (3)	11 (3)	5 (1)
12. Asking patients about what is happening in their personal lives is not helpful in understanding their physical complaints.	184 (45)	104 (26)	60 (15)	29 (7)	15 (4)	9 (2)	4 (1)
13. Physicians should try to understand what is going on in their patients' minds by paying attention to their nonverbal cues and body language.	5 (1)	9 (2)	7 (2)	26 (6)	84 (21)	145 (36)	129 (32)
14. I believe that emotion has no place in the treatment of medical illness.	195 (48)	114 (28)	41 (10)	35 (9)	11 (3)	4 (1)	5 (1)
15. Empathy is a therapeutic skill without which the physician's success is limited.	12 (3)	18 (4)	31 (8)	63 (16)	69 (17)	119 (29)	93 (23)
16. Physicians' understanding of the emotional status of their patients, as well as that of their families, is one important component of the physician-patient relationship.	3 (1)	4 (1)	6 (1)	40 (10)	74 (18)	132 (33)	146 (36)
17. Physicians should try to think like their patients in order to render better care.	18 (4)	24 (6)	40 (10)	97 (24)	109 (27)	65 (16)	52 (13)
18. Physicians should not allow themselves to be influenced by strong personal bonds between their patients and their family members.	17 (4)	28 (7)	61 (15)	105 (26)	69 (17)	69 (17)	56 (14)
19. I do not enjoy reading nonmedical literature or the arts.	216 (53)	83 (20)	30 (7)	36 (9)	13 (3)	16 (4)	11 (3)
20. I believe that empathy is an important therapeutic factor in medical treatment.	3 (1)	0	5 (1)	34 (8)	51 (13)	121 (30)	191 (47)

<sup>a</sup> Some percentages do not total 100 because of rounding.

<sup>b</sup> Ratings for items 1, 3, 6, 7, 8, 11, 12, 14, 18, and 19 are reversed before summing.

**Table 2.**  
**Specialty Preferences by People or Technology Orientation**

People-Oriented	Technology-Oriented
Dermatology	Anesthesiology
Emergency medicine	Neurosurgery
Family medicine	Otolaryngology
Internal medicine	Orthopedic surgery
Neurology	Pathology
Obstetrics/gynecology	Plastic Surgery
Ophthalmology	Radiology
Pediatrics	Surgery
Physical medicine/rehabilitation	
Preventive medicine	
Psychiatry	
Public health	
Urology	

such as only the second or third year. Other researchers, such as Chen et al,<sup>7</sup> have reported mean JSPE-S scores by years in medical school, but the means have been adjusted for sex, age, and other factors.

The Jefferson Medical College students represented 100% of the matriculates who entered the medical school in 2002 and 2004. The mean JSPE-S scores for Jefferson students in their first (n=399), second (n=375), third (n=339), and fourth (n=356) years are also given in Table 4, and the difference of 6.9 between the first-year students for both schools was statistically significant (Welch  $t_{163}=4.83$ ,  $P<.0001$ ,  $d=0.52$ ) along with the difference of 3.9 for the second-year students ( $t_{478}=3.11$ ,  $P<.002$ ,  $d=0.28$ ). The  $d$  statistics indicate that the difference between mean scores for first-year students in the 2 schools represents a medium effect size, and the difference for second-year students represents a small effect size. Thus, first- and second-year allopathic medical students had higher JSPE-S scores than did the first- and second-year osteopathic medical students. However, the difference of 0.33 between the mean JSPE-S scores of the third-year allopathic and osteopathic medical students and the difference of 2.12 between the mean scores of the fourth-year allopathic and osteopathic medical students (Table 4) were not statistically significant.

Although the percentage of women in the Jefferson sample of 226 allopathic medical students (50%) was comparable to that in the present sample (54%) ( $\chi^2_{Yates}[1, N=861]=1.40$ ;  $P=.24$ ;  $\phi=0.04$ ), the percentage of minorities in the present sample (51% [n=208]) was 25% higher than that in the Jefferson sample (26% [n=118]) ( $\chi^2_{Yates}[1, N=861]=46.94$ ;  $P<.001$ ;  $\phi=0.24$ ). Table 3 shows that approximately a third of the first- and second-year osteopathic medical students were Asian. Although Berg et al<sup>12</sup> found no statistically significant difference between the mean (SD) JSPE-S scores of 176 white and 55 Asian third-year

Jefferson medical students evaluated in 2008 (108.9 [12.6] vs 106.4 [13.7]), they commented that simulated patients rated white students as being more empathic than Asian students.

To determine whether the higher proportions of Asians in the first- and second-year osteopathic medical students might help explain why the osteopathic medical students had statistically significant lower levels of empathy in these years than the Jefferson allopathic medical students, the mean (SD) JSPE-S scores of the 45 Asian and the 82 non-Asian first-year osteopathic medical students (103.5 [16.1] vs 111.4 [13.7], respectively) were first compared. The difference of 7.9 points was statistically significant ( $t_{122}=2.86$ ;  $P=.004$ ;  $d=0.52$ ) and represents a medium effect size. However, for students in the second year of osteopathic medical school, the mean (SD) JSPE-S scores of the 36 Asian and the 69 non-Asian students were comparable (111.3 [11.9] vs 111.0 [14.0]) ( $t_{103}=0.11$ ;  $P=.912$ ;  $d=0.02$ ). To ascertain whether the mean JSPE-S scores of Asian osteopathic medical students were similar to those reported in the literature for allopathic medical students generally, an independent  $t$  test was calculated to compare the mean (SD) JSPE-S score of the 22 Asian third-year allopathic medical students studied by Berg et al<sup>12</sup> (106.4 [13.7]) with that of the 24 Asian third-year osteopathic medical students (108.1 [11.6]), and there was no significant difference ( $t_{44}=0.46$ ;  $P=.645$ ;  $d=0.14$ ).

Finally, the present study was designed to ascertain whether female osteopathic medical students and students planning to enter people-oriented specialties had higher empathy scores, respectively, than male osteopathic medical students and those who were planning to enter technology-oriented specialties. The mean (SD) JSPE-S score of the 218 female osteopathic medical students (110.5 [13.4]) was significantly higher than that of the 187 male students (107.5 [13.8]) ( $t_{403}=2.22$ ;  $P=.026$ ;  $d=0.22$ ). In addition, the mean JSPE-S score of the 254 osteopathic medical students who planned to enter a people-oriented specialty (110.3 [13.1]) was significantly higher than that of the 63 students who planned to enter a technology-oriented specialty (105.6 [15.3]) ( $t_{315}=2.46$ ;  $P=.0145$ ;  $d=0.28$ ).

**Comment**

The present study found that beliefs about how empathic physicians should be were comparable across the 4 years for osteopathic medical students. Most importantly, osteopathic medical students' scores did not reflect the third-year decrease in empathy that has been found with allopathic medical students.<sup>24</sup> However, mean JSPE-S scores for first- and second-year osteopathic medical students were lower than those for first- and second-year allopathic medical students from Jefferson Medical College, but the scores for third- and fourth-year students were comparable

**Table 3.**  
Demographic Characteristics of Osteopathic Medical Students (N=405) by Year in School

Characteristic	Year in Medical School, No. (%) <sup>a</sup>				Total (N=405)	Statistic	P Value	Cramer's V <sup>b</sup>
	First (n=127)	Second (n=105)	Third (n=88)	Fourth (n=85)				
<b>Sex</b>								
Male	50 (39)	50 (48)	42 (48)	45 (53)	187 (46)	$\chi^2_3=4.11$	.25	0.10
Female	77 (61)	55 (52)	46 (52)	40 (47)	218 (54)			
<b>Ethnicity</b>								
White	66 (52)	50 (48)	48 (55)	44 (52)	208 (51)	$\chi^2_6=9.10$	.17	0.15
Asian	45 (35)	36 (34)	24 (27)	19 (22)	124 (31)			
Other	16 (13)	19 (18)	16 (18)	22 (26)	73 (18)			
<b>Specialty Orientation</b>								
People	64 (79)	51 (75)	66 (79)	73 (87)	254 (80)	$\chi^2_3=3.74$	.29	0.11
Technology	17 (21)	17 (25)	18 (21)	11 (13)	63 (20)			
Total	81	68	84	84	317			
<b>Age, mean (SD), y</b>	24.6 (2.6)	24.5 (2.6)	24.5 (2.5)	25.7 (3.4)	24.7 (2.8)	$F_{3,401}=1.57$	.01	$\eta^2=0.20$

<sup>a</sup> Data appear as No. (%) except where otherwise indicated.

<sup>b</sup> Values represent Cramer's V except where indicated for age.

between osteopathic and allopathic medical students.<sup>24</sup>

The differences in levels of empathy between osteopathic and allopathic medical students might be attributable to philosophical and distinct differences in the curriculum that attract students interested in the osteopathic physician's biopsychosocial approach to medicine and their hands-on musculoskeletal manipulative treatment. Although the curriculum is similar for osteopathic and allopathic medical students, osteopathic medical students undergo extensive training in osteopathic manipulative medicine. Osteopathic medical schools also have a more holistic approach to and perspective on the practice of medicine, and they traditionally have accepted more nontraditional students, who "constitute approximately 25% of the osteopathic medical school student body across the country."<sup>28</sup> Alternatively, the difference might simply reflect the fact that 35% of the first-year and 34% of the second-year osteopathic medical students were Asian, as opposed to the 26% who were Asian in the Jefferson sample. The first-year osteopathic medical students who were Asian did have lower mean JSPE-S scores than their class as a whole.

The decreased levels of empathy among osteopathic medical students were not unique to osteopathic medical students; the mean level of empathy for Asian third-year osteopathic medical students was comparable to the mean level of empathy for the third-year allopathic medical students studied by Berg et al,<sup>12</sup> who had observed that white third-year medical students were rated by simulated patients as being more empathic than Asian third-year medical students. In any event, the mean empathy scores for the osteopathic and allopathic medical students differed

by only approximately 7 points for first-year and 4 points for second-year students. It must be stressed that the effect sizes for the significant differences between osteopathic and allopathic medical students' mean JSPE-S scores were medium for first-year and small for second-year students. Given the standard error of measurement (SEM) of 5.61 points (SEM = SD × square root [1 - coefficient  $\alpha$ ]) for the 405 osteopathic medical students' JSPE-S scores, with an SD of 13.67 and coefficient  $\alpha$  of .83, the significant differences between osteopathic and allopathic medical students' mean JSPE-S scores in the first and second years might not be found again with repeated testing.

The present study also supported previous findings about empathy in allopathic medical students with respect to sex and specialty orientation.<sup>6</sup> Female medical students are generally more empathic than male medical students on the JSPE-S.<sup>12</sup> Additionally, on the basis of higher JSPE-S scores, the osteopathic medical students planning to enter people-oriented specialties also believed that physicians should be more empathic than did those planning to enter technology-oriented specialties. With respect to the high number of osteopathic medical students (88 [22%]) who were undecided about the choice of a specialty, the majority of the undecided students were in their first (46 [52%]) or second (37 [42%]) year. Delayed decision making is common among students in medical school who are choosing a specialty and often depend on their experiences in third- and even fourth-year rotations before making a final choice.

Various strategies have been proposed to increase empathy in medical students.<sup>18</sup> These methods include

**Table 4.**  
**Mean Jefferson Scale of Physician Empathy–Student Version (JSPE-S) Scores by Year in Medical School for Osteopathic and Allopathic Medical Students (N=405)<sup>a</sup>**

Year	Osteopathic <sup>a</sup>		Allopathic <sup>b</sup>		Statistic	P Value	Cohen's d
	No.	Mean Score (SD)	No.	Mean Score (SD)			
First	127	108.6 (15.0)	399	115.5 (10.0)	$t_{163}=4.83$	<.0001	0.52
Second	105	111.2 (12.6)	375	115.1 (11.1)	$t_{478}=3.11$	<.002	0.28
Third	88	109.4 (10.8)	339	109.1 (11.8)	$t_{425}=0.24$	.81	0.02
Fourth	85	107.0 (15.2)	356	109.1 (14.1)	$t_{439}=1.23$	.22	0.12

<sup>a</sup> The 405 osteopathic medical students attended the University of Medicine and Dentistry of New Jersey-School of Osteopathic Medicine in Stratford.

<sup>b</sup> The means and standard deviations (SDs) for the JSPE-S scores were reported by Hojat et al<sup>6</sup> for 1469 allopathic medical students who attended the Jefferson Medical School of Thomas Jefferson University in Philadelphia, Pennsylvania.

promoting empathy by participating in mentoring lectures,<sup>23</sup> communications training,<sup>29,30</sup> mindfulness meditation training,<sup>31</sup> Balint groups,<sup>32</sup> and the use of literature, theatrical performances, and the arts.<sup>33</sup> The inclusion of humanistic educational materials into curricula has also been reported to help maintain empathy.<sup>13</sup> Despite extensive curricular and practicum efforts to encourage empathy in medical students, the present results suggest that levels of empathy are similar among first-, second-, third-, and fourth-year osteopathic medical students. Instead of attempting to increase students' awareness about the need for physicians to empathize with their patients, medical schools might serve medical students better by simply emphasizing the development of interpersonal skills associated with effective patient care, as previously recommended by Colliver et al.<sup>34</sup>

Some studies<sup>35-37</sup> have found that student learning is influenced by different types of curricula: the stated curriculum that is taught in the classroom, the informal curriculum that operates in unscripted encounters among students and faculty, and the tacit or hidden curriculum<sup>36</sup> that influences medical students at the level of organizational culture and structure, with a fundamental distinction between what students are taught and what they learn. Hafler<sup>38</sup> states that knowledge of these hidden meta-messages forms the basis for minimizing negative messages and their unintended outcomes—high rates of faculty turnover, low morale, and decreased student satisfaction. In a study of perceptions of mistreatment and misconduct in medical school, Sheehan<sup>37</sup> reported that three-fourths of medical students become increasingly cynical as they progress through medical school.

Colliver et al<sup>34</sup> found that 61% of residents reported becoming cynical during postgraduate training. Pasaalacqua and Segrin<sup>39</sup> suggested that residents who perceive high stress levels are at risk of becoming less empathic toward patients. However, opportunities to discuss their patients with supervising physicians during their clinical

clerkships might increase students' levels of empathy. Recommendations for addressing the many possible causes of empathy loss include role modeling empathy, teaching empathy as a cognitive skill, and teaching more relationship centered-care through interprofessional education (where 2 or more professionals learn from and about each others' roles to improve collaboration and quality of care).<sup>40</sup> If empathy is indeed an essential feature of professionalism and medical education,<sup>3,23</sup> then the quality of the patient-physician relationship should be emphasized in medical school curricula.

### Limitations

The JSPE-S is a self-report instrument that assesses a student's beliefs about how empathic a physician should be; it does not measure how empathic a student actually is with patients.<sup>7</sup> The present study was also cross-sectional and subject to cohort effects. The Jefferson Medical College students were attending school at least 5 years before the osteopathic medical students in the current study entered medical school. The latter group entered medical school after there had been a significant downturn in the US economy and important changes in how medical treatment would be paid for in the future, such as planned reductions in Medicare reimbursements for physicians who enter some specialties. Therefore, students may have been more concerned about how physicians will be reimbursed for their services than about the need for physicians to be more empathic. A longitudinal study following the same cohort of osteopathic medical students throughout medical school should be conducted.

The present study was conducted at a single institution, which limits its generalizability. Another limitation is that the study did not distinguish among students with respect to their Asian backgrounds (ie, classifying them as Indian, Chinese, Japanese, Pakistani, and so forth); there were not enough students representing distinct ethnic backgrounds to permit comparative analyses. The present students were

also attending an osteopathic medical school that has the highest enrollment of underrepresented minority students (20%) among osteopathic medical schools.<sup>41</sup> Future research about how to encourage medical students to become more empathic physicians should be conducted with students drawn from other osteopathic medical schools.

### Conclusion

This study found that osteopathic medical students' beliefs about how empathic physicians should be, as indicated by JSPE-S scores, were comparable across the 4 years of medical school. Most importantly, these scores did not reflect the third-year decrease in empathy that has been found with allopathic medical students, although first- and second-year osteopathic medical students had lower JSPE-S scores than their allopathic counterparts. Future studies might include a longitudinal component to track a student cohort through the 4-year educational process, perhaps following students into internships. Combining data from this study with data collected from other osteopathic medical schools would improve the generalizability of the results and might allow for further conclusions based on sex, race, and ethnicity.

### Acknowledgment

Permission to use the JSPE-S was obtained from the Jefferson Medical College, Thomas Jefferson University, in Philadelphia, Pennsylvania.

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