Correlation Between Standardize Patients' Perceptions of Osteopathic Medical Students and Students' Self-Rated Empathy

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Context: The use of standardized patients (SPs) promotes and enhances interpersonal skill sets of medical students and provides a critical opportunity for students to display their relational competence during simulated patient encounters.

Objective: To investigate whether SPs' ratings of osteopathic medical students' empathy and interpersonal skills correlate with students' self-rated empathy.

Methods: The study used a cross-sectional quantitative design. After SP encounters, first-, second-, and third-year osteopathic medical students self-rated empathy using the Jefferson Scale of Empathy medical student version. Standardized patients also assessed students' empathy using the Jefferson Scale of Patient Perceptions of Physician Empathy and interpersonal skills using the Professionalism Assessment Ratings Scale.

Results: Of 780 first-, second-, and third-year students, 717 students returned the survey (91.9%). In total, 383 students were women (53.4%) and 334 were men (46.6%). Of 717 SP encounters, SPs returned surveys for 648 encounters (90.3%). Ratings from SPs regarding their perceptions of osteopathic medical students' empathetic abilities and interpersonal skills did not correlate with students' self-rated empathy scores. Second- and third-year students were perceived by SPs as having better-developed empathetic and interpersonal skill sets when compared with first-year students. Results of SPs' ratings indicated that the higher the interpersonal skills, the higher the SP-perceived empathy for students across all years ($r=0.66$; $P<.001$).

Conclusion: Students' self-rated empathy did not correlate with SP-perceived empathy. However, the findings validated that students' core relational competencies increase as they progress through medical school.

Patient perceptions of physicians have been addressed by multiple studies.[1-5] Some findings suggest that physicians who are able to focus on their patients' needs are more likely to yield better treatment outcomes (eg, shorter recovery time, less recidivism, better patient experience).[6,7] These positive outcomes may stem from patients' perceptions that their physicians have strong interpersonal skills, such as communication and empathy.[5,8] Although embodying solid interpersonal skills is one of the tenets of osteopathic medicine (ie, patient-centered, empathetic, holistic), research suggests that physicians, whether of allopathic or osteopathic training, do not always focus on these skills.[9-11] To address possible deficiencies, more emphasis should be placed on developing interpersonal skill sets in medical school.[11,12]

The use of standardized patients (SPs) promotes and enhances medical students' interpersonal skill sets[13] and provides a critical opportunity for students to display their relational competence during a patient encounter.[14] Although research suggests that simulated clinical experience is a viable and useful teaching method,[11,15] evaluation by SPs and instructors differentiate it from a true clinical experience.

Research has suggested that early-career physicians with no SP experience were 5 times as likely to be rejected by patients (ie, patients do not adhere to prescribed treatment plans or do not return for follow-up appointments), as measured by qualitative responses provided after the encounter.[14] Furthermore, simulated sessions using SPs have the potential to reverse the power differential inherent to the patient-physician relationship.[16] During an SP encounter, students have the opportunity to become more aware of their loss of authority within the power dynamic and can gain insight and awareness about patient-physician relationships as they progress through their career.

However, not all medical schools include SP encounters in their curriculum, and some might question whether SP encounters during medical school produce future physicians who are unable to genuinely connect with real patients. Experience with real patients along with an integrated humanistic learning approach (eg, courses in literature, art, humanities) may offset interpersonal deficiencies.[12,13]

Berg et al[5] conducted a study in which patient-perceived empathy of allopathic medical students was found to be a predictor of the students' self-rated empathy. Data about osteopathic medical students' self-rated empathy and SP-rated empathy may provide more insight into the nature of SP clinical encounters during osteopathic medical education. The purpose of the current study was to determine whether SP-perceived ratings of osteopathic medical students' empathy correlated with students' self-rated empathy. We hypothesized that SPs' perceptions of osteopathic medical students' empathy would negatively correlate with self-rated empathy of first- and second-year students but would positively correlate with third-year students.

Methods

The participants in this study were first-, second-, and third-year osteopathic medical students and the SPs with whom the students encountered during the 2012-2013 academic year at a private osteopathic medical school in the Northeast region of the United States. No inclusion or exclusion criteria were used. The institutional review board of the school approved the study. This study examined coded archived data; thus, informed consent from participants was not needed.

All SP encounters were randomly assigned before survey distribution. Students were given an additional 10 minutes at the conclusion of his or her first SP encounter of the year to rate their own empathy using the Jefferson Scale of Empathy medical student version (JSE-S). Students completed the surveys as part of the family medicine program. The only identifying information collected from the surveys were the students' last 4 digits of their social security number and the date. Laboratory coordinators distributed and collected materials.

Standardized patients' perceptions of students' empathy were obtained using the Jefferson Scale of Patient Perceptions of Physician Empathy (JSPPPE), and their perceptions of students' interpersonal skills using the Professionalism Assessment Ratings Scale (PARS). Because SPs meet with multiple students, SPs were asked to complete the surveys after each encounter. Standardized patients had an additional 10 minutes at the end of each encounter to complete the surveys, and laboratory coordinators put the completed JSPPPE and PARS surveys with the corresponding cohort materials from the students they encountered. Each cohort (ie, first-, second-, and third-year students) was identified by the color of

paper on which their materials were printed. No identifying information was collected from the SPs.

The study used a cross-sectional quantitative design with aggregate analysis, comparing the relationship between 3 dependent variables (ie, student self-rated empathy, SP-perceived empathy, and SP-perceived interpersonal skills) across first-, second-, and third-year students.

Instruments

The JSE-S is a 20-item self-rated measure with an estimated administration time of 10 minutes and comprises 3 different constructs: perspective taking, compassionate care, and the ability to stand in the patient's shoes.[18] Respondents answer on a 7-point Likert-type scale ranging from 1, "strongly disagree," to 7, "strongly agree." Total possible scores on the JSE-S ranged from 20 (low empathy) to 140 (high empathy). The JSE, which has physician and health graduate student versions as well, has been translated into dozens of languages and is the most widely used empathy measurement in patient care and medical service[17] as supported by the reliability and validity consistency over time and across diverse sample populations (allopathic[19,20] and osteopathic medical students[21-23]).

The JSPPPE includes 5 items assessing physician empathetic engagement and can be completed within 5 minutes.[5] Items are answered by SPs on a 7-point Likert-type scale, ranging from 1, "strongly disagree," to 7, "strongly agree," for total possible scores ranging from 5 (low empathy) to 35 (high empathy). The reliability coefficient (Cronbach α) for the JSPPPE is .58, which is considered acceptable based on the brevity of the items.[5] Additionally, correlations between the JSPPPE and the American Board of Internal Medicine patient ratings scale have ranged from .54 to .70 (median, .68) ($P<.001$).[5] This comparison suggests that the JSPPPE is a valid and reliable tool for measuring patients' perceptions of physician empathy.[20]

The PARS assesses students' relationship qualities and clinical examination competencies.[24] Standardized patients provide responses using a 9-item Likert-type scale, with responses defined as follows: 1 through 3, low score; 4 through 6, middle score; and 7 through 9, superior score. Total possible PARS scores ranged from 8 (low relationship qualities and clinical examination competencies) to 72 (high relationship qualities and clinical examination competencies). The PARS measures 4 relationship quality variables (ie, rapport, empathy, confidence, and body language) and 4 examination competency variables (ie, clear communication, active listening, timely feedback, and conducting a thorough physical examination).

The PARS is an internal academic evaluation form for the osteopathic medical school in the current study and is provided to SPs after students complete their clinical encounter. Although the tool has received limited research, Myers-Hill et al[24] conducted a reliability and validity assessment of the communication portion of the PARS. Using a variance components analysis, the authors found that generalizability of the ratings was moderate ($\sigma^2=0.54$) and noted that a large part of the variance was due to differences in SPs. Myers-Hill et al[24] averaged the overall component ratings to yield a communication score, which they found to be positively correlated with the physical examination ($r=0.49$) and history taking ($r=0.36$) ($P<.05$). Limitations such as SP training and length of assessment time were noted.

Statistical Analysis

We used multivariate analysis of variance (MANOVA) followed by univariate analysis of variance to compare the scores of the 3 scales (ie, JSE-S, JSPPPE, and PARS) by first-, second-, and third-year students. Pearson product moment correlations were used to examine relationships among variables. The α level of significance was set at .05 for all statistical tests. All statistical analyses were conducted using SPSS statistical software version 22 (SPSS Inc).

Results

Of 780 first-, second-, and third-year osteopathic medical students, 717 returned the survey (91.9%) and 712 completed the survey (91.3%). Of all students who responded, 269 (37.5%) were first-year students, 250 (34.9%) were second-year students, and 198 (27.6%) were third-year students. Of 717 eligible SP encounters, surveys were returned after 648 encounters (90.4%). Of the 648 surveys returned from the SPs, 69 JSPPPEs were incomplete (10.6%) and 64 PARS were incomplete (9.9%). The Cronbach α reliability coefficient for the total sample was .76; α values greater than .70 are acceptable as a reliable measure of the assessed construct.[25]

Results of MANOVA indicated significance of interaction among variables (Wilks λ=.910; $F_{6,1414}$=11.33; P<.001). Results of univariate analysis of variance indicated significant differences between cohorts in self-rated empathy on the JSE-S ($F_{2,709}$=22.56; P<.001), SP-perceived student empathy on the JSPPPE ($F_{2,709}$=7.45; P=.001), and SP-perceived student interpersonal skill sets on the PARS ($F_{2,709}$=16.97; P<.001).

Comparison by Year in School

A MANOVA was conducted using year in school as the independent variable, with the dependent variables being student self-rated empathy (JSE-S score), SP perception of students' empathy (JSPPPE score), and SP perception of students' interpersonal skills (PARS score). A summary of the MANOVA results are reported in the *Table*.

Post-hoc univariate analysis revealed significant differences among the cohorts in each of the dependent variables: student self-rated empathy ($F_{2,709}$=7.45; P=.001), SP-perceived empathy ($F_{2,709}$=22.56; P<.001), and SP-perceived interpersonal skills ($F_{2,709}$=16.97; P<.001). Post-hoc analyses were conducted to determine whether differences existed in the dependent variable across years. The Games-Howell test revealed a

Table.
Empathy and Professionalism of Osteopathic Medical Students: Scores on the JSE-S, JSPPPE, and PARS by Year in School (N=717)

Year in School	n	Score, Mean (SD)[a]		
		JSE-S[b]	JSPPPE[c]	PARS[d]
First	269	111.3 (9.6)	22.8 (5.4)	48.8 (6.7)
Second	250	112.4 (9.7)	25.7 (5.5)	51.2 (6.9)
Third	198	111.2 (9.6)	25.4 (4.8)	52.2 (5.5)

[a] Results of multivariate analysis of variance indicated significance: Wilks λ=.910; $F_{6,1414}$=11.33; P<.001.
[b] The Jefferson Scale of Empathy medical student version (JSE-S) contained 20 items with a range of responses from 1 to 7 (total possible scores ranged from 20, indicating a low empathy score, to 140, indicating a high empathy score).
[c] The Jefferson Scale of Patient Perceptions of Physician Empathy (JSPPPE) contained 5 items with a range of responses from 1 to 7 (total possible scores ranged from 5, indicating a low empathy score, to 35, indicating a high empathy score).
[d] The Professionalism Assessment Ratings Scale (PARS) contained 8 items with a range of responses from 1 to 9 (total possible scores ranged from 8, indicating low relationship qualities and clinical examination competencies, to 72, indicating high relationship qualities and clinical examination competencies).

significant difference between first- and second-year students, as well as between first- and third-year students in SP-perceived empathy (P=.001); more specifically, first-year students (mean [SD], 22.8 [5.4]) had significantly lower scores than second-year students (mean [SD], 25.7 [5.5]; P=.001).

Correlations Between Self-Rated Empathy and SP-Perceived Empathy

Pearson product moment correlation was used to examine the linear degree of correlation with the dependent variables between each year, but no correlation was found. However, a correlation across the cohorts indicated that for all students, the higher the interpersonal skills as measured by the PARS, the higher the SP-perceived empathy as measured by the JSPPPE (r=0.66; P<.001).

Discussion

Using a correlational analysis of student self-rated empathy with SP-perceived empathy, we did not find a correlation. Thus, it seems that first-year students may view themselves as being more empathetic than how SPs view them to be. Some students may have been less confident in their empathetic displays and rated themselves more critically, which resulted in the lacking substantive relationship.

The current findings, however, may validate that students' core relational competencies increase as they progress through education given that second- and third-year students were perceived by the SPs as having better-developed empathetic and interpersonal skill sets when compared with first-year students. This finding is important because it supports the mission[23] of osteopathic medical education and equally matches the values of osteopathic patient-centered care.

Limitations

An important consideration when interpreting the results of the current study is that empathetic engagement realized through a developed patient-physician relationship may require more time than is available during a simulated encounter.[26] Both the student and SP are aware of the nature of the encounter, thus potentially creating a false sense of rapport.[27] This simulated situation may provide a confirmation bias whereby positive affirming behavior of both student and SP are influenced during the assessment. For example, students may act more supportive or concerned during an SP encounter because they know they will be evaluated. Another notable limitation is the high variability in each simulated clinical encounter (eg, time constraints, SP skill, student experience).

In addition, because nonexperimental data were used, the internal validity of the present study is lessened, as cause-and-effect inferences cannot be made.[25] An internal validity concern is the lack of research supporting the reliability and validity of the PARS scores, though limited research[24] does exist on the reliability and validity of the communication subscale. Therefore, conducting an exploratory correlation analysis on the communication and empathy scales may provide further validity on the PARS. Moreover, the PARS is used as a repeated measure, and students may be able to identify the scoring rubric on the basis of previous experiences.

External validity is also lessened because of the lack of generalizability of the results for the limited sample. Self-rated measures may provide a confirmation bias, and the cross-sectional design (ie, weaker ability to detect possible change over time) is also a noted limitation. Because of the use of aggregate data, individual students' self-rated empathy could not be correlated with SP-perceived empathy of the same student. This information would yield important information regarding how students perceive themselves and whether SPs have similar perceptions during individual encounters.

Future Direction

Future studies could examine longitudinal aspects specific to students' abilities to initiate and maintain a positive patient-physician relationship (ie, students meet with the same SP throughout the year to chart clinical and relationship progress). Another future study could build on that of Berg et al,[5] which found that SPs may be affected by confounding effects of sex and ethnicity of students during their evaluation. Examining cross-cultural aspects of SP encounters and whether student and SP sex and race or ethnicity are a factor in developing empathetic engagement would be beneficial to study.

The use of osteopathic manipulative treatment may also be interesting to examine to further support osteopathic distinctiveness and the ability of osteopathic medical students and physicians to practice empathetically, as viewed by their patients. Future studies could compare similarities or differences in allopathic medical students and, perhaps more importantly, explore what can be done to maintain relational competencies during the critical transition from the classroom to the examination room.

Given the advancing technology and the demands for fast-paced patient encounters, a future study may examine students who use electronic health records during encounters compared with those who do not. This type of

SP interface would potentially demonstrate that students' computer entry during patient encounters could lead to a loss in meaningful interaction with patients.[5,18]

Conclusion

This study provides data on SP perceptions during encounters. Standardized patients' ratings of osteopathic medical students' empathetic abilities and interpersonal skills did not correlate with students' self-rated empathy as predicted. However, second- and third-year students were perceived by SPs as having better-developed empathetic and interpersonal skill sets when compared with first-year students. Future research is suggested to continue adding insights into the nature and relational aspects of SP encounters during osteopathic medical education and training.

Acknowledgments

Author Contributions

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