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Evaluating the Relationship Between Participation in Student-Run Free Clinics and Changes in Empathy in Medical Students

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Abstract

Purpose: We explored differences in changes in medical student empathy in the third year of medical school between volunteers at JeffHOPE, a multisite medical student–run free clinic of Sidney Kimmel Medical College (SKMC), and nonvolunteers. **Method:** Volunteerism and leadership experience at JeffHOPE were documented for medical students in the Class of 2015 (n = 272) across their medical educations. Students completed the Jefferson Scale of Empathy at the beginning of medical school and at the end of the third year. Students who reported participation in other Jefferson-affiliated clinics (n = 44) were excluded from this study. Complete data were available for 188 SKMC students. **Results:** Forty-five percent of students (n = 85) volunteered at JeffHOPE at least once during their medical educations. Fifteen percent of students (n = 48) were selected for leadership positions involving weekly clinic participation. Nonvolunteers demonstrated significant decline in empathy in medical school ($P = 0.009$), while those who volunteered at JeffHOPE at least once over the course of their medical educations did not show any significant decline ($P = 0.07$). **Conclusions:** These findings suggest that medical students may benefit from volunteering at student-run free clinics to care for underserved populations throughout medical school.

Keywords

empathy, student-run free clinic, medical education, community health, underserved care

Introduction

Student-run free clinics (SRFCs) aim to provide much-needed health care services to poor and underserved populations across the country, and the literature evaluating both patient and student outcomes has grown over the past decade.[1] Despite the shared challenges of limited resources and transient patient populations, SRFCs nationwide have been found to improve patient glycemic, cholesterol, and blood pressure control.[2,3] These clinics also serve a role in the stewardship of resources by reducing emergency room visits and increasing vaccination and preventive health screening rates for patients who often do not have access to services in the existing health care system.[4,5] With regard to student outcomes, studies highlight a secondary goal of SRFCs: to encourage medical students to pursue careers as primary care physicians. While some researchers note increased interest in primary care associated with participation in SRFCs,[6] others report no difference in interest between volunteers and nonvolunteers.[7,8] This long-term student outcome of career selection garners much enthusiasm in the literature, yet little is known about changes in medical student empathy in relation to voluntary participation in SRFCs throughout medical school.

The relationship between physician empathy and patient outcomes has been well-studied, with benefits reported in several populations from patients with the common cold[9] and migraines[10] to postoperative surgical patients.[11] Diabetics receiving care from physicians with higher empathy scores

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demonstrate improved glycemic and cholesterol control, as well as reduced incidences of acute metabolic complications such as hyperosmolar state, diabetic ketoacidosis, and coma.[12,13] In addition to improving patient outcomes, empathy has also been shown to benefit medical students and physicians. Multiple studies of medical students in both the United States and abroad demonstrate an inverse relationship between empathy scores and markers of burnout such as emotional exhaustion and depersonalization—especially during medical students' clerkship years.[14-17] Significantly positive correlations between empathy, optimism, and personal accomplishment in medical students have been reported as well.[14] The relationship between high empathy scores and improved outcomes experienced by both patients and physicians-in-training merits additional attention to prevent a decline in empathy during students' medical educations.

Medical student empathy has been extensively studied in the literature in the United States and abroad, with researchers utilizing the Jefferson Scale of Empathy (JSE). This 20-item validated scale was developed in 2001 to assess empathy in the context of health professional education and patient care. Using the JSE, empathy has been demonstrated to decline in the third year of medical school, the year in which most medical students begin clinical rotations and thus directly interact with patients.[18,19] The findings on decline in empathy in medical school have been disputed in several reviews.[20,21] However, such critiques have not been left unchallenged.[22] The purpose of this study was to examine the changes in empathy between student volunteers at a multisite SRFC and nonvolunteers. We hypothesize that early and consistent exposure to poor and underserved patients through participation in SRFCs could prevent a decline in empathy previously reported during critical transitions in medical school.

Methods

Research Participants

Participants of this study included medical school students (n = 272) at Sidney Kimmel Medical College (SKMC). We documented volunteerism at JeffHOPE, Jefferson's largest and oldest multisite SRFC (Table 1). Students who reported volunteering at other Jefferson-affiliated clinics were excluded from this study (n = 44), as these clinics opened within the past two years of data collection, operate on a more infrequent basis than JeffHOPE, and serve different populations. Data were merged with data retrieved from the Jefferson Longitudinal Study of Medical Education Outcomes, including scores on the JSE, which were collected for all medical students at the beginning of medical school and at the end of the third year. Final statistical analyses were performed on 188 students with complete data (Table 2).

Table 1. Listing of JeffHOPE Clinic Sites and the Patient Populations they Serve.

Overview of JeffHOPE Clinic Sites	
Clinic Site	Patient Population
Eliza Shirley House for Women	Intake shelter for women and their children
Sunday Breakfast Rescue Mission	Short-term men's shelter
Acts Christian Transitional Service, Mercy Hospice	Recovery houses for women and their children
Our Brother's Place	Long-term men's shelter
Prevention Point Philadelphia	Street-side needle exchange program

Table 2. Comparison of Decline in Student Empathy from Medical School Matriculation to the Conclusion of the Third Year Between Volunteers and Nonvolunteers at JeffHOPE in the Sidney Kimmel Medical College Class of 2015.

	Volunteers (n = 85); Mean (SD)	Nonvolunteers (n = 103); Mean (SD)
Pretest (orientation day)	114.4 (9.9)	114.8 (10.6)
Posttest (end of third year)	112.2 (10.3)	111.7 (11.4)
Pre-post difference	−2.2 (10.9)	−3.1 (11.8)
t test	−1.82	−2.64
P	0.07	0.009

Data Collection Procedures

Records of medical students in the Class of 2015 who volunteered at JeffHOPE were reviewed and individual clinic encounters were tallied for each student. Number of clinic encounters, number of years of involvement, committee member status, and director status for each student were extracted. Committee members included first- or second-year medical students selected by a formal application process to assume a weekly commitment to voluntary participation at clinic. Directors included third- or fourth-year medical students selected by a separate formal application process to lead committees and run weekly clinics, supervising four to 15 students. These data points allowed further stratification of medical students by their extent of volunteerism. All students of the Class of 2015 completed the JSE at the beginning of medical school and at end of the third year. Empathy scores were thus available for both volunteers at JeffHOPE and nonvolunteers. All data were saved in an Excel file on a password-protected, encrypted computer to which only the researchers had access.

Statistical Analysis

A Student's *t* test was performed to test the statistical significance of the change in medical student empathy between the beginning of medical school and the end of the third year.

Results

A total of 188 students of the SKMC Class of 2015 with complete data were included for statistical analysis, with 85 (45%) volunteers and 103 (55%) nonvolunteers at JeffHOPE. Thirty-four students (12%) served as committee members and nine students (3%) served as directors.

Analysis of differences in JSE scores from the beginning of medical school to the end of the third year showed that both volunteers at JeffHOPE as well as nonvolunteers experienced a decline in empathy, which is consistent with previous reports. However, the decline in empathy experienced in JeffHOPE volunteers was not statistically significant. As demonstrated in Table 2, mean empathy scores for volunteers dropped by 2.2 points ($P = 0.07$, effect size = 0.20), while mean empathy scores for nonvolunteers dropped by 3.1 points ($P = 0.009$, effect size >0.25). No differences in the decline of empathy were noted between students who took leadership roles at JeffHOPE (committee members and directors) and their counterparts. No significant change was observed on empathy scores at matriculation to Sidney Kimmel Medical College between students who subsequently chose to volunteer at JeffHOPE during their medical educations and nonvolunteers. Thus, a baseline level of empathy or predisposition toward volunteerism was not a contributing factor in students' choice to participate in JeffHOPE.

Discussion

Our analysis demonstrated a relatively high level of interest in JeffHOPE, Jefferson's largest and oldest multisite SRFC, with 45% of matriculants volunteering at clinic at least once during medical school. All students of the Class of 2015 experienced a decline in empathy from matriculation to the end of their third year of medical school; however, this decline was only significant among nonvolunteers. Volunteers at JeffHOPE did not undergo a statistically significant decline in empathy from matriculation to Sidney Kimmel Medical College to the completion of their third year of medical school. Baseline empathy scores obtained at matriculation were comparable between students who subsequently chose to volunteer at JeffHOPE at some point during their medical educations and those who did not. The relationship between volunteerism at JeffHOPE and empathy scores was not dose-dependent in nature; increased levels of participation in Jefferson's SRFC, defined by the leadership positions of committee member and director, were not associated with significantly lower rates of empathy decline or improvement of empathy over the course of medical school.

Given the reported medical student, physician, and patient benefits of sustained provider empathy, multiple studies have examined the efficacy of various interventions in preventing its decline. Targeted interventions, including workshops and lectures, have been shown to successfully improve empathy scores among medical students, although these improvements are not necessarily sustained over time.[23,24] Hojat et al[23] found that JSE scores significantly improved in medical students who were shown video clips of positive and negative physician-patient interactions selected from movies and participated in subsequent discussion as compared to students who watched a documentary. Van Winkle et al[24] employed a short-term intervention of a 10-minute workshop related to issues in geriatric medicine in first-year pharmacy and medical students, which yielded improved empathy scores immediately, but were not sustained at seven or 26 days postintervention. The findings of these studies imply a need for continued reinforcement to assure sustained improvement in medical student empathy over time and to prevent empathy decline.

Long-term interventions to sustain medical student empathy throughout medical school are also described in the literature. Rosenthal et al[25] trialed a mandatory, longitudinal "Humanism and Professionalism" (H&P) program designed to provide students with protected time to discuss clerkship experiences and mainstream media representations of medicine in 209 medical students at Robert Wood Johnson Medical School. The group determined that students participating in the H&P program did not experience a decline in empathy in the third year of medical school as previously documented via a cross-sectional analysis of empathy scores obtained during the first and last clerkships of the third year. Members of the Gold Humanism Honor Society (GHHS), a student organization requiring long-term, longitudinal commitment, were also found to have significantly higher empathy scores in the third year as compared with nonmember counterparts in this study.[25]

This is the first study, to our knowledge, to document longitudinal changes in JSE scores after the introduction of volunteerism at SRFCs as another long-term intervention, which highlights the potential role of SRFCs in inspiring sustainable differences in medical student empathy. Though our study is limited to data from a single medical school and single class, it demonstrates a number of strengths including its consideration of varying degrees of involvement in student volunteer activities, its assessment of baseline empathy scores before intervention and

primary care exposure, and its longitudinal design. The findings of this study build on existing literature related to the relationship of volunteerism on medical student outcomes and further support a trend in preventing empathy decline via early exposure to primary care of poor and underserved populations during students' medical educations. Indeed, academic institutions have several means of preserving their students' empathy—from planning workshops and lectures about physician-patient interactions to supporting student organizations and SRFCs. Offering a combination of these individually studied options throughout medical school to accommodate for differences in student interests and time commitments may sustainably prevent empathy decline in budding physicians.

Authors' Note

Ethical approval for this study was obtained through the Office of Human Research and Institutional Review Board at Thomas Jefferson University.

Declaration of Conflicting Interests

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