Student Opinions on Orthopedic Residency Selection, Education, and Work Hours

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Abstract

Other articles have been written about resident selection, musculoskeletal education, work hours, and call coverage, but none has described orthopedic applicants' opinions on these issues.

We conducted a study to gain insight into applicants' attitudes about issues relevant to the specialty. We distributed a survey to 53 applicants interviewing for an orthopedic residency. The survey used both a multiple-choice format and a Likert scale ranging from 1 (strongly disagree or least important) to 5 (strongly agree or most important).

Respondents rated the adequacy of musculoskeletal education in medical school a mean standard deviation (SD) of 2.00 (0.8) on the Likert scale. Ranking the factors most valuable to an orthopedic surgery application, they rated United States Medical Licensing Examination (USMLE) Step 1 board examination scores a mean (SD) of 4.26 (0.9). In addition, of the 53 respondents, 46 (87%) anticipated working as a resident more than 80 hours per week, and 36 (68%) anticipated working as an attending 60 to 70 hours per week or less. Respondents also agreed that they should receive compensation for call coverage.

Therefore, students agreed that medical school education is insufficient, rated USMLE scores the most important application factor, anticipated working more than 80 hours per week, and agreed that call coverage should be compensated.

As the future of orthopedic surgery depends on the people who pursue the specialty, resident recruitment and retention are key priorities. Residents assist in essential patient care duties and contribute to the clinical and basic science research that is valuable in advancing the field. In the 1980s, the pool of outstanding medical students applying to orthopedics increased to the degree that the number of candidates far surpassed the available training positions.[1] Exploring the opinions of today's applicants may provide important information regarding our current education and mentorship programs.

Studies of criteria for success in residency,[2,3] resident work hours,[4] musculoskeletal education in medical school,[5-8] and call coverage[9] have generated conclusions from information acquired from residents, program directors, and independent practitioners.

In this study, we asked orthopedic applicants for data that might provide insights into communication of expectations, teaching, and mentoring. Applicants form perceptions about their experiences from interactions with peers, teachers, and role models. We can use these observations to assess less obvious issues in the orthopedic curriculum—and any surprising or unexpected observations to reassess current methods of communication and training.

We surveyed students applying to an orthopedic residency program. The following 4 questions were synthesized from publications outlining issues of particular interest in orthopedics: (1) What are students' perceptions regarding criteria used by programs to assess quality of applicants? (2) What are applicants' expectations regarding work hours as a resident and as an independent practitioner? (3) What are students' opinions regarding the adequacy of musculoskeletal education in medical school? (4) How do applicants feel about call coverage reimbursement? Responses to these questions provided an understanding of emerging opinions about the resident selection process, orthopedic education, and future call responsibilities.

Materials and Methods

We distributed our survey to 53 applicants on 2 consecutive days during campus interviews for an orthopedic surgery residency program. The applicants responded to the survey questions on a Likert scale ranging from 1 (strongly disagree or least important) to 5 (strongly agree or most important).

The survey was designed to address 4 domains: (1) importance of criteria used by programs to assess quality of applicants; (2) applicants' expectations regarding work hours as a resident and as an independent practitioner; (3) opinions regarding the adequacy of musculoskeletal education in medi-

Authors' Disclosure Statement: The authors report no potential or actual conflict of interest in relation to this article.

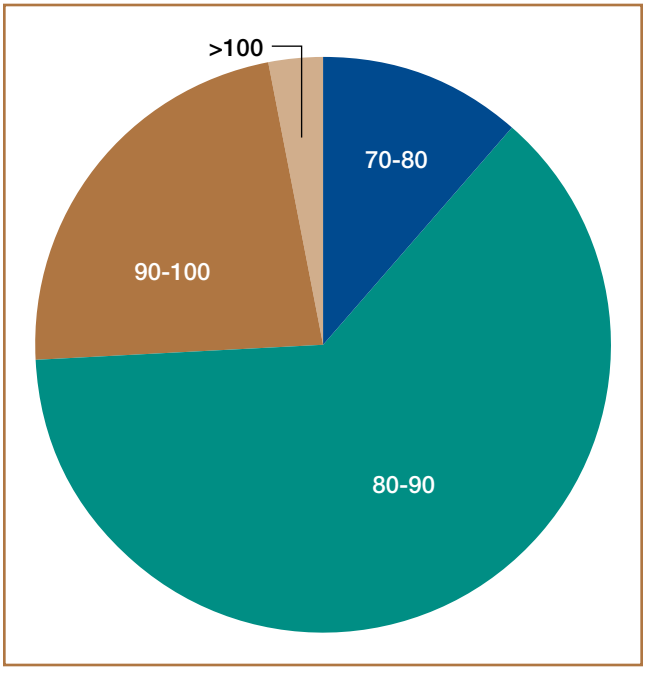

Figure 1. Anticipated resident work hours. Of the 53 survey participants, 46 (86%) anticipated working as a resident more than 80 hours per week, 12 (26%) anticipated working 90 to 100 hours per week, and 7 (13%) anticipated working 70 to 80 hours per week.

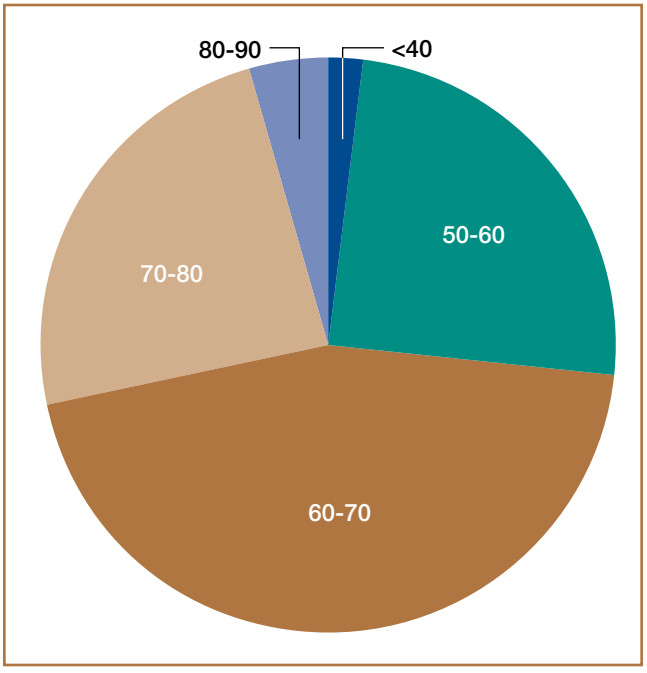

Figure 2. Anticipated attending work hours. Of the 53 survey participants, 36 (68%) anticipated working as an attending 60 to 70 hours per week or less.

cal school; and (4) attitudes about call coverage and reimbursement. The recruitment director and a representative sample of residents selected the application factors of class rank, grade point average (GPA), medical school reputation, United States Medical Licensing Examination (USMLE) Step 1 board examination scores, research participation, volunteerism, medical school honor society (Alpha Omega Alpha [AOA]) status, and surgery clerkship course grade as domains to include in the survey. This group then formulated multiple-choice questions to determine how many hours each participant anticipated working both in residency and in practice, along with statements regarding the adequacy of musculoskeletal education and attitudes about call coverage. The preliminary survey was distributed to program residents, and their feedback was used to modify the survey.

The anonymous survey was distributed to applicants after they were all seated in the same location. They were asked to answer the questions and to deposit completed surveys into a single identified collection receptacle. Applicants were given the choice to opt out. Fifty-three applicants completed the survey.

Statistical analysis of the descriptive survey data was performed with SPSS 16.0 (SPSS, Chicago, Illinois). Differences in the criteria used to assess the quality of residency applications were determined by calculating means and SD. Applicants' opinions about work hours, musculoskeletal education, and call coverage were calculated and reported as descriptive statistical variables.

Results

Mean (SD) rankings were 4.26 (0.9) for USMLE scores, 4.04 (0.7) for class rank or GPA, 3.91 (0.9) for surgery clerkship course grade, 3.54 (0.8) for research, 3.44 (0.9) for medical school reputation, 3.41 (0.9) for AOA status, and 2.74 (0.9) for volunteerism.

Of the 53 respondents, 32 anticipated working as a resident 80 to 90 hours per week, 12 anticipated 90 to 100 hours, 7 anticipated 70 to 80 hours, and 2 anticipated more than 100 hours (**Figure 1**). In addition, 23 anticipated working as an independent practitioner 60 to 70 hours per week, 12 anticipated 50 to 60 hours, 11 anticipated 70 to 80 hours, 3 anticipated 80 to 90 hours, 3 anticipated 90 hours or more, and 1 anticipated less than 40 hours (**Figure 2**).

Mean (SD) ratings were 2.00 (0.8) for adequacy of musculoskeletal education in medical school, 4.33 (0.7) for orthopedic surgeons' responsibility to participate in emergency department (ED) call, and 4.07 (0.8) and 4.17 (0.8), respectively, for reimbursing practicing orthopedic surgeons for ED call and coverage in level I trauma centers.

Discussion

We conducted this study to obtain students' perspectives regarding criteria used by programs to assess applicants, work hours expected in residency and in practice, adequacy of musculoskeletal education in medical school, and call coverage duties and reimbursement.

USMLE scores were deemed the most important component

of the application, and AOA status less important. This finding suggests that most applicants place the most weight on the standardized test and consider it the most important indicator of being invited to an interview and ultimately to a residency. Our findings contrast with those correlating selection criteria with residency success.[3,10] Dirschl and colleagues[3] noted that the number of clinical honors grades best correlated with future performance, and AOA membership was the second most important factor; in otolaryngology, AOA membership and honors in the surgery and medicine rotations correlated with best performance. Likewise, investigators found little or no correlation between USMLE scores and residency performance.[3,10] The factor that students deemed least important was volunteerism—an opinion that may reflect a perceived lack of importance for charitable works and service. The process by which new residents are selected should reflect and prioritize criteria we deem most important, and these observations provide a platform for re-analysis of this process. It is important to emphasize the clinical performance of applicants but also to encourage volunteerism and community involvement.

Future studies may provide insight into how opinions change over time by including participants from multiple institutions and comparing their responses with residents at different training levels

On our survey, 86% of orthopedic applicants reported anticipating working more than 80 hours per week, and 26% anticipated 90 to 100 hours or more. In addition, 68% of respondents anticipated working 60 to 70 hours per week or less as an attending physician, and thus expected to work fewer hours after residency. In a study by Kusuma and colleagues,[4] 33% of orthopedic residents (most often junior residents) reported they had worked more than 80 hours per week for at least a week; and 42% of junior residents and 29% of senior residents intentionally underreported work hours for fear of program penalization, personal citation, or being perceived as disagreeing with the importance of logging work hours. The most important period for establishing these expectations is the medical school clinical training period. If these expectations are not established during that time, noncompliant residents may be placing themselves, their patients, and their programs in jeopardy. Making regulations concerning education a more prominent part of the Accreditation Council for Graduate Medical Education (ACGME) preclinical curriculum may help establish more appropriate expectations among medical students.

Our respondents overwhelmingly disagreed that medical school curricula adequately address orthopedic education—and gave the statement the lowest overall score. Multiple studies have detailed the shortcomings of medical school musculoskeletal education.[5-8] DiCaprio and colleagues[6] found that only 25 of 122 US medical schools required a musculoskeletal curriculum of less than 3 weeks on average. In addition, Freedman and Bernstein[7] administered a validated basic musculoskeletal health aptitude examination to medical residents and found that 66 of the 85 test takers did not obtain a score consistent with basic competency in orthopedic health. Many have argued that the amount of medical school time allocated to orthopedics is disproportionately low compared with the time allocated to other subspecialties.[5,8] Student opinions in our study corroborated this conclusion and reinforced the need for improved and increased orthopedic education in medical school. Having a larger orthopedics presence in medical school lectures, clinical activities, and specialty interest groups may assist in increasing the presence of musculoskeletal health in education.

Survey findings also suggest that would-be orthopedists agree that they should receive compensation for call duties. Our respondents most strongly agreed that it is orthopedists' responsibility to take call coverage. We included that statement to compare the expectations of students committed to becoming orthopedic surgeons with the expectations of current practitioners. It is important to understand students' perspective on duty and compensation, as it will have a significant impact on how they approach and view call. These findings correlate with those of a recent national survey in which orthopedists agreed that they should be reimbursed for call coverage, but were divided on whether they should be forced to take call.[9] This applicant opinion is important with respect to the emerging relationship between duty and compensation. Educators must impress on students the importance and responsibility of caring for patients in the ED.

This study had several limitations. First, its sample size was small, and data on individual applicant characteristics were not collected. Future studies may provide insight into how opinions change over time by including participants from multiple institutions and comparing their responses with residents at different training levels. Second, the survey was distributed to students during interview days. Although responses were anonymous and not linked to the interviews, this setting may have influenced responses. Likewise, the survey was not based on validated instruments. Third, students have their particular insights into the application process, education, and work hours, but perhaps less so with respect to call coverage and reimbursement.

Despite these drawbacks, our study may serve as a foundation for well-developed investigations. We plan to explore correlations between student characteristics (eg, examination scores, grades, AOA membership) and measures of success during resident training. This information may be used to provide objectivity in how residents are selected. In addition, we plan to obtain larger scale survey data to compare volunteerism expectations and orthopedic education satisfaction of students participating in a modified curriculum with students at other institutions, and to verify changes over time to modify our programs.

The opinions described in this study provide valuable in-

sights into the effectiveness of our educational systems and mentorship. These insights offer an important opportunity for self-assessment. With these findings in mind, we have made modest changes at our institution and intend to conduct larger and more comprehensive studies. Ongoing evaluation of student perspectives will provide additional valuable insights into how we can provide the best education and mentorship.

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Am J Orthop. 2013;42(8):358-361.

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