Burnout Among Osteopathic Otolaryngology Residents: Identification During Formative Training Years

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Context: Studies of burnout among allopathic physicians have shown many deleterious effects for both physicians and patients. To our knowledge, no studies have quantified burnout among osteopathic physicians.

Objective: To determine the prevalence of burnout, mentoring, and resident training satisfaction among US osteopathic otolaryngology residents compared with previously published data for allopathic otolaryngology residents.

Methods: A cross-sectional, questionnaire-based, electronic survey of US osteopathic otolaryngology residents was conducted. Residents were surveyed about demographic information, personal and professional life satisfaction, professional stressors, burnout (assessed with the Maslach Burnout Inventory–Human Services Survey), and mentor-resident interactions. Burnout was measured based on levels of emotional exhaustion (EE), depersonalization (DP), and low personal accomplishment (PA). Results were compared with previously published data for allopathic otolaryngology residents.

Results: Of the 102 osteopathic residents contacted, 48 (47%) responded and 47 provided complete responses in some categories. Burnout rates were low in 11 respondents (23%), moderate in 31 (66%), and high in 5 (11%), compared with published rates of 14%, 76%, and 10%, respectively, for allopathic residents ($P=.18$). The rates of EE and DP did not differ significantly from published data, but levels of PA were higher in osteopathic residents ($P=.03$). Sleep hours per night were significantly higher in osteopathic than in allopathic residents (mean, 6.6 vs 6.2; $P=.04$), and work hours per week were significantly lower (mean, 62 vs 71; $P<.001$). Increased EE scores were negatively associated with hours of sleep ($\rho=-0.42$, $P=.003$). Increased influence from a mentor was associated with decreased levels of burnout for all 3 components (EE: $\rho=-0.54$, $P=.002$; DP: $\rho=-0.59$, $P<.001$; PA: $\rho=0.44$, $P=.02$).

Conclusion: To our knowledge, the current study is the first to quantify burnout among osteopathic residents, and our findings suggest that osteopathic residents have lower rates of burnout than allopathic residents. Osteopathic residents reported lower rates of low PA, increased hours of sleep, and decreased overall work hours. Further study of the relationship between mentoring and decreased burnout is needed.

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Burnout among allopathic physicians has been studied for many years[1-16] and has been described as exhaustion, cynicism, and inefficacy.[17] Numerous studies have examined burnout rates among diverse medical and surgical specialties and for various levels of training within specialties.[16,18-20] Much attention was given to the study of this phenomenon from the 1980s through the early 2000s. The term *burnout* was coined in 1980 by Freudenberger and Richelson,[21] who defined it as being "frustrated with one's devotions that failed to meet expectations and caused a depletion of self." Since 2004, attention has once again focused on rates of burnout, specifically among allopathic residents.[18,19,22-29] Golub et al[22] performed an extensive evaluation of burnout among US otolaryngology residents. Although nearly 700 residents responded, osteopathic otolaryngology residents were not included.

Osteopathic otolaryngology residents in programs accredited by the American Osteopathic Association share a similar residency education structure (5 years of clinical and surgical mastery) to that of residents in programs accredited by the Accreditation Council for Graduate Medical Education (ACGME). Osteopathic and allopathic residents take the same in-service examination each year.[30] Furthermore, clinical experience and surgical case numbers in osteopathic residency programs have been found adequate by the American Osteopathic Colleges of Ophthalmology and Otolaryngology–Head and Neck Surgery (AOCOO-HNS). However, some aspects of osteopathic residency training programs may make these residents distinctly different from their counterparts in ACGME programs. To our knowledge, many osteopathic otolaryngology residency programs are centered in smaller community hospitals. Osteopathic medical students also take classes in manipulative medicine techniques to treat musculoskeletal imbalances within the body in addition to the standard basic science and clinical courses taught in medical school.

Burnout is characterized by 3 specific components: increased levels of emotional exhaustion (EE) and depersonalization (DP) and a decreased sense of personal accomplishment (PA).[17,31] Emotional exhaustion is considered the most critical component of burnout.[17,22] As EE increases, persons who have true burnout tend to dissociate the unique and personal attributes from those they are serving (eg, patients) to depersonalize work-related stress. A low sense of PA may develop after or sometimes in parallel with EE and DP.[17] Fortunately, increased sense of self-efficacy has been shown to be protective against burnout.[22]

Various studies have documented the effects of burnout.[2,32-35] For example, Balch and Shanafelt[35] linked burnout with poor health, sleep problems, depression, hypertension, anxiety, alcoholism, and myocardial infarction.[35] Medical errors have also been linked with burnout in a cause-and-effect relationship. Shanafelt et al[34] showed that nearly 9% of US surgeons reported performing a major medical error within a 3-month survey period. In addition, each 1-point increase in DP scores increased the likelihood of reporting a major medical error by 11%, and EE was associated with a 5% increase. In another study,[33] burnout and physician dissatisfaction were related to increased rates of job turnover, disability insurance claims, absenteeism, and work-related errors, and patients of unhappy physicians were less likely to follow prescribed treatment plans.

Currently, mentoring during residency is receiving increased attention.[23,24,36] Most otolaryngology residents are not assigned an official mentor, and the vast majority find mentors without a formal assignment.[36] Gurgel et al[24] reported that up to 69% of otolaryngology residency programs lack assigned mentors and that 89% of residents surveyed reported that mentoring was important or critical to their training; they found a significant correlation between small program size and a lack of formal mentoring. Another study showed that nearly all orthopedic surgery residents surveyed thought mentoring should be part of residency, and there was a significant increase in satisfaction when these residents were allowed to select a mentor.[23]

The purpose of the current study was to determine the prevalence of burnout among US osteopathic otolaryngology residents and to compare our results with published findings on burnout, mentoring, and resident training satisfaction. To our knowledge, there have been no previous studies of burnout among osteopathic physicians or residents. Additionally, the study was designed to investigate the possible relationship of burnout to such factors as personal and professional life satisfaction, professional stressors, and mentor-resident interactions and to identify areas for future study. We hypothesized that osteopathic otolaryngology residents would have lower rates of burnout than allopathic otolaryngology residents.

Methods

After obtaining approval from AOCOO-HNS and the A.T. Still University-Kirksville Institutional Review Board, we conducted a cross-sectional, questionnaire-based study of all current US osteopathic otolaryngology residents in programs accredited by the American Osteopathic Association and registered with the AOCOO-HNS (n=102). The questionnaire, generated using online survey production software, was created specifically for the current study and integrated the Maslach Burnout Inventory–Human Services Survey (MBI-HSS). The MBI-HSS, a validated instrument,[17] was used to facilitate comparisons with reported burnout among allopathic otolaryngology residents from a study conducted by Golub et al[22] (copyright usage rights obtained at http://www.mindgarden.com/products/mbi.htm). We included other questions used by Golub et al[22] to address satisfaction and professional stressors. We also developed and included several additional questions (not validated) to assess mentoring during residency training.

Zoomerang survey software (www.zoomerang.com) was used to generate the electronic survey. We e-mailed the survey to all US osteopathic otolaryngology residents in September 2011; e-mail addresses were obtained from AOCOO-HNS. The survey was closed in November 2011. Six e-mail reminders were sent to individuals who had not yet responded to the survey during the 12 weeks the survey was open. In addition, 2 personal letters and personal e-mails were sent to each program director, requesting their assistance with encouraging resident involvement.

The questionnaire included 23 questions in the following 5 categories:

- **Demographic information:** Respondents answered questions about age, sex, osteopathic graduate medical education training year, career path, marital status, and time spent in various activities.
- **Personal and professional life satisfaction:** Respondents rated satisfaction in their professional position currently, 1 year ago, and 5 years ago using a 5-point Likert-type scale with responses ranging from "not at all" to "extreme amount." Questions also assessed the balance between professional and personal life and control of professional life.
- **Professional stressors:** Respondents rated the effect of 14 stressors using the same 5-point Likert-type scale. Respondents also listed 3 ways they manage stress and indicated whether they had access to resident support groups.
- **Burnout:** Respondents completed the MBI-HSS, similar to the studies by Golub et al,[19,22] to allow direct comparison; questions assessed EE, DP, and PA.
- **Mentor-resident interactions:** Respondents rated mentor interactions through 6 questions. This section was unique to this research study and was intended to assess relationships with the mentor or attending physician and the feedback residents receive.

Study participation was entirely voluntary. By submitting the survey, residents consented to participate. Survey submission was completely confidential. No identifying information appeared on the electronic survey results, and there was no way to link a received survey response with a survey participant. No protected health information was used in the present study.

Statistical analyses were performed using SAS statistical software (SAS Institute). The frequency of burnout was compared between osteopathic and allopathic residents using Fisher exact tests. Spearman correlation coefficients were calculated to determine the relationship of the MBI-HSS scores with ordinal and continuous variables (eg, age, work hours, professional stressors, life satisfaction, mentor-resident interaction). Kruskal-Wallis tests were used to compare median MBI-HSS scores between groups (eg, sex, career path, stress coping techniques, support groups, marital status). Owing to the exploratory nature of this study, differences were considered statistically significant at $P \leqslant .05$, and no adjustment was made for multiple comparisons.

Results

Demographic Information

Of the 102 osteopathic residents contacted, 48 (47%) responded and 47 provided complete responses in some categories. Their mean (SD) age was 30.9 (3.4) years. Two-thirds of the participants were men (32 [67%]). Participation across training years was relatively even: 6 respondents (13%) were second-year, 15 (31%) were third-year, 15 (31%) were fourth-year, and 12 (25%) were fifth-year residents. An overwhelming majority (42 residents [88%]) were seeking a career in private practice rather than academia. Thirty-two respondents (68%) reported being married or cohabitating, and 15 (32%) were never married or currently divorced. Respondents reported being on call a mean (SD) of 8.6 (3.1) days and 6.0 (4.8) nights or weekends per month. Residents reported a mean (SD) of 6.6 (0.7) hours of sleep per night and 62.4 (9.2) hours of work per week (decreased from 71.7 [13.2] for the intern year).

Personal and Professional Life Satisfaction

Regarding satisfaction, 45 respondents (94%) reported being satisfied or somewhat satisfied with their current choice of otolaryngology; fewer respondents recalled being satisfied or somewhat satisfied 1 year earlier (42 respondents [88%]) and 5 years earlier (38 [79%]). Three respondents (6%) reported currently being somewhat dissatisfied or very dissatisfied, a decrease from 1 year earlier (4 respondents [9%]) and 5 years earlier (6 [12%]). Thirty-two respondents (68%) reported satisfaction with the balance between their personal and professional lives. Only 10 respondents (21%) reported being somewhat dissatisfied, and 5 (11%) were neutral. None reported being very dissatisfied.

Professional Stressors

Respondents reported moderate amounts of stress from low salary; insufficient teaching, research, exercise, and extracurricular time; department funding shortage; difficulty eating healthfully; and lack of sleep. Respondents reported infrequent issues with frustrating colleagues, excessive work or on-call hours, lack of independence, medical errors, and out-rotations (ie, rotations away from one's home residency program). Residents reported the following strategies for coping with stress: exercise (39 respondents [81%]), family time (25 [52%]), sleep or rest (15 [31%]), miscellaneous (14 [29%]), alcohol or food (11 [23%]), time with friends (7 [15%]), and reading (7 [15%]). Forty-five (94%) reported not having a resident support group or lacking knowledge of such a group.

Burnout

The level of overall burnout in osteopathic otolaryngology residents was categorized according to the MBI-HSS scoring scale and determined to be low in 11 respondents (23%), moderate in 31 (66%), and high in 5 (11%) (*Table 1*); these results did not differ significantly ($P = .18$) from those reported for allopathic residents by Golub et al[22] (14% low, 76% moderate, and 10% high). Compared with the previously published results,[22] osteopathic residents had lower levels for these components of burnout. Most of these differences were not statistically significant, but osteopathic residents did have significantly lower levels of burnout from decreased PA ($P = .03$).

Comparisons between our residents and those studied by Golub et al[22] showed no significant differences in age, sex, training year, or number of on-call days or nights/weekends ($P \geqslant .09$). Osteopathic residents reported sig-

Table 1.
Comparisons of Burnout Levels Between Osteopathic (n=48)[a] and Allopathic (n=514)[b] Otolaryngology Residents

Burnout Component and Resident Group	Residents, No. (%)			*P* Value
	Low Scores	Moderate Scores	High Scores	
Overall Burnout				
Osteopathic[a]	11 (23)	31 (66)	5 (11)	.18
Allopathic	72 (14)	391 (76)	51 (10)	
Emotional Exhaustion[c]				
Osteopathic	25 (52)	11 (23)	12 (25)	.18
Allopathic	195 (38)	149 (29)	170 (33)	
Depersonalization[c]				
Osteopathic[a]	16 (34)	11 (23)	20 (43)	.32
Allopathic	129 (25)	113 (22)	272 (53)	
Low Personal Accomplishment[c]				
Osteopathic[a]	18 (38)	12 (26)	17 (36)	.03
Allopathic	108 (21)	159 (31)	247 (48)	

[a] The depersonalization and personal accomplishment subscales, and thus the overall burnout levels, could not be calculated for 1 of the 48 osteopathic respondents because of incomplete responses to some questions.
[b] The number of allopathic residents were estimated from the percentages and total sample size reported by Golub et al.[22]
[c] Emotional exhaustion, depersonalization, and low personal accomplishment were scored as subscales on the Maslach Burnout Inventory–Human Services Survey.

nificantly more sleep hours per night (mean, 6.6 vs 6.2; $P=.04$) and significantly fewer work hours per week (mean, 62 vs 71; $P<.001$).

Correlations With Burnout

Sex, age, training year, career path, and marital status were not associated with burnout ($P\geq.54$). Emotional exhaustion was moderately correlated with both hours of sleep ($\rho=-0.42$, $P=.003$) and current satisfaction with choice of otolaryngology ($\rho=0.40$, $P=.005$) (*Table 2*) and weakly correlated with both professional satisfaction 1 year earlier ($\rho=0.32$, $P=.03$) and satisfaction with balance between personal and professional life ($\rho=0.34$, $P=.02$).

For professional stressors (*Table 3*), the following were significantly correlated with components of burnout: frustrating colleagues (EE: $\rho=0.42$, $P=.003$; DP: $\rho=0.28$, $P=.05$), lack of independence (EE: $\rho=0.37$, $P=.009$; DP: $\rho=0.35$, $P=.01$), insufficient teaching time (EE: $\rho=0.30$, $P=.04$), insufficient extracurricular time (EE: $\rho=0.33$, $P=.02$), and lack of sleep (EE: $\rho=0.30$, $P=.04$).

Mentor-Resident Interactions

The ratio of attending physicians to residents in each training program was 1:1 or 1:2 for 40 residents (85%); the remaining 8 respondents reported a wide range of ratios. Twenty residents (42%) reported having no interaction with female attending physicians. Regarding social interactions with attending physicians in a nonprofessional setting, 4 of 47 (9%) reported never having such interactions, 33 (70%) reported 1 to 3 inter-

Table 2.
Correlation Between Components of Burnout in Osteopathic Otolaryngology Residents and Variables Related to Time Spent in Various Activities and Personal and Professional Satisfaction[a]

	Spearman Correlation Coefficient (*P* Value)		
Variable	Emotional Exhaustion (n=48)	Depersonalization (n=47)[b]	Personal Accomplishment (n=47)[b]
Sleep hours	−0.42 (.003)	−0.19 (.18)	0.19 (.19)
Work hours	0.22 (.13)	0.03 (.82)	0.03 (.86)
On-call nights/weekends	0.17 (.25)	0.13 (.37)	−0.20 (.17)
On-call weekdays	−0.06 (.68)	−0.17 (.26)	0.03 (.82)
Intern work hours	0.09 (.57)	−0.09 (.56)	0.15 (.31)
Satisfied currently	0.40 (.005)	0.25 (.09)	−0.15 (.33)
Satisfied 1 year ago	0.32 (.03)	0.08 (.58)	−0.15 (.33)
Satisfied 5 years ago	0.08 (.59)	−0.12 (.43)	0.15 (.33)
Satisfied with balance between personal and professional life	0.34 (.02)	0.02 (.89)	−0.13 (.38)
Control of professional life	−0.07 (.66)	−0.08 (.57)	0.07 (.63)

[a] Emotional exhaustion, depersonalization, and personal accomplishment were scored as subscales on the Maslach Burnout Inventory–Human Services Survey.
[b] The depersonalization and personal accomplishment subscales could not be calculated for 1 respondent because of incomplete responses to some questions.

actions per year, 8 (17%) reported 4 to 6 per year, 1 (2%) reported 7 to 12 per year, and 1 (2%) reported monthly social interactions. Regarding formal evaluations, 27 residents (57%) reported receiving formal evaluations 1 to 3 times per year, 12 (26%) reported 4 to 6 per year, 6 (13%) reported 7 to 12 per year, 1 (2%) reported receiving evaluations more often than monthly, and 1 (2%) reported never receiving an evaluation.

When questioned about the potential effect of regular personal performance interviews with program directors, 6 residents (12%) responded that such interviews would not be effective; 14 (29%), slightly effective; 16 (33%), moderately effective; and 12 (25%), very effective. Twenty-six residents (54%) reported not having meaningful access to a mentor. Of the 22 (46%) who reported access to a mentor, the mentor's influence was reported as none by 6 (27%), slight by 4 (18%), moderate by 7 (32%), and large by 5 (22%).

For mentor-resident interactions, moderate correlations were shown between burnout and mentor influence across all components for those who reported having access to a mentor (EE: $\rho=-0.54$, $P=.002$; DP: $\rho=-0.59$, $P<.001$; and PA: $\rho=0.44$, $P=.02$) (*Table 4*). A weak correlation was shown between decreased burnout as a result of low PA and nonprofessional social interaction with attending physicians ($\rho=0.33$, $P=.02$). A measure of combined mentor access and influence was determined for all respondents, and those who reported having no access to a mentor were scored as having the least amount of influence from a mentor. Results showed a weak correlation between mentor access/influence and both EE ($\rho=-0.31$, $P=.03$) and PA ($\rho=0.32$, $P=.03$).

Table 3.
Correlation Between Components of Burnout and Professional Stressors in Osteopathic Otolaryngology Residents[a]

	Spearman Correlation Coefficient (*P* Value)		
Stressor	Emotional Exhaustion (n=48)	Depersonalization (n=47)[b]	Personal Accomplishment (n=47)[b]
Frustrating colleagues	0.42 (.002)	0.28 (.05)	−0.10 (.52)
Lack of independence	0.37 (.009)	0.35 (.01)	−0.15 (.31)
Insufficient extracurricular time	0.33 (.02)	0.04 (.77)	−0.01 (.94)
Insufficient teaching time	0.30 (.04)	0.21 (.16)	−0.11 (.45)
Lack of sleep	0.30 (.04)	0.08 (.60)	−0.08 (.58)
Difficulty eating healthfully	0.28 (.06)	0.11 (.47)	−0.12 (.41)
Excessive on-call hours	0.26 (.08)	0.03 (.82)	−0.04 (.81)
Insufficient exercise time	0.25 (.08)	−0.01 (.97)	0.15 (.32)
Out-rotations	0.16 (.28)	0.16 (.28)	−0.24 (.11)
Excessive work hours	0.22 (.14)	−0.10 (.49)	0.03 (.85)
Medical errors	0.21 (.15)	0.04 (.77)	−0.09 (.53)
Insufficient research time	0.19 (.20)	0.07 (.66)	−0.13 (.37)
Department funding shortage	0.12 (.43)	0.12 (.42)	−0.07 (.62)
Low salary	0.10 (.51)	0.00 (.99)	−0.04 (.81)

[a] Emotional exhaustion, depersonalization, and personal accomplishment were scored as subscales on the Maslach Burnout Inventory–Human Services Survey.
[b] The depersonalization and personal accomplishment subscales could not be calculated for 1 respondent because of incomplete responses to some questions.

Discussion

Results from the current study showed that burnout was prevalent, with 77% of respondents reporting moderate to high levels of burnout. Levels of EE were surprisingly low among respondents, with 52% reporting low levels. In contrast, only 34% reported low levels of DP, and 38% moderate to high levels of PA. These results suggest that osteopathic residents are burned out because of DP and low PA, not because of EE. Compared with previously published data for their allopathic counterparts,[22] US osteopathic otolaryngology residents had lower rates of burnout overall. This difference was not significant, however, and could be a result of the smaller sample size in our study. However, the differences in scores for low PA and in total sleep and work hours were statistically significant.

To our knowledge, this is the first reported study of burnout among osteopathic physicians, either attending or resident. No previous comparisons of burnout between osteopathic and ACGME-trained physicians at any level or across any specialty have been reported, and no studies have shown a correlation between burnout and osteopathic medical education for any specialty. Because the survey was sent to residents at all osteopathic otolaryngology programs, results represent a cross-section of the United States.

Table 4.
Correlation Between Components of Burnout and Mentor-Resident Interactions in Osteopathic Otolaryngology Residents[a]

Variable	Spearman Correlation Coefficient (*P* Value)		
	Emotional Exhaustion (n=48)	Depersonalization (n=47)[b]	Personal Accomplishment (n=47)[b]
Mentor influence[b]	−0.54 (.002)	−0.59 (<.001)	0.44 (.02)
Ratio of female to male attending physicians	−0.36 (.12)	−0.40 (.09)	0.34 (.15)
Nonprofessional social interaction	−0.09 (.53)	0.01 (.93)	0.33 (.02)
Mentor access/influence[c]	−0.31 (.03)	−0.27 (.07)	0.32 (.03)
Personal performance interviews	−0.11 (.46)	−0.03 (.82)	0.26 (.08)
Formal evaluation	−0.19 (.19)	−0.09 (.56)	0.06 (.70)
Ratio of attending physicians to residents	−0.15 (.30)	−0.09 (.54)	0.12 (.47)

[a] Emotional exhaustion, depersonalization, and personal accomplishment were scored as subscales on the Maslach Burnout Inventory–Human Services Survey.
[b] The depersonalization and personal accomplishment subscales could not be calculated for 1 respondent because of incomplete responses to some questions.
[c] Only the 30 residents who reported having access to a mentor were included.

The current study also assessed the demographics and interests of osteopathic otolaryngology residents. Most residents were men, married, in their 30s, and not seeking further fellowship training. Most were planning on a career in private practice. Nearly all were satisfied or somewhat satisfied with their choice of otolaryngology as a specialty, and current satisfaction was higher than levels recalled from 1 and 5 years earlier. Most residents were satisfied or very satisfied with the current balance between their personal and professional lives. When asked about how they deal with stress, residents listed exercise as the major avenue for coping. Family time, sleep, food or alcohol, time with friends, and reading were also reported as coping mechanisms. Devoting adequate time to positive coping mechanisms may be protective against burnout, especially for EE.

Although mentoring has been gaining attention,[23,24,36] to our knowledge, the current study is the first to quantify how many osteopathic otolaryngology residents have official mentors. Unfortunately, 54% of respondents reported no significant interaction with a mentor. Of those who reported mentor interactions, 44% reported only slight or no influence. This result suggests that residents are not receiving meaningful help, although further study to confirm this finding is warranted.

Hours worked are thought to contribute to burnout. Golub et al[22] concluded that burnout scores increased by 0.19 points for each additional hour worked per week. In the current study, no significant correlation was shown between burnout and work hours, but there was a significant difference in the number of hours worked between our osteopathic residents and the allopathic residents in the study by Golub et al.[22]

Hours of sleep were moderately correlated with EE. Although this measure differed significantly between our residents and those studied by Golub et al,[22] osteopathic residents reported only 24 minutes more sleep per night on average, or almost 3 hours per week, which may or

may not be a substantive difference. More focused survey questions about sleep and a larger sample might have clarified this finding.

Other factors showed a significant correlation with burnout, such as personal and professional life satisfaction and some professional stressors. Because we tested several correlations, further study is needed to confirm these associations with burnout.

Limitations of the current study include lack of directly comparable previously published data, small sample size, and low response rate. Because there are fewer osteopathic otolaryngology residents, comparisons with allopathic residents will generally be limited by an imbalance in potential sample size. At the time of the current study, there were only 102 osteopathic otolaryngology residents in the United States, all of whom were contacted and encouraged to complete the survey. Even if we had attained a 100% response rate, the ratio of osteopathic residents to allopathic residents studied by Golub et al[22] would have been about 1:7.

Selection bias may also be a limiting factor because of nonrespondent attributes. Nonrespondents may tend to have higher or lower rates of burnout than respondents, or the lack of response may be independent of burnout; future studies should investigate whether there is any connection. Because this was the first known investigation of burnout among osteopathic residents or physicians, comparisons are limited, and results may not be representative of osteopathic residents in other specialties. Similar studies in other osteopathic specialties are warranted, and studies of burnout among osteopathic medical students and osteopathic attending physicians should also be considered.

Conclusion

In the current study, osteopathic otolaryngology residents reported burnout, but at lower rates than previously reported by allopathic otolaryngology residents.[22] However, this result should be interpreted with caution because of our small sample size and poor response rate. Although the difference in overall levels of burnout did not reach statistical significance, we noted several other statistically significant differences between osteopathic and allopathic otolaryngology residents. Another study with a better response rate may be necessary to verify these differences. Additional studies are also needed to evaluate burnout among other groups of osteopathic residents and attending physicians.

The observed differences in sleep hours, hours worked, and overall burnout levels suggest that physicians at any level, but especially during residency, require emotional rejuvenation and increased sense of efficacy. Increased focus on resident mentoring is also needed. Direct correlations were seen between lower burnout levels and mentor access, but further study is needed to confirm this association. If this finding is upheld in future studies, residency program directors could address formal and informal mentoring of residents in their programs to help reduce burnout. With its limited number of otolaryngologists, mean levels of reported burnout, and dual medical/surgical practice dynamic,[22] otolaryngology as a specialty might provide a superb population to study and an ideal starting point for determining burnout rates among other osteopathic specialties.

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