Osteopathic Representation on Editorial Boards of Orthopedic Surgery Journals

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Abstract

Objective: In the present study, we comparatively analyze the degrees of editorial board members of orthopedic surgery journals.

Methods: Editorial members of 98 orthopedic surgery journals were analyzed. The number of allopathic physicians, osteopathic physicians, and other health care professionals serving as editor-in-chief, associate editor, editor emeritus, other editor, and editorial board members were analyzed and compared.

Results: Of the 5,159 editorial board members analyzed, 28 (0.55%) were osteopathic physicians, 2,367 (77.46%) were allopathic physicians, and 696 (21.79%) were neither. Statistical significance was observed upon comparing the number of osteopathic versus allopathic physicians (p<0.0001).

Conclusion: These data establish a significant underrepresentation of osteopathic physicians on editorial boards of orthopedic surgery journals. Future investigation should identify causative factors.

Keywords: Orthopedic Surgery; Medical Education; Editorial Boards; Osteopathic Medical Schools; Quantitative Statistics

Abbreviations: ACGME: The Accreditation Council for Graduate Medical Education; AOA: American Osteopathic Association; GME: Graduate Medical Education

Introduction

Frontier physician Andrew Taylor Still founded osteopathic medicine more than 130 years ago. Ever since, osteopathic medicine has progressively blossomed. In 2014, there were 66,644 active osteopathic physicians, occupying 7.4% of the active physician population in the United States, with the rest being allopathic physicians [1]. Furthermore, there are currently 19,374 orthopedic surgeons in the U.S., of which 5.1% are osteopathic physicians [2].

Osteopathic medicine is growing, however, osteopathic representation on editorial boards appears to be lagging behind. Recent research by Ashurst and Galuska identified a disparity of osteopathic physicians occupying positions on the editorial boards of 8 major journals [3]. Furthermore, recent research by Hoehmann et al. discovered a disparity of osteopathic physicians occupying positions on editorial boards of 50 journals in the sub-specialty of neurological surgery [4]. Both studies note a lack of investigation regarding the osteopathic representation on editorial boards in other sub-specialties of medicine [3,4].

The Accreditation Council for Graduate Medical Education (ACGME) and the American Osteopathic Association (AOA) are merging to form a single Graduate Medical Education (GME) Accreditation System by 2020. This provides new opportunity and indication to develop modernized standards for academic endeavors for each specialty.

In the present study, and in light of the ACGME and AOA merger, we explored whether the disparity identified by Ashurst and Galuska, and also Hoehmann et al., could be expanded to include the osteopathic representation on editorial boards of orthopedic surgery journals in the sub-specialty of orthopedic surgery.

Materials and Methods

The editorial boards of 98 continuing orthopedic surgery journals were analyzed; all of which were found via two websites: http://www.mdlinx.com/orthopedics/journals.cfm, http://www.omicsonline.org/orthopedic-surgery-journals-conferences-list.php (Table 1).
Table 1: List of Orthopedic Surgery Journals Analyzed.

| Academic Emergency Medicine          | Journal of Orthopaedic Science                     |
|--------------------------------------|---------------------------------------------------|
| Acta Orthopaedica Belgia             | Journal of Orthopaedic Surgery and Research       |
| Acta Orthopédica Brasileira          | Journal of Orthopaedic Trauma                     |
| Acta Rheumatologica                  | Journal of Orthopaedics Trauma Surgery            |
| Advances in Orthopedics              | Journal of Orthopaedics                           |
| Archives of Orthopaedic and Trauma Surgery | Journal of Orthopedics Research                |
| Archives of Osteoporosis             | Journal of Orthopaedics and Traumatology          |
| Arthroscopy                          | Journal of Osteoporosis and Physical Activity     |
| Arthroscopy: Journal of Arthroscopic and Related Surgery | Journal of Pediatric Orthopaedics |
| Arthritis                            | Journal of Shoulder and Elbow Surgery             |
| BMC Musculoskeletal Disorders        | Journal of Spine                                  |
| Bone                                 | Journal of Spinal Disorders                       |
| Bone & Joint Research                | Journal of Spinal Disorder & Techniques           |
| Bone Reports & Recommendations       | Journal of Sport Rehabilitation                   |
| Calcified Tissue International       | Journal of Surgical Orthopaedic Advances          |
| Clinical & Experimental Orthopaedics | Journal of the American Academy of Orthopedic Surgeons |
| Clinical Journal of Sport Medicine   | Journal of the American Pediatric Medical Association |
| Clinical Orthopedics and Related Research | Knee Surgery, Sports Traumatology, Arthroscopy |
| Clinics in Orthopedic Surgery        | Nature                                            |
| Clinics in Podiatric Medicine & Surgery | New England Journal of Medicine               |
| Clinics in Sports Medicine           | Operative Techniques in Orthopaedics              |
| Clinical Research on Foot & Ankle    | Orthopaedics and Trauma                           |
| Current Opinion in Orthopaedics      | Orthopedics and Sports Medicine                   |
| Current Orthopaedic Practice         | Orthopedic Clinics of North America               |
| Current Osteoporosis Reports         | Orthopedic Journal at Harvard Medical School     |
| European Journal of Orthopaedic Surgery & Traumatology | Orthopedic Oncology |
| European Spine Journal               | Orthopedics, traumatology: Free Medical Journals |
| Foot & Ankle International           | Osteoarthritis                                    |
The editorial board of each journal was analyzed for the following positions: editor-in-chief, associate editor, editor emeritus, “other” editor (e.g., section editor, deputy editor, consulting editor), and editorial board members. Editorial staff, such as social media manager and office manager, was excluded from the analyses. Each member’s credentials were ascertained on the basis of the suffix following the last name. If the journal did not provide a suffix or detailed information regarding the member’s credentials, an Internet search was executed to determine the member’s credentials. Members who held advanced degrees besides MD and DO (e.g., PhD, DPT, et cetera) were listed as “other”. Allopathic physicians who held additional advanced degrees (e.g., PhD, MS, MBA) were allocated to the allopathic criteria for analyses and were only represented once.

Statistical analysis was performed with IBM SPSS version 20.0 for Windows. To analyze the collected data, descriptive statistics was performed with percentages to determine the number of allopathic, osteopathic, or “other” non-physician healthcare professional fulfilling each editorial role. Furthermore, a paired t test was performed to compare the number of osteopathic physicians against the number of allopathic physicians serving editorial roles on each of the orthopedic surgery journals.
Results

A total of 5,159 individuals occupying positions on the editorial boards of 98 orthopedic surgery journals were included in this analysis. Of these data, 28 (0.55%) were osteopathic physicians, 2,367 (77.46%) were allopathic physicians, and 696 (21.79%) did not have a doctoral medical degree (Table 2).

Table 2: Quantitative Description of Degrees Held by Editorial Board Members.

| Editorial Positions | Allopathic | Osteopathic | Other |
|---------------------|------------|-------------|-------|
| Editor-in-chief     | 97 (78.23) | 1 (0.8)     | 15 (12.10) |
| Associate Editor    | 590 (79.84)| 8 (1.08)    | 141 (19.08) |
| Editor Emeritus     | 107 (88.43)| 0 (0)       | 14 (11.57) |
| Other Editor        | 835 (76.26)| 2 (0.18)    | 258 (23.56) |
| Editorial Board     | 2367 (76.66)| 17 (0.55)  | 696 (22.6) |
| Total Members       | 3996 (77.46)| 28 (0.54)   | 1124 (21.79) |

Table represents the pooled data of degrees held by editorial board members for each of the 98 journals analyzed in this study. Number outside parenthesis indicates raw number while number in parenthesis indicates the percentage. n represents total number per positions.

Osteopathic physicians held a total of 28 editorial positions in 12 of the 98 orthopedic surgery journals, including: Arthroscopy: Journal of Arthroscopic and Related Surgery, Clinical Journal of Sport Medicine (6 members), Foot & Ankle International (3 members), Journal of Back and Musculoskeletal Rehabilitation, Journal of Children’s Orthopaedics, The Journal of Hand Surgery, Journal of Orthopaedic Trauma (5 members), Journal of Pediatric Orthopaedics, Techniques in Foot & Ankle Surgery, Scoliosis Spine, and The Spine Journal (5 members). Also of note, an osteopathic physician occupied the Editor-in-Chief position of only one journal: Spine. Of the 28 total osteopathic physicians occupying editorial board positions, 7 were reported as family medicine physicians while the remaining 21 were reported as orthopedic surgeons.

The mean number of allopathic physicians serving editorial roles for each journal was 40.69 (with a standard deviation of 39.52). The mean number of osteopathic physicians serving editorial roles for each journal was 0.28 (with a standard deviation of 0.99). Statistical significance was observed upon comparing the number of osteopathic physicians against the mean number of allopathic physicians serving editorial roles for each of the 98 orthopedic surgery journals analyzed (p<0.0001).

Discussion

To our knowledge, the present study is the first to analyze the osteopathic representation on the editorial boards of orthopedic surgery journals. Although osteopathic physicians comprise 7.4% of the U.S. physician population, and 5.1% of the U.S. orthopedic surgeon population, our study demonstrated that osteopathic physicians occupied only 0.55% of the editorial positions analyzed in orthopedic surgery journals. This in contrast to allopathic physicians, who occupied 77.46% of the editorial board positions analyzed. These data represent a disparity between the osteopathic physician population and the osteopathic representation on the editorial boards of orthopedic surgery journals.

These findings are in accordance with those identified in similar recent research. A study by Ashurst and Galuska investigated 2058 editorial board positions of 8 major medical journals and found 1921 (93.3%) to be occupied by allopathic physicians, 134 (6.5%) to be occupied by non-physician healthcare professionals, and only 3 (0.15%) to be occupied by osteopathic physicians [3]. Follow-up research by Hoehmann et al., demonstrated a disparity between osteopathic and allopathic physicians in the sub-specialty of neurological surgery [4]. This study investigated 2826 editorial board positions of 50 major neurological surgery journals and found 2645 (93.6%) to be occupied by allopathic physicians, 177 (6.3%) to be occupied by non-physician healthcare professionals, and only 4 (0.14%) to be occupied by osteopathic physicians [4].

Both of these studies suggest the under-representation of osteopathic physicians serving on editorial boards of medical journals and are further supported by the findings of the present study. Moreover, the osteopathic representation identified by Ashurst and Galuska and also Hoehmann et al., was found to be 0.15% and 0.14% respectively, however the 0.55% osteopathic representation identified in the present study suggests that osteopathic underrepresentation may be less conspicuous in the orthopedic surgery community [3,4]. Nevertheless, it seems osteopathic physicians are indeed underrepresented on all forms of medical journal editorial boards that have been examined in recent research.

The etiology for the inadequate osteopathic representation on editorial boards is complex, multi-faceted, and possibly related to differences in training between osteopathic and allopathic medical students. The American Association of Colleges of Osteopathic Medicine performed a survey of medical students regarding their medical training and found that 47% of osteopathic medical students expressed an inadequate amount of time was appropriated to learning research techniques, literature analysis skills, and biostatistics [5]. This finding may be secondary to the large emphasis that osteopathic medical education places on patient centered medical treatment versus disease oriented medicine [3]. This is further compounded by the fact allopathic medical schools receive more funding for research and development than their osteopathic counterparts, which ultimately provides allopathic students with more opportunities for scholarly activity than osteopathic students [6]. Moreover,
osteopathic medical students are less likely to simultaneously hold separate advanced degrees, such as a doctor of philosophy (PhD), or a Master’s (MA) degree [7]. Pursuing such degrees often provides more opportunities and time dedicated to scholarly activity and research, while also conferring a larger interest in an academic career.

It is unclear what this means in regards to the imminent ACGME and AOA merger. A single GME Accreditation System provides an interesting opportunity to rectify the underrepresentation of osteopathic physicians serving editorial roles. Alternatively, it may provide an unfortunate opportunity to perpetuate this established discrepancy. More research is indicated in this field to establish causative factors for this disparity so that precautions can be made while planning the details of the transition to a single GME Accreditation System.

**Limitations**

The present study analyzed 98 orthopedic surgery journals that were retrieved from two websites identified by a web search; however, many more orthopedic surgery journals exist and were not included in the study. Since the journals were obtained from a list, there was no clear inclusion or exclusion criteria for journals utilized in this study. Additionally, although the sample size used in this study is larger than that of similar studies, it is still possible that orthopedic surgery journals that were not included in the study could conceivably maintain a larger percentage of osteopathic physicians serving editorial roles. Furthermore, it is impossible to control for some confounding factors, such as the number of osteopathic physicians in academic appointments, or their sub-specialties.

**Conclusion**

In the current study, we identified a significant disparity between the number of osteopathic physicians and allopathic physicians serving on the editorial boards of orthopedic surgery journals. These data support the recent work by Ashurst and Galuska, and also Hoehmann et al., which suggests an under-representation of osteopathic physician serving on editorial boards of various types of medical journals. These findings should be considered in light of the imminent AOA and ACGME merger. More research is needed in this field to identify causative factors and to assist the transition to a single GME Accreditation System.

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