ARTICLE

Pathways/Mentorship

Osteopathic Research in Family Medicine

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Osteopathic physicians (DOs) comprise a growing portion of family physicians. In 2023, more DO seniors matched into family medicine than MD seniors, and nearly a quarter of US DO seniors matched into family medicine. Family medicine benefits from the osteopathic philosophy of whole-person care, though this provides challenges regarding research in family medicine. Notably, among students entering family medicine, MD students report an average of 2.4 research activities compared with 1.7 for DO students, marking the lowest values across specialties. There are multifarious reasons for the limited research exposure of osteopathic medical students, and 2 may be amenable to change. First, osteopathic trainees have relatively limited research exposure. Second, osteopathic manipulation training emphasizes techniques that are not compatible with current theories of anatomy and pathology. The reduced research emphasis among osteopathic trainees can be addressed by strategies that focus on enhanced research exposure and a cultural shift toward fearless reevaluation of these inconsistent beliefs. Improvements in research training and culture among osteopathic trainees (including medical students and residents) will directly benefit osteopathic medicine, family medicine, and patients (J Am Board Fam Med 2024;37:S59–S63.)

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Osteopathic physicians comprise a growing portion of family physicians. In 2023, the number of US DO seniors who matched into family medicine residency programs exceeded the number of US MD seniors. This trend seems to be growing. Nearly a quarter (22.2%) of US DO seniors match into the specialty of family medicine (Figure 1).[1,2] The specialty has benefitted from a compatibility with the osteopathic philosophy of whole-person care, and DOs provide a valuable clinical perspective that serves an important role in the treatment of patients. However, as osteopathic physicians comprise an increasing proportion of the specialty of family medicine, new challenges arise regarding their experience in conducting research.[3,4]

The profession of "osteopathy" was first developed by A.T. Still in the late 1800s, and its practitioners were called osteopaths due to the belief that the bone was "the starting point… to ascertain the cause of pathologic conditions."[5] Over time, this belief came to be supplanted by an acceptance of the knowledge obtained through evidence-based scientific practice. While modern osteopathic physicians (DOs) may be nearly indistinguishable from their MD colleagues, there remain important differences.

A primary functional difference between DOs and MDs is that osteopathic medical students continue to be trained in osteopathic manipulative medicine (OMM), which provides enhanced emphasis on neurologic and musculoskeletal anatomy and treatment. This training benefits family physicians, who treat patients suffering from a wide variety of somatic concerns. This focus on manual therapy and the poor evidence base supporting the underlying mechanisms of OMM may come at the expense of formal research training and exposure, though this need not be the case.

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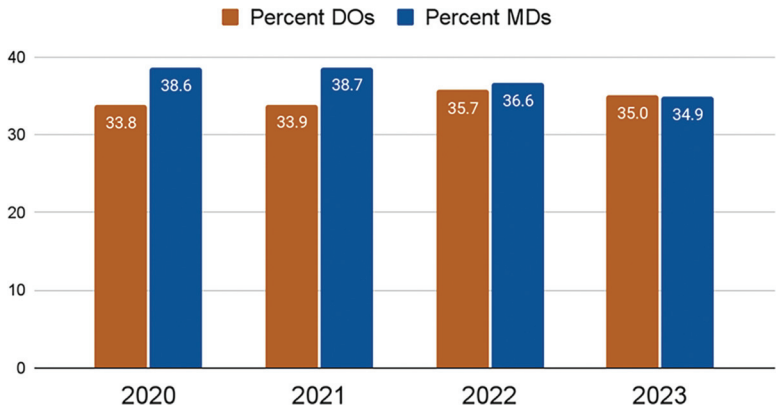
Figure 1. Percentage of DOs versus MDs entering family medicine.[1,2]



Students at US Colleges of Osteopathic Medicine (COMs) have fewer research activities at graduation than students at US MD medical schools.[3,4] In 2022, students from MD-granting medical schools who matched into residency programs averaged more than twice as many research activities on their application as students from DO-granting medical schools (4.0 vs 2.2).[6] In family medicine these numbers were even lower, with 2.4 research activities for MD medical students who matched into family medicine, compared with 1.7 for DO medical students (Figure 2). These values for both osteopathic and MD students were the lowest of any specialty.[1]

The research training environment of osteopathic medical students and physicians is becoming progressively more important to the family medicine specialty. The relative gap in research training leads to decreased prominence of osteopathic physicians in scientific authorship.[7] Family medicine is already lagging in this regard, with an estimated 1% of authors in peer-reviewed medical journals despite representing 12.5% of the US physician workforce.[8,9] The limitations of research training and culture in osteopathic medicine are becoming the limitations of family medicine research. Two of these challenges may be amenable to change: (1) Osteopathic trainees have relatively limited research exposure. (2) Osteopathic manipulation training emphasizes techniques that are not compatible with current theories of anatomy and pathology.

Osteopathic Trainees Have Relatively Limited Research Exposure

The majority of osteopathic medical students report they lack time and resources to pursue research. Furthermore, nearly a third report having little support for research even from their university authorities

Figure 2. Research experiences of US medical students applying to residency programs.[1,6]

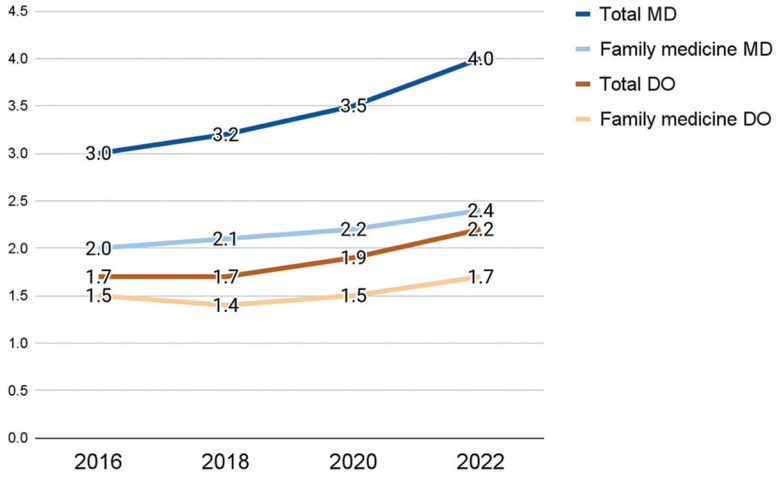


Table 1. Barriers to Research Reported by Osteopathic Medical Students[3]

Barrier	Percent of medical students
Lack of time	57.8%
Feeling overwhelmed and unsure how to start	53.4%
Lack of access to research	53.0%
Lack of quality mentorship	37.1%
Lack of curricular flexibility	34.0%
Little support from university authorities	30.2%

(Table 1).[3] Dual-degree PhD programs are offered in 18.6% of osteopathic medical schools compared with 71.0% of MD medical schools.[4] A quarter of family medicine residency program directors who recruited both DOs and MDs before the ACGME merger reported that DO seniors were less academically prepared than their MD counterparts.[10]

The high proportion of DOs in family medicine means that the specialty will disproportionately benefit from improvements in research training among osteopathic trainees, including medical students and residents. This can be accomplished through concerted prioritization of research in learning environments. Institutions that train osteopathic learners such as colleges of osteopathic medicine and family medicine residency programs should increase the emphasis on research, to include enhancing infrastructure and funding to support the research enterprise. To accomplish this, we recommend the following:

1. Include research as a key portion of the mission and vision of training programs[11]
2. Incorporate a formal research curriculum into both preclinical and clinical training[12–14]
3. Include research participation and accomplishments as a key factor in applicant selection, learner evaluations, faculty selection, and faculty progression[4,14,15]
4. Increase mentored and funded research opportunities to interested osteopathic trainees[16,17]
5. Increase the number of DO/PhD programs available to osteopathic medical students[4]

Osteopathic Manipulation Training Emphasizes Controversial Manipulative Techniques

Robust evidence supports the practice of osteopathic manipulation for certain conditions,[18] and its continued presence in osteopathic medical curriculum is a valuable asset to clinicians and patients. However, not all techniques are supported by equal levels of evidence, and some osteopathic principles and practices are not compatible with current theories of anatomy and pathology. Osteopathic medical students who wish to pursue research are faced with an academic environment where they are required to learn models such as Fryette's laws (the basis for spinal manipulation), Chapman's points (theoretical nodules representing neuro-lymphatic dysfunction), and the primary respiratory mechanism (the basis for craniosacral manipulation), which have not been subjected to rigorous scientific scrutiny.[19,20] In some cases, the proposed mechanisms underlying these concepts have been shown to be inaccurate.[21] When osteopathic medical students are taught these frameworks alongside well-described concepts of human anatomy, pathophysiology, and modern medical therapies, they may question the scientific rigor of their profession.

In this environment, osteopathic medical students become progressively more doubtful of OMM and less likely to practice OMM as they advance in their medical education.[22] This issue was emphasized by an osteopathic medical school faculty member with over 30 years of teaching experience who wrote: "Could the primary factor driving our osteopathic medical students further and further away from OMT be our teaching of scientifically questionable and controversial manipulative techniques under the rubric of osteopathic principles and practice? … [Our students] have been steeped in the scientific method and they recognize good ol' bovine scatology when they see it."[23]

We support the continued use and teaching of OMM but propose that students should no longer be taught and tested on theories that are incompatible with modern understanding of anatomy and disease. To generate such an environment, we recommend the following practices be adopted by organizations with an interest in osteopathic research and education, including colleges of osteopathic medicine, residencies, conference planning committees, research departments, journals, the National Board of Osteopathic Medical Examiners, and the American Osteopathic Board of Family Physicians:

1. Subject the foundational principles of OMM to conventional scientific standards, including rigorous peer review from outside the profession

2. Abandon concepts, frameworks, and models of osteopathic manipulative medicine that are not supported by rigorous evidence
3. Investigate alternate hypotheses for mechanisms that underlie any observed effectiveness of manual therapy
4. Ensure curricula and tests of osteopathic principles and practice are consistent with accurate scientific knowledge

Conclusions

The contribution of DOs to family medicine is invaluable, and the osteopathic philosophy has tremendous potential to aid patients. However, there exists within the profession a crisis of poor research training and continued adoption of controversial manipulation techniques. Those who educate osteopathic trainees and practice osteopathic medicine can help promote solutions to these problems. Doing so will directly benefit osteopathic medicine, family medicine, and patients.

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