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Awareness and interest in osteopathic manipulative treatment in allopathic medical students

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Abstract

Context: Osteopathic manipulative treatment (OMT) is utilized by clinicians to diagnose and treat a variety of musculoskeletal conditions including acute and chronic pain, and other medical conditions. Previous studies have examined attitudes of allopathic (MD) residents toward OMT and have implemented residency-based curricula; however, literature is lacking on the attitudes of MD students toward OMT.

Objectives: The objective of this study was to determine MD students' familiarity with OMT and to evaluate their interest in an elective osteopathic curriculum.

Methods: A 15-item online survey was electronically sent to 600 MD students at a large allopathic academic medical center. The survey assessed familiarity with OMT, interest in OMT and in participating in an OMT elective, educational format preference, and interest in pursuing primary care. Educational demographics were also collected. Descriptive statistics and Fisher's exact test were utilized for categorical

variables, and nonparametric tests were utilized for the ordinal and continuous variables.

Results: A total of 313 MD students submitted responses (response rate=52.1%), of which 296 (49.3%) responses were complete and utilized for analysis. A total of 92 (31.1%) students were aware of OMT as a modality in treating musculoskeletal disorders. Among the respondents who indicated "very interested" in learning a new pain treatment modality, the majority: (1) observed OMT in a prior clinical or educational setting (85 [59.9%], $p=0.02$); (2) had a friend or family member treated by a DO physician (42 [71.2%], $p=0.01$); (3) were pursuing a primary care specialty (43 [60.6%], $p=0.02$); or (4) interviewed at an osteopathic medical school (47 [62.7%], $p=0.01$). Among those interested in developing some OMT competency, the majority: (1) were pursuing a primary care specialty (36 [51.4%], $p=0.01$); (2) applied to osteopathic schools (47 [54.0%], $p=0.002$); or (3) interviewed at an osteopathic medical school (42 [56.8%], $p=0.001$). A total of 230 (82.1%) students were somewhat or very interested in a 2-week elective course in OMT; among all respondents, hands-on labs were the preferred method for delivery of OMT education (272 [94.1%]).

Conclusions: The study found a strong interest in an OMT elective by MD students. These results will inform OMT curriculum development aimed at interested MD students and residents in order to provide them with OMT-specific theoretical and practical knowledge.

Keywords: allopathic; OMM; OMT; osteopathic; osteopathic manipulative medicine; osteopathic manual medicine; osteopathic manipulative treatment; undergraduate medical education.

In 1972, all US state governments recognized the Doctor of Osteopathic Medicine (DO) degree as equivalent to that of their allopathic (MD) counterparts [1]. Although there has been equivalence in licensure and attendant privileging opportunities since then, the DO degree remains distinct through its osteopathic philosophy, application and practice

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of osteopathic tenets, and performance of osteopathic manipulative treatment (OMT) [2].

Whereas OMT is taught to all students in osteopathic medical schools, allopathic medical students and residents are rarely exposed to these techniques. This is a missed opportunity because MD students could, as part of their training, develop improved comfort with osteopathic philosophy and some of the medical conditions assessed and treated by OMT, as well as improved musculoskeletal physical diagnosis and pain management skills. In a previous study of 249 MD and DO students who were primarily DOs (66.3 %) and White/Caucasian (81.0 %), DO students reported being more comfortable with musculoskeletal physical examination skills compared to MDs (57.1% vs. 26.8 %), and 91.9 % thought that their education prepared them well for the musculoskeletal portion of licensing examinations (compared to 63.4 % of MD students) [3].

The opportunity for shared skill sets among MDs and DOs is growing; the American Osteopathic Association (AOA) became a member of the American Council of Graduate Medical Education (ACGME) in 2014 [4]. The creation of a single accreditation system for graduate medical education has dramatically enhanced the potential of collaborative effort. Furthermore, MDs can now participate in residency osteopathic recognition (OR) programs.

Many DOs believe that OMT education for MDs can help increase awareness of and confidence in OMT knowledge and skills, and can lead to more referrals and improvement in patient care [5]. In a study of 381 osteopathic and allopathic family medicine residents (60.9 % of which were MDs), 70.9 % of MD resident learners were interested in OMT [6]. Exposure to OMT has been implemented in allopathic residency programs; some exposure to OMT has been reported in small program evaluations [7–10]. In one such report, 9 of 16 military MD family medicine residents found the establishment of an OMT clinic to be important to their training [8]. In a similar report of residents in an allopathic family medicine residency program, five DOs found the clinic helpful with integrating OMT into resident schedules, maintaining skills, and patient care [7]. After a 1-month OMT elective, all five MD family medicine residents reported that the elective had access to regular teaching, precepting, and independent decision making, and that expectations and goals were reasonable and achievable [10].

There is little literature related to interest in OMT among MD students prior to residency. In 2022, Ellson and colleagues reported on the challenges of creating a curriculum for premedical students by comparing in-person to

virtual educational delivery platforms for a seminar series to increase appreciation for osteopathic medicine [11]. In the post-session analysis, 52 students from the first session and 61 students from the second session provided feedback on preferences, with neither in-person nor virtual being effective in increasing the understanding of osteopathic medicine [11].

The aim of this survey study was to assess awareness of, and interest in learning, OMT among the students at an allopathic medical school. Among those interested, we also assessed preferred mode of content delivery (hands on lab, clinical rotation, etc.). We hypothesized that MD students would be both aware of and interested in OMT. We also hypothesized that interest and awareness of OMT in MD medical students at our institution would be associated with prior exposure to OMT or DO physicians, prior application or interview at an osteopathic medical school, and interest in a career in primary care.

Methods

This study was reviewed and approved by the Penn State College of Medicine Institutional Review Board (STUDY#11809) and determined to be exempt. All participants in this study read a summary explanation of research prior to participation in the survey. Completion of the survey implied voluntary consent to participate in the research and approval of their information to be utilized and shared in publication. As an incentive, respondents were given the opportunity to enter a random drawing for one of five \$25 gift cards. The study was unfunded, and trial registry was not applicable.

Design

The authors (A.D., T.O., and J.P.), assisted by a survey design expert (see Acknowledgements), designed the survey tool utilizing an iterative approach. Survey items were reviewed with the entire study team and pilot-tested with eight medical students who provided verbal feedback during a 1-h focus group to refine the survey.

Population

The inclusion criteria included all medical students (approximately 600 students) at the two campuses of the institution.

Measure

The 15-item survey took approximately 5 min to complete (Table 1). A definition of OMT was provided after the questions about OMT awareness (after Item 10). This was intentional because giving the definition prior to the awareness questions may have influenced their

Table 1: Osteopathic manipulative treatment (OMT) in allopathic medical students at Penn State College of Medicine survey instrument.

Survey question	Response options
1. Have you ever heard of OMT?	Yes/No/Unsure
2. Have you ever read about OMT?	Yes/No/Unsure
3. Do you know anyone personally who is a DO or DO student?	Yes/No/Unsure
4. How aware are you of OMT as a treatment option for patients with musculoskeletal pain disorders?	Not at all aware/Slightly aware/ Somewhat aware/ Moderately aware/Extremely aware
5. Have you ever observed OMT in a clinical or educational setting?	Yes/No/Unsure
6. Have you been a patient of a DO?	Yes/No/Unsure
7. Have you ever had a DO treat you with OMT?	Yes/No/Unsure
8. Have you ever had a DO treat a friend or family member with OMT?	Yes/No/Unsure
9. Did you apply to any osteopathic medical schools?	Yes/No
10. Did you interview at any osteopathic medical schools?	Yes/No
11. How interested are you in learning new modalities to help you diagnose and treat musculoskeletal pain disorders?	Not interested/Somewhat interested/ Very interested/Not sure
12. How interested are you in understanding when to refer to a qualified provider for OMT?	Not interested/Somewhat interested/ Very interested/Not sure
13. How interested are you in developing competency in performing OMT?	Not interested/Somewhat interested/ Very interested/Not sure
14. If Penn State College of medicine offered a 2-week elective (i.e., CES) in OMT, how interested would you be in this opportunity?	Not interested/Somewhat interested/ Very interested/Not sure
15. How interested are you in the following formats for learning OMT?	Not interested/Somewhat interested/ Very interested
Lecture	
Hands-on lab	
Clinical rotation	
Web-based learning	
Other: Please specify below	

DO, Doctor of Osteopathic Medicine; OMT, osteopathic manipulative treatment; CES, career exploration and synthesis.

answer choices. However, giving students the definition of OMT prior to the questions about interest ensured a common understanding of the term to improve the accuracy of responses. Educational demographics included year in medical school, intention to go into a primary care specialty, and if they were on the MD/PhD pathway.

Procedures

The survey was available from July 24, 2019 to August 24, 2019. Students were invited to take the survey via email containing the link to the online survey hosted in REDCap [12]. Information and invitation to the survey were also posted to a private social media (Facebook) group,

where our institution's medical students can post and share information. A summary of the study was provided prior to taking the survey. One reminder email was sent after 2 weeks.

Analysis

Data analysis was performed by AB utilizing the R statistical program [13] version 2.2 and summary package [14] (version 1.7.0), and included descriptive statistics, Fisher's exact test for categorical variables, and nonparametric tests for the ordinal and continuous variables. Awareness of OMT (aware and not aware) was defined as having "heard" and "read" about OMT. Interest in learning OMT (not interested, somewhat interested, and very interested) was defined as: interest in learning new tools to diagnose and treat musculoskeletal pain conditions, referring to a qualified provider for OMT, developing competency in performing OMT, and participating in a 2-week elective in OMT.

Results

The survey was distributed to all 600 medical students: 174 first-year, 172 second-year, 170 third-year, and 84 fourth-year students. The fourth-year medical student class was smaller because one site did not yet include a fourth-year class at the time of survey distribution.

A total of 313 students responded to the survey (response rate, 52.1%). A total of 296 (49.3%) surveys were included in the final analysis (17 surveys were excluded due to incomplete responses; Table 2). The largest response was from the first-year class (90, 30.4%), followed by the second- (72, 24.3%), third- (60, 20.3%) and fourth-year classes (57, 19.2%).

Table 2: Educational demographics of study population (n=296).

	n, %
Year in medical school	
First year	90 (30.4)
Second year	72 (24.3)
Third year	60 (20.3)
Fourth year	57 (19.2)
Other	5 (1.7)
Not reported	12 (4.1)
Intention to go into a primary care specialty	
Yes	72 (24.3)
No	132 (44.6)
Unsure	82 (27.7)
Not reported	10 (3.4)
MD/PhD pathway	
Yes	22 (7.4)
No	259 (87.5)
Prefer not to answer	5 (1.7)
Not reported	10 (3.4)

Table 3: Statistically significant findings between MD student level of interest in learning new modalities and developing competency in performing osteopathic manipulative treatment (OMT).

Variable, n, %	Not interested n=20	Somewhat interested n=118	Very interested n=150	p-Value ^a
Interest in learning new modalities to help diagnose and treat musculoskeletal pain				
Observed OMT in a clinical or educational setting				
Yes	10 (7.0)	47 (33.1)	85 (59.9)	p=0.02
No	10 (7.0)	69 (48.6)	63 (44.4)	
Had a friend or family member treated by a DO physician				
Yes	2 (3.4)	15 (25.4)	42 (71.2)	p=0.008
No	16 (9.7)	73 (44.2)	76 (46.1)	
Unsure	2 (3.1)	30 (46.9)	32 (50.0)	
Pursuing a primary care specialty (Family and Community Medicine, Internal Medicine, or Pediatrics)				
Yes	2 (2.8)	26 (36.6)	43 (60.6)	p=0.02
No	16 (12.3)	54 (41.5)	60 (46.2)	
Unsure	2 (2.5)	34 (42.0)	45 (55.6)	
Interviewed at an osteopathic medical school				
Yes	8 (10.7)	20 (26.7)	47 (62.7)	p=0.01
No	12 (5.6)	98 (46.0)	103 (48.4)	
Interest in developing competency in performing OMT				
Pursuing a primary care specialty (Family and Community Medicine, Internal Medicine, or Pediatrics)				
Yes	12 (17.1)	22 (31.4)	36 (51.4)	p=0.01
No	28 (21.5)	63 (48.5)	39 (30.0)	
Unsure	8 (10.0)	39 (48.8)	33 (41.2)	
Applied to osteopathic schools				
Yes	10 (11.5)	30 (34.5)	47 (54.0)	p=0.002
No	39 (19.6)	97 (48.7)	63 (31.7)	
Interviewed at an osteopathic medical school				
Yes	9 (12.2)	23 (31.1)	42 (56.8)	p=0.001
No	40 (18.9)	104 (49.1)	68 (32.1)	

^aThe Mann-Whitney U test was utilized to compare group differences. OMT, osteopathic manipulative treatment.

Regarding awareness, 92 (31.1 %) participants previously read or heard about OMT. Of those that were aware of OMT, 44 (40.7 %) reported being very interested in developing competency in performing OMT, compared to those who were not aware of OMT (64 [59.3 %]; $p=0.03$).

When assessing interest in learning new modalities to help diagnose and treat musculoskeletal pain (Table 3),

the majority of participants who were very interested: (1) had previous exposure to OMT (85 [59.9 %]), compared to participants without previous exposure, the majority of whom were only somewhat interested (69 [48.6 %], $p=0.02$); (2) had a friend or family member treated by a DO physician (42 [71.2 %]), compared to those who did not (76 [46.1 %]) or were unsure (32 [50.0 %], $p=0.008$); (3) were pursuing a primary care specialty (43 [60.6 %]), compared to those who were not (60 [46.2 %]) or were unsure (45 [55.6 %], $p=0.02$), and interviewed at an osteopathic medical school (47 [62.7 %]) compared to participants who did not interview (103 [48.4 %], $p=0.01$).

When assessing interest in developing competency in performing OMT (Table 3), the majority of participants who were very interested: (1) were pursuing a primary care specialty (36 [51.4 %]), compared to those who were not (39 [30.0 %]) or were unsure (33 [41.2 %], $p=0.01$); (2) applied to osteopathic medical schools (47 [54.0 %]), compared to those who did not (63 [31.7 %], $p=0.002$); and (3) interviewed at an osteopathic medical school (42 [56.8 %]), compared to those who did not (68 [32.1 %], $p=0.001$).

There was a clear interest in learning OMT through a designated curriculum, with 230 respondents (82.1 %) being somewhat or very interested in a 2-week elective course. Hands-on labs were the most popular didactic modality, with 272 (94.1 %) participants being somewhat or very interested, followed by clinical rotation (237, 82.0 %), lectures (172, 59.5 %), and web-based learning (113, 39.1 %) (Figure 1).

Discussion

This study found that approximately one-third of MD students at our institution are aware of OMT, but the majority reports interest in learning about OMT, including taking a 2-week elective course in OMT. Students are more likely to be interested in learning OMT if they have had previous exposure to OMT, have a friend or family member with previous exposure to a DO physician, are pursuing a primary care medical field, or have interviewed at an osteopathic medical school.

This study assessing osteopathic interest among MD students is unique; previous studies have surveyed DO students [3], or DO and MD residents [7–10]. Similar to MD family medicine residents [7–10], our MD students also expressed interest in OMT education. Our study also reported a strong preference for OMT delivery through hands-on labs, with online learning being the least preferred.

The strengths of this survey include a high response rate [15] as well as good representation across all years of medical

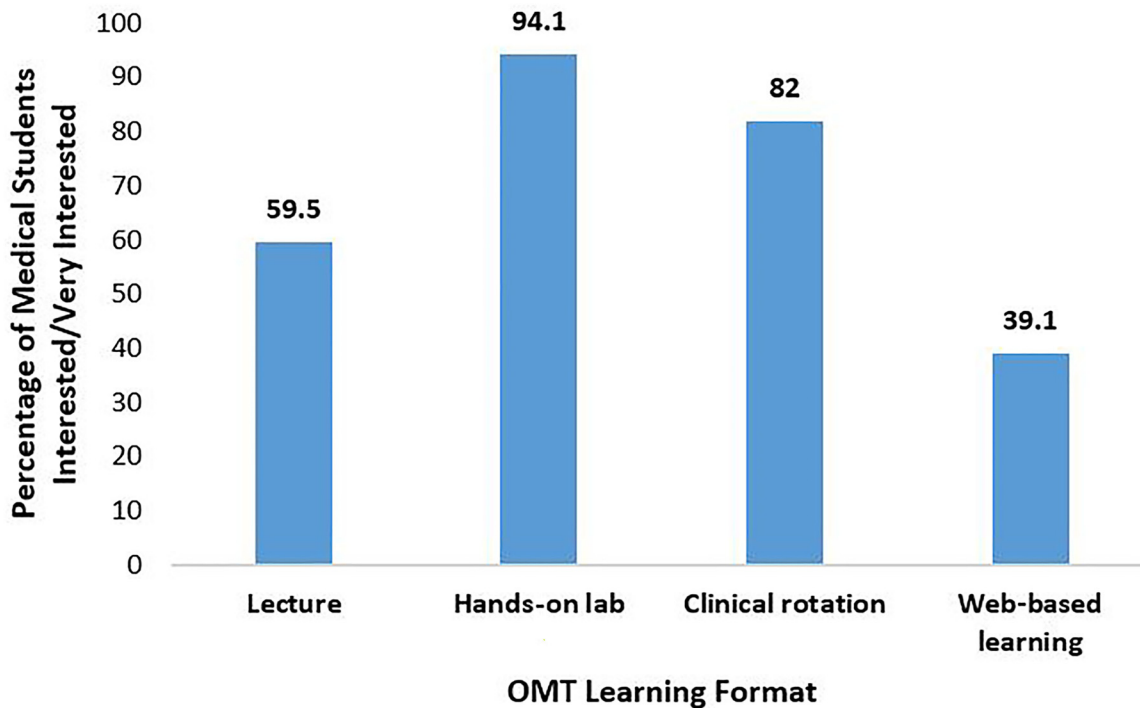


Figure 1: Medical student format preference for learning OMT presented as the percentage of participants who were interested or very interested in each format type.

students. The main limitation is its survey of students in a single medical school, limiting generalizability. However, as a large academic medical center, our institution may share characteristics with similar institutions. The current project suggests that other institutions may benefit from conducting their own survey. Another limitation is that we did not provide unique links to students; therefore, we could not track whether a student took a survey more than once. MD students who had applied to DO schools may be better informed regarding osteopathic medicine, therefore the responses regarding osteopathic interest potentially may have been affected by this subset of students who had applied to osteopathic schools prior to MD school matriculation.

MD students at our institution reported interest in learning osteopathic principles and techniques, which serves as a rationale for residency programs to pursue osteopathic recognition (OR). Any residency program considering pursuit of OR would likely find the results of this study pertinent to their MD residents. While our program was limited to a 2-week rotation per institution allotment, other medical institutions may benefit from a longer timeline, which can increase interest and exposure to OMT training. The authors do not currently have plans to expand on this study; rather, it has encouraged and informed the design of an introductory 2-week OMT elective curriculum for MD students.

Conclusions

At a mid-Atlantic allopathic academic medical center, we found evidence of low exposure but high interest in learning about osteopathic medicine and OMT among medical students. The project has encouraged and informed the design of an introductory 2-week OMT elective curriculum for MD students. These data may inform OMT-related policy or coursework at other allopathic medical schools.

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agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

Conflicts of interests: None reported.

Ethical approval: This study was reviewed and approved by the Penn State College of Medicine Institutional Review Board (STUDY#11809) and determined to be exempt.

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