RESEARCH ARTICLE

Evaluating the Effectiveness of Teaching Osteopathy in a Combined Didactics Setting

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Objectives: To evaluate the effects of teaching Osteopathic Manipulative Treatment (OMT) and Principles and Practice (OPP) at a combined didactic conference having both allopathic (MD) and osteopathic (DO) family medicine residents.

Methods: A self-administered pre/post-conference survey was distributed to 58 family medicine residents. Using a Likert-type scale, constructs measured included: the likelihood of using OMT on patients, the impact of session content, and confidence in medical knowledge of the topics presented. Demographic data was included (ie MD/DO status). The comparison of pre/post survey responses were performed for each question using the chi-square test, except when the sample size was small, where Fisher's exact tests were used. The p-value was set at 0.05.

Results: A total of 33 (66%) residents completed both pre/post-conference surveys. Enthusiasm towards OMT as a mode of treatment was high at baseline among residents. For PGY1s, the injection therapies session was most impactful (52.8%). For PGY2s & 3s, the Short Leg Syndrome lecture was most valuable (65.3%). MD/DO residents showed statistical significance in improving confidence in the Short Leg Syndrome Session ($p = 0.013$) and Shoulder Injection ($p = 0.012$). MDs showed a statistically significant increase in confidence for the treatment of Head and Neck Conditions ($p = 0.0485$).

Conclusion: ACGME unification will challenge programs pursuing osteopathic recognition to achieve a balance between on-boarding MDs and providing content for furthering the training of DOs. This study indicates MDs have moderate interest in learning OMM/OPP in a combined didactics setting and promotes further research in this area.

INTRODUCTION

Since the 1980s there has been a trend in graduate medical education of a significant number of osteopathic physicians (Doctors of Osteopathy, or DOs) (> 50%) receiving post-graduate training in traditional ACGME accredited programs.[1] Despite this, DOs continue to express interest in furthering their training in the philosophy of osteopathic medicine (Osteopathic Principles and Practice, or OPP).[2] In addition, training with DOs who perform osteopathic manipulative medicine (OMM) has fostered an increased interest for allopathic physicians (Medical Doctors, or MDs) to learn these skills.[1,3,4] In 2014, the American Osteopathic Association (AOA), the American Association of Colleges of Osteopathic Medicine (AACOM), and the Accreditation Council for Graduate Medical Education (ACGME) reached an agreement to unify all graduate medical education (GME) within the Single Accreditation System. Moving forward, as traditional osteopathic programs seek ACGME accreditation, the faculty at these programs will be tasked with developing ways to onboard and train MDs in OPP and OMM. Currently the Osteopathic Recognition Residency Committee (OR-RC) allows individual programs to determine the curriculum necessary for on-boarding MD residents.[5]

One of these traditional osteopathic programs is a community based hospital in a large city of the mid-western United States. Its Family Medicine (FM) residency has been a traditional osteopathic program for more than 36 years who received initial ACGME accreditation and Osteopathic Recognition (OR) status in 2016. This osteopathic hospital is one of several teaching hospitals in a large non-profit healthcare organization. Currently there are four Family Medicine residencies within this health care system, two that are osteopathic and two that are allopathic. Since its ACGME accreditation, the faculty of the osteopathic residency program has been working to determine the best method for onboarding MDs.

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At the same time, in effort to promote "systemness" within its training programs, the allopathic and osteopathic family medicine residencies created combined didactics three times a year to share resources in teaching. Each of the programs was assigned a topic upon which to organize a conference. These assigned topics aimed to capitalize on a strength of each program. The osteopathic programs joined forces to host a didactic session surrounding musculoskeletal topics that would benefit both MDs and DOs. The faculty utilized this opportunity to trial the introduction of OPP and basic OMM techniques to MDs, with the goal of creating balance between on-boarding MDs to new osteopathic topics while still teaching skills that would advance the training of DOs. It has been reported that programs achieving this balance are likely to be more productive in their osteopathic teaching.[6]

Because the combined didactic conferences were planned to continue for system's Family Medicine programs throughout the next academic year, the faculty designed a quality improvement (QI) initiative surrounding their first event. The event was titled "Holistic Approach to Musculoskeletal Care," and took place on May 10, 2017. Outcome measures for the event included:

AIM #1: Did the event affect attitudes towards future use of OMM as a form of therapy?

AIM #2: What were the most and least impactful topics to MDs and DOs collectively at the conference?

AIM #3: Did residents feel more confident in the use of learned techniques?

AIM #4: Was there a difference between MDs and DOs in the reported comfort level with the various topics and exams covered in the lectures?

Success of this pilot was determined by responses to surveys given to residents in attendance before and after the conference, measures of satisfaction with the event, and readiness to use learned techniques in the future. Reporting the outcomes from this study may provide information on how to improve the conference; as well as information on how to implement or improve MD on-boarding to traditional osteopathic programs.

The hypothesis for this project is that a combined didactics forum will be successful at improving the following:

Improving survey scores in residents' attitudes towards the use of OMM technique on patients

Improving the resident confidence scores in topics discussed at the conference

Demonstrating a measurable difference between DO and MD residents in their comfort level on musculoskeletal topics.

METHODS

This was a retrospective study evaluating pre- and post- conference surveys from the family medicine residents in attendance. This study was approved as a quality improvement (QI) project by System's Research Institute and thereby exempt of Institutional Review Board (IRB) review. The residents were asked their Healthcare System Identification Number on their surveys so the pre- and post-conference surveys could be linked. Completion of both the pre and post surveys were required in order to be included in statistical analysis. The event began with a brief introductory lecture outlining the history of osteopathy and basic terminology that would be referenced at the conference. The curriculum was divided into three introductory musculoskeletal topics for PGY1 residents and three advanced topics for PGY2 and 3 residents. Conference topics and a summary of lectures/their objectives are listed in Table 1 *(page 12)*. The specific topics chosen for the combined didactics were selected by a committee composed of program faculty and educators from the hospital simulation center. It was thought that the selected topics fostered a mix of both traditional musculoskeletal and osteopathic concepts. Both groups of learners received pre-conference survey questions identifying MD/DO status, the likelihood of using OMT on patients, and confidence in medical knowledge of the topics presented. Post-conference surveys repeated these questions with additional inquiry regarding the efficacy of the introductory lecture, the facility in which it was held, the format used for presentations, as well as the selection of the most/least helpful topics. Questions were formatted using the Likert-type scale (1= strongly disagree/not confident to 5 = strongly agree/extremely confident). By design, this project did not increase participant risk, with the exception of possible privacy/confidentiality concerns. To diminish this risk, only the principle investigator and research aides had access to the resident surveys, and all data was de-identified upon computer entry. All paper forms are stored in a locked facility with limited access (the office of the Principal Investigator).

Survey responses from the participants were reported using frequencies and percentages for categorical variables and means and standard deviations and/or medians and ranges for continuous variables. For the reporting purpose, we calculated the combined number (percent) of positive responses (agree + strongly agree or confident + extremely confident). The comparison of pre-post survey responses were performed for each question using the chi-square test. When the sample size was very small, Fisher's exact tests were used to detect statistical significance. The p-value for the significance for these was set at 0.05 for all tests.

RESULTS:

The resident population included in this study was from the four Family Medicine programs at the healthcare system. Combined, these programs currently train seventy-eight family medicine residents, post-graduate years one through three. There were a total of fifty-eight residents in attendance and 33 that had both pre and post surveys completed with a response rate of 66%. Response rate was 70.6% for PGY-1 residents (12/17) and 63.6% for PGY2&3 residents (21/33).

AIM #1: Did the event affect attitudes towards future use of OMM as a form of therapy?

After analysis of the data, it was discovered that the enthusiasm for OMT at baseline was high among both MDs and DOs at the conference *(Table #2, page 12)*. A large number of MDs (near 50%) and nearly all DOs in attendance (near 100%) would consider using OMT as a mode of treatment in their patients. However, the very high baseline support and smaller sample size lead to no statistical significance in improved attitudes as a result of the conference *(Table #2, page 12)*.

TABLE 1:

Conference Curriculum
(*Indicates those topics with Osteopathic Theory or Technique)

LECTURE TITLE	GROUP	LECTURE OBJECTIVES
*Lower Back Pain: A Holistic Approach	PGY-1	Report the red flags for low back pain conditions Practice and conduct a thorough lower back pain (LBP) evaluation using both allopathic and osteopathic techniques Practice two osteopathic techniques for treatment of LBP
*Anatomy and Exam of Knee and Shoulder	PGY-1	Identify the major anatomy of the knee and shoulder Perform a complete shoulder exam (allopathic + osteopathic), including provocative tests of the shoulder Perform a complete knee exam, including provocative tests of the knee
Injection of Knee and Shoulder Joints	PGY-1	List indications, risks, benefits, and technique for knee and shoulder joint injection Demonstrate safe and effective knee and shoulder injection therapy methods by means of simulated experience
*Head and Neck Pain	PGY-2 & 3	Discuss how osteopathic considerations are used for common conditions of the head and neck Discuss the pertinent anatomy and pathophysiology and use osteopathic diagnostic process to identify somatic dysfunction of the neck and head Perform three osteopathic techniques that can assist with conditions of the head and neck
*Osteopathic Mimics of Orthopedic Conditions	PGY-2 & 3	List osteopathic dysfunctions that can mimic other orthopedic conditions Practice osteopathic examination techniques to look for these dysfunctions in a hands-on session
*Short Leg Syndrome	PGY-2 & 3	Understand the various etiologies, clinical symptoms and appropriate treatment plan of leg–length discrepancy (LLD) List the difference between an anatomical and functional leg-length discrepancy Determine the amount of leg-length difference present in a patient

TABLE 2:

Attitudes of Residents Towards Osteopathic Manipulative Therapy (OMT) at the Conference, n/total (%):

	DO	*p-value*	MD	*p-value*	DO + MD	*p-value*
PGY1 likelihood of using OMT on patients:						
pre-conference survey	6/6 (100)	---	3/6 (50)	0.99	9/12 (75.0)	0.99
post-conference survey	6/6 (100)		3/6 (50)		9/12 (75.0)	
PGY2&3 likelihood of using OMT on patients:						
pre-conference survey	12/14 (85.7)	0.482	4/9 (44)	0.99	14/21 (66.7)	0.495
post-conference survey	14/4 (100)		4/9 (44)		16/21 (76.2)	

DO = Doctor of Osteopathy; MD = Medical Doctor; PGY1 = Post-graduate Level year 1;
PGY2&3 = Post-graduate Level year 2&3 collectively; --- = sample size too small to calculate chi-square, p = 0.05

TABLE 3:

Post-Conference Survey Results on the Impact of Sessions (MD + DO collectively), n (%)

	NAME OF SESSION:					
	ANATOMY & EXAM	INJECTION TECHNIQUE	LOW BACK PAIN	OSTEOPATHIC MIMICS	SHORT LEG SYNDROME	HEAD & NECK PAIN
PGY2&3 Attitude towards Topics presented:						
MOST impactful session	4/13 (30.8)	7/13 (53.8)	2/13 (15.4)	XXX	XXX	XXX
LEAST impactful session	2/10 (20.0)	3/10 (30.0)	5/10 (50.0)	XXX	XXX	XXX
PGY2&3 Attitude towards Topics presented:						
MOST impactful session	XXX	XXX	XXX	7/23 (30.4)	15/23 (65.3)	1/23 (4.3)
LEAST impactful session	XXX	XXX	XXX	6/20 (30.0)	4/20 (20.0)	10/20 (50.0)

DO = Doctor of Osteopathy; MD = Medical Doctor; PGY1 = Post-graduate Level year 1;
PGY2&3 = Post-graduate Level year 2&3 collectively; XXX = Not applicable

AIM #2: What were the most and least impactful topics to MDs and DOs collectively at the conference?

When analyzing those lectures most and least impactful (MDs and DOs collectively) – the results of were mixed (Table #3). For PGY1 level residents, the injection therapies session was most helpful (53.8%). Interestingly, this session did not introduce osteopathic theory or technique. For upper level residents, the Short Leg Syndrome lecture was felt most valuable (65.3%). This topic, on the other hand, was heavily based on OPP theory. The least valued sessions were Low Back Pain: Holistic Approach (PGY1, 50%), and Head and Neck Pain (PGY2/3, 50%) *(Table #3)*.

AIM #3: Did residents feel more confident in the use of learned techniques?

For collective MD and DO residents, there was a statistically significant improvement in confidence in the Short Leg Syndrome Session (p = 0.013) and Shoulder Injection (p = 0.012) *(Table #4 and #5, page 14)*. Other sessions did not reach statistical significance for improved confidence.

AIM #4: Was there a difference between MDs and DOs in the reported comfort level with the various topics and exams covered in the lectures?

When comparing MD and DO results – allopathic physicians had shown a statistically significant increase in confidence for the treatment of Head and Neck Conditions after the course (p = 0.0485) *(Table #4 and #5, page 14)*. For all other sessions, there was no statistically significant difference in the confidence level before or after the conference in musculoskeletal topics between MD and DO residents.

DISCUSSION:

Graduate Medical Education is at a transformational place in history. Traditional osteopathic programs are tasked with creating methods to train learners that have not been exposed to OPP or OMM. Educators may look to large osteopathic teaching institutions like ours to create an on-boarding process to train these "new" learners. Achieving the balance between teaching MDs basic osteopathic skills while still teaching topics that are useful to DOs at the combined didactics setting created challenges for the conference faculty. Graduates of osteopathic medical schools have received an average of 200-300 hours of training in osteopathic principals in practice (OPP) and Osteopathic Manipulative Medicine (OMM) technique even before the first day of training in a residency.[7] Nonetheless, a review of the literature reveals that balance is possible, as allopathic programs have implemented the teaching of OPP/OMM to a limited number of residents (MDs and/or DOs) with some success.[1,4,6,8] Being the only Osteopathic Recognized Family Medicine program in region at the time of the study, our program was assigned to teach musculoskeletal medicine for the combined didactics.

Many programs look at Osteopathic Recognition as a method to recruit highly-skilled learners. With the advent of Single Accreditation some traditional ACGME accredited programs have sought osteopathic recognition. There is high enthusiasm for alternative medicine among younger learners which may be one of the reasons for the programs seeking recognition.[1,2] This eagerness was seen at the baseline of combined didactics where learners were enthusiastic regarding the use of OMT on patients. Though the enthusiasm among MDs did not increase by virtue of the conference, survey comments suggested additional hands on sessions could potentially increase their likelihood of future use. This may give osteopathic programs reassurance to become Osteopathically Recognized in the Single Accreditation System and to continue to work towards an onboarding process for MD medical students to learn osteopathic techniques. The authors believe that the founder of osteopathy, Andrew Taylor Still, MD, DO, would have applauded this inclusiveness.

The combined didactic setting produced the following results. Injection techniques, found to be the most beneficial session by PGY1 residents, was not focused on OPP/OMM. Notably, the session was taught in a state of the art simulation center using cadaveric shoulder and knee specimens. This session provided a real hands-on approach to skills that beginning learners seem to praise regardless of MD or DO status.[9] On the other hand, higher

TABLE 4:

Confidence among Post graduate level-1 (PGY1) level residents according to session, n/total (%):

SESSION ASSESSED:	DO	*p-value*	MD	*p-value*	DO + MD	*p-value*
Performance of shoulder exam:						
Pre-Conference Survey	4/6 (66.7)	---	1/6 (16.7)	0.545	5/12 (41.7)	0.214
Post-Conference Survey	6/6 (100)		3/6 (50.0)		9/12 (75.0)	
Performance of knee exam:						
Pre-Conference Survey	5/6 (83.3)	---	2/6 (33.3)	0.242	7/12 (58.3)	0.155
Post-Conference Survey	6/6 (100)		5/6 (83.3)		11/12 (91.7)	
Performance of shoulder injection:						
Pre-Conference Survey	3/6 (50)	0.182	0/6 (0.0)	0.061	3/12 (25.0)	0.012
Post-Conference Survey	6/6 (100)		4/6 (66.7)		10/12 (83.3)	
Performance of knee injection:						
Pre-Conference Survey	5/6 (83.3)	---	1/6 (16.7)	0.242	6/12 (50.0)	0.193
Post-Conference Survey	6/6 (100)		4/6 (66.7)		10/12 (83.3)	
Examining patient with Low Back Pain:						
Pre-Conference Survey	6/6 (100)	---	1/6 (16.7)	---	7/12 (58.3)	0.99
Post-Conference Survey	0/0		2/6 (33.3)		8/12 (66.7)	
Performing Manual Medicine for Low Back Pain:						
Pre-Conference Survey	6/6 (100)	---	0/6 (0.0)	0.454	6/12 (50.0)	0.68
Post-Conference Survey	6/6 (100)		2/6		8/12 (66.7)	

DO = Doctor of Osteopathy; MD = Medical Doctor; --- = sample size too small to calculate chi-square; p = 0.05
Confidence included "extremely confident" and "confident" responses on surveys, remaining responses were included as not confident.

TABLE 5:

Confidence among PGY2&3 level residents according to session, n/total (%):

SESSION ASSESSED:	DO	*p-value*	MD	*p-value*	DO + MD	*p-value*
Identifying Osteopathic Mimics:						
Pre-Conference Survey	10/12 (83.3)	---	0/9 (0.0)	0.471	10/21 (47.6)	0.757
Post-Conference Survey	9/12 (75.0)		2/9 (22.2)		11/21 (52.4)	
Managing Short Leg Syndrome:						
Pre-Conference Survey	8/12 (66.7)	0.093	0/9 (0.0)	0.0824	8/21 (76.2)	0.013
Post-Conference Survey	12/12 (100)		4/9 (44.4)		16/21 (23.8)	
Managing Head and Neck Pain:						
Pre-Conference Survey	12/12 (100)	---	1/9 (11.1)	0.0485	13/21 (61.9)	0.079
Post-Conference Survey	12/12 (100)		6/9 (66.7)		18/21 (85.7)	

DO = Doctor of Osteopathy; MD = Medical Doctor; --- = sample size too small to calculate chi-square; p = 0.05
Confidence included "extremely confident" and "confident" responses on surveys, remaining responses were included as not confident.

level residents were most impacted from the Short Leg Syndrome session, a session highly focused on OPP theory. The Short Leg Syndrome session may have generated this response as the OPP theory introduced with this topic was potentially new to MDs and a topic that DOs would have been introduced to in their medical school training. Of all the sessions taught at the combined didactics, in-depth knowledge of OMM technique was not necessary to assess patients for short leg and provide treatment that can have a very impactful return.[10] The least valued sessions (Head and Neck pain for PGY1, and Low Back Pain for PGY2/3) could be due to lecture presenters for these sessions attempting to fit too much information in the allotted time frame. A few post-conference survey comments suggested that allowing more time for hands-on practice could have helped improve the view of these sessions in the future.

When comparing DO and MD physicians, no difference in confidence was observed among topics, with the exception of the Head and Neck pain session. After the course completion, MDs had a statistically significant increase in confidence for the treatment of head and neck conditions – which may be due to the head and neck area being easily treated with indirect OMT technique. For example, these techniques have been shown to be easily taught to beginning learners for headache pain.[8] Also, this session was taught by a faculty member who had completed an undergraduate medical education (UGME) OMM fellowship. UGME OMM fellows have a background of teaching learners with little OMM experience, and this may help give them the skills to teach MDs in a combined didactics setting.

Strengths of this study include the novelty of this topic, the initial insight it provided in on-boarding processes, and the high completion rates of the surveys by the residents at the conference. Weaknesses include the possibility of bias and the small number of overall residents surveyed. The majority of the DO residents in attendance were from our osteopathic program and could introduce bias into the results. Ongoing studies on the combined didactics format to add to the sample size will be challenging for our program due to a planned change in format of which the authors were unaware of at initiation of this project.

CONCLUSIONS:

As indicated above, this topic is rather timely. This study produced mixed results that highlight the need for future research. To date, only 95 programs across the country have applied for OR status and there is a call for more to do the same.[11] This study indicates that MD residents are certainly open to learning OMM and OPP, but a formal process for on-boarding these residents into an OR program is still in its infancy as mentioned in ACOFP meeting minutes.[12] The authors advocate the OR-RC create standards that each program can follow to foster the enthusiasm that MD residents possess, and yet not undermine the many hours of OMM/OPP education that DOs have achieved. It is thought that in this process the involvement of a DO faculty member who has had an UGME fellowship in OMM may be advised based on this study. Based on this small study, standards may also consider the order and types of topics introduced to MDs, simplifying teaching points, and making the training interactive. Such changes might also make a combined didactics event successful for osteopathic programs considering MD residents for future matriculation.

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