Telemedicine exposure and comfort among medical students

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ABSTRACT

Given the changes to healthcare delivery and increasing popularity of telemedicine in the face of the COVID-19 pandemic, a survey was designed to better understand students exposure to, comfort with, and perceptions of telemedicine as received from their medical education. The 21-question survey polled 213 students—ranging from first to fourth year osteopathic medical students (OMS1-OMS4)—at Western University of Health Sciences College of Osteopathic Medicine of the Pacific and Pacific Northwest (COMP and COMP-NW). The survey serves as a small snapshot revealing how telemedicine is perceived and how it may be an important aspect of clinical medical education.

OBJECTIVE

The main objective for this survey was to get an impression of medical students' exposure to, comfort with, and perceptions of telemedicine as received from their medical education.

INTRODUCTION

The coronavirus (SARS-CoV-2, COVID-19) has required the medical community and medical systems to adapt in numerous ways from working through supply chain logistics and physician shortages to reducing exposure while maintaining patient visits. With mandates to maintain social distancing, it has become increasingly difficult to work within the standard mode of practice (i.e. office visits) of delivering care. As a result, individual physicians, entire hospital systems, and medical schools have needed to adapt to an online/virtual method of delivery revealing a possible need for more telemedicine/emedicine education. The survey is focused on medical students and their exposure to telemedicine/e-medicine and their levels of comfort with this burgeoning system of delivery.

STUDY DESIGN

The design of the study was self-reported survey data that could be aggregated and interpreted to understand overall trends in exposure and comfort with telemedicine that could be broken down by year in school.
A 21 question survey was developed (3 questions focusing on background information, 12 questions gauging exposure to and comfort conducting telemedicine visits, and 6 fields for ranking important skill-sets, fields of application, and perceived importance/interest in telemedical education).
The survey was hosted via Qualtrics and distributed to COMP/COMP-NW students via student email and social media for self-reporting.

The data was collected and analyzed to understand medical student opinions and views relating to telemedicine and their comfort utilizing telemedicine visits compared to standard in-person visits.

RESULTS

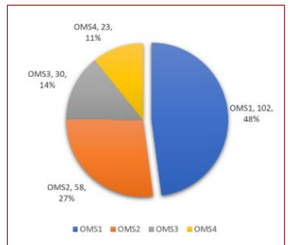

Figure 1: breakdown of responses by school year

213 medical students responded to the survey with 48% of responses coming from OMS1 students (Figure 1). Due to the timing of the survey, OMS1 students had not received any significant medical education; subsequently, their responses (102) were excluded from data interpretation, especially when considering student comfort with conducting in-person and telemedicine visits (Questions 1, 3, 8, and 9, Fig. 2), since they would not accurately represent the state of medical education at COMP and COMP-NW. Because of that 111 responses remained.

In response to Question 1, whether clinical skills had been a part of their clinical education to date, the majority of students (78) selected ≥5, at least "Somewhat Agree" for a mean of 5.31 (Fig. 2). In response to whether telemedicine had been a part of their clinical medical education, the majority of responses from OMS2 students were at least "Somewhat Agree," OMS3 student responses centered between "Somewhat Disagree" and "Neither", while the majority of responses from OMS4 students were "Disagree" (Fig. 2)

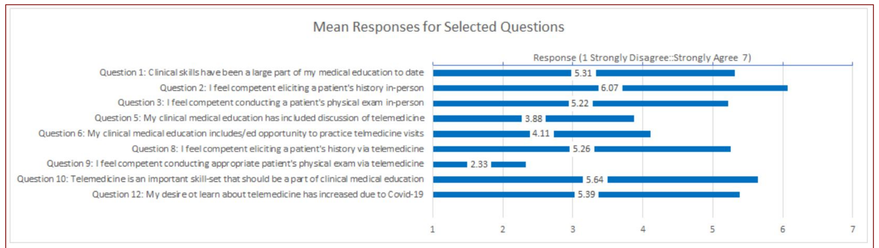

Figure 2: Responses to selected questions

Questions 2 and 3 asked students whether they felt competent in eliciting a patient's history and conducting a physical exam (PE) in-person; for history taking, 96% of responses were ≥5 ("Somewhat Agree") with a mean response of 6.07 ("Agree") and, for conducting the PE, 76% were ≥5 ("Somewhat Agree") with an overall mean of 5.22 ("Somewhat Agree"). The same questions were posed in reference to telemedicine visits (Questions 8 and 9, Fig. 2). For competency in taking a patient's history via telemedicine, 79% of responses were ≥5 ("Somewhat Agree") with a mean of 5.26 ("Somewhat Agree") while only 14% were ≥5 ("Somewhat Agree") for conducting appropriate PEs, with an overall mean of 2.33 ("Disagree").

78% of student responses indicated thoughts that telemedicine skills should be part of the curriculum, with a mean report of 5.64 which falls between "Somewhat Agree" and "Agree" (Question 10, Fig. 2). Additionally, 77% of student responses indicated that the current COVID-19 pandemic has increased the desire to learn more about telemedicine, mean of 5.39 ("Somewhat Agree") (Question 12, Fig. 2).

Students were also asked to rank characteristics they perceived as important for conducting in-person versus telemedicine visits (Fig. 3). The average rank of each characteristic was compared between the two settings (Table 1). For both in-person visits and telemedicine visits, "clarity in communication" was ranked as the most important trait; "empathy" was the closest second for in-person visits, mean position of 3.06, while "technologically savvy" was ranked as second most important for telemedicine visits; ranked as third most important for in-person was "effective with time" and, for telemedicine visits, "adaptability" (Table 1).

Characteristic	In-person mean rank	Std	Telemedicine mean rank	Std
Clarity in communication	1.60	±0.99	1.85	±1.26
Technologically savvy	7.12	±1.98	2.85	±2.03
Adaptability	4.73	±1.65	4.16	±1.69
Effective with time	4.06	±2.02	4.38	±2.00
Empathetic	3.06	±1.60	4.49	±2.00
Structured	5.33	±1.98	5.66	±1.67
Concise	6.25	±1.82	6.44	±1.53
Decisive	6.66	±1.92	7.29	±1.46
Osteopathic approach	6.19	±2.87	7.88	±2.07

Table 1: Mean ranks for Question 20 and 21--What character trait is most important for in-person versus telemedicine visits

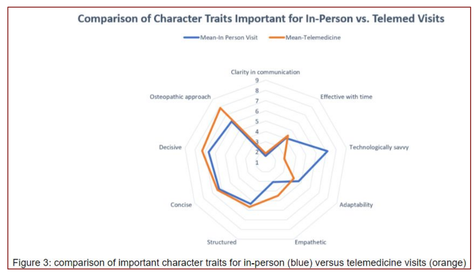

Figure 3: comparison of important character traits for in-person (blue) versus telemedicine visits (orange)

DISCUSSION

The survey works as a snapshot on the current experience with and attitudes towards telemedicine in clinical medical education among a small representation of COMP and COMP-NW students. Telemedicine appears to be slowly working its way into medical education as well as into the purview of the osteopathic students; especially among the more recent classes (OMS2 compared to OMS4). Overall there is a positive attitude towards learning how to conduct and integrate telemedicine visits and an increased interest in learning it due to the COVID-19 pandemic. There remains a large gap both in knowledge of applicability and confidence in carrying out this newer form of patient interview and evaluation.

CONCLUSION

Responses to this survey help elucidate perceptions and comfort with telemedicine among physician-in-training. Telemedicine has seen a massive rise in visibility and application in light of the social distancing concerns imposed by the COVID-19 pandemic; this shift has even worked itself into the scope of osteopathic medical students not only with them reporting an increased interest in learning more about telemedicine but also in perceiving it as an important part of their clinical medical education. Students have increasingly received more exposure to these virtual experiences in their medical education, but student comfort in conducting telemedicine visits lags behind their comfort with in-person visits. This survey suggests a relative ease in translating history taking skills from an in-person visit to a virtual one, but difficulty in performing a physical exam on a patient who is not physically present in the same room. Specific training and creativity related to the physical exam is advisable to help students understand how they can effectively use this tool. Finally, the osteopathic approach and empathy are two qualities that appear to be less valued among students during telemedicine visits. Like the physical exam, dedicated instruction in how to apply both empathy and the osteopathic principles to a telemedicine visit would be advantageous. A future survey to gather student perspectives in the next year is warranted to compare results and note changes of comfort with telemedicine visits as it becomes a larger part of the clinical education curriculum. There is a unique opportunity posed by the COVID-19 pandemic to learn new skills that can help distinguish the future cohort of osteopathic physicians.

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