

Addressing Global Health Competencies Through a Virtual Elective During The COVID-19 Pandemic

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Background and Hypothesis

Global health, which is rooted in international health, public health and tropical medicine, is largely defined as the "global or worldwide health status and determinants of health."^{1,2} In medicine, globalization has brought a vast increase in knowledge, resources, and capital but also introduced diseases from around the world. As globalization creates a new space that transcends physical borders, it is important to acknowledge the strong influences of events occurring around the world. The COVID-19 pandemic has highlighted the importance of global health education and reflected this new globalized era, one in which happenings in countries seemingly distant can have far-reaching, global impacts. Thus, it is pertinent for medical education to address healthcare disparities and inequities that are both within their own borders and overseas. Furthermore, experiential learning plays a crucial role in global health education which in turn diversifies and enriches medical education. At Touro University California College of Osteopathic Medicine, global health education is typically offered as an international rotation. In the face of the global pandemic due to Covid-19, the Global Health department has adapted its curriculum to deliver a fully virtually elective course that addressed (1) learning how healthcare providers adapt and practice in a resource-constrained setting, (2) articulate barriers to health and healthcare in community-based care, (3) become familiar with common ethical issues and challenges that arise in working within diverse economic, political, and cultural contexts as well as while working with vulnerable populations in low resource settings to address global health issues, and (4) describe different national models of health systems for provision of healthcare and their respective effects on health and healthcare expenditure. Our team sought to understand whether the COVID-19 pandemic, and subsequent transition to virtual learning, has affected global health learning. We hypothesized that the virtual curriculum would be sufficient at engaging and supporting medical students in their global health education.

Methods

A total of 25 first- and second-year medical students enrolled in the elective, which consisted of 12 one-hour live zoom sessions over a duration of 4 months in the Spring of 2021. One week prior to each session, students were provided with pre-recorded video presentations of study materials and other supplemental information pertaining to the topic. This was followed by a live zoom interactive session where faculty experts and students actively engaged in discussing the global health topics and clinical case scenarios. We sought to determine the effectiveness of the virtual sessions and the overall learning outcome by 2 methods: quantitatively by the same self-proctored multiple-choice quiz before and after each of the last 8 sessions, and qualitatively by true-false surveys at the end of each of the last 10 sessions. Pre-session quizzes were due by midnight of the day before the live session. Both post-session quiz and survey questionnaire were due by midnight on the same day as the session. Paired student T-test was used to evaluate class performance differences between the pre- and post-session quizzes, and P-value less than 0.05 was regarded as statistically significant. The survey after each session consisted of 6 questions with either True or False response (Table 2).

Results

When students were given self-study materials for a week before self-proctored multiple-choice quizzes, they scored a mean of 56.33% with standard deviation of 1.72% (Figure 1) with individual quiz scores ranging between 42.22% and 79.53% (Figure 2). After engaging with international and local experts in global health studies and clinical medicine via live zoom sessions, their performance significantly improved a mean score of 89.55% ($p < 0.001$) with standard deviation of 1.78% with individual scores ranging between 69.08% and 100% (Figure 2). Surveys regarding students' attitude towards the sessions and their confidence in discussing the covered topics showed affirmative response rates between 95.9% and 99.4% (Figure 3). Affirmative response rates to negative survey questions were 0.74% and 4.93%. The overall survey response rate was 96.7%.

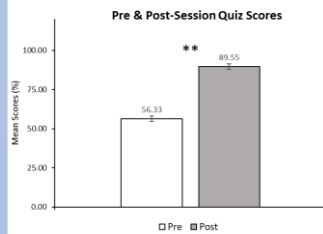


Figure 1. Students' average performance between pre- and post-session quizzes. **, $P < 0.0001$; error bars, standard deviation.

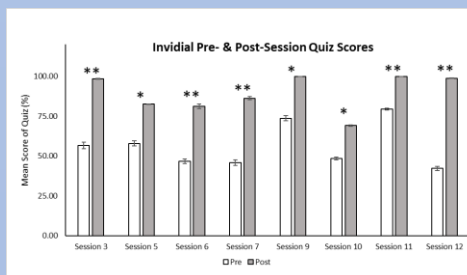


Figure 2. Average performance of students in individual pre- and post-session quizzes. *, $p < 0.001$; **, $P < 0.0001$; error bars, standard deviation.

Session	TRUE response (%)										
	3	4	5	6	7	8	9	10	11	12	Mean
Question 1	100	100	100	100	100	100	100	100	100	93.33	99.33
Question 2	100	100	100	100	100	n/a	100	100	100	93.33	99.26
Question 3	0	0	0	0	0	n/a	0	0	0	6.67	0.74
Question 4	100	100	100	100	100	100	100	93.75	100	100	99.38
Question 5	14.29	0	4.55	0	0	6.25	11.76	12.5	0	0	4.93
Question 6	85.71	100	90.91	100	100	100	94.12	93.75	94.12	100	95.86
Survey rate	100	100	100	100	100	66.67	100	100	100	100	96.67

Table 1. Affirmative response rates and overall survey-response rates in individual post-session survey questions.

Question #	Survey questions
1	The session provided me with new information on the topic in lower- and middle-income countries
2	The session added to my existent knowledge on the topic in lower- and middle-income countries
3	The session DID NOT add any new information
4	I believe I will be utilizing the knowledge I gained in my future practice as healthcare provider
5	It is unlikely that I will be using this information in my future work as healthcare provider
6	I feel confident to discuss the topic in resource limited clinical setting

Table 2. Post-session survey questions. #, number.

Conclusion

We conclude that virtual learning provided an effective platform to address specific global health competencies during the COVID-19 pandemic, in lieu of experiential learning opportunities. In addition, this study signifies the role of global health in diversifying osteopathic medical education and further expanding cultural and social components of medical practice, where patients are assessed by not only their bodily symptoms but also their spiritual and cultural aspects.

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