Teaching Teledermatology: A Simulation Pilot for Health Professional Students

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Abstract. We developed a teledermatology simulation to give medical and physician assistant students practice with live videoconferencing and store-and-forward workflows. The simulation included (1) pre-session reading; (2) a brief teledermatology didactic; (3) a simulated encounter with a standardized patient; and (4) faculty-led debriefs. The faculty observed students during the simulation and distributed a post-session learner satisfaction survey. Although students had mixed feelings about the simulation, 88% said the workshop met or exceeded expectations.

Keywords. Telehealth, telemedicine, simulation, medical education, dermatology

1. Introduction

At the University of Oklahoma-Tulsa School of Community Medicine (OUSCM), we developed a medical curriculum on primary care telemedicine. Considering that 10% of primary care visits are for dermatologic complaints, we dedicated one workshop to teledermatology so students could practice the virtual skin exam [1]. There are few reports of simulations for teledermatology. Therefore, we developed and piloted our own scenario of a patient presenting with tinea versicolor. In this abstract, we (1) describe our simulation; (2) report preliminary findings; and (3) share lessons learned.

2. Methods

We based simulation learning objectives on telemedicine competencies published by the Association of American Medical Colleges [2]. Participants (N = 47) included third-year medical students and second-year physician assistant students.

The educational activity included didactics (i.e., dermatology in primary care and teledermatology) and a simulation adapted from work by Palmer et al. [3]. Our simulation was of a patient presenting with tinea versicolor. We gave students a short, written history and placed digital images of the simulated patient's skin condition on the workstation desktops. We expected students to review the history and images, interview standardized patients (SP) using video conference, and propose a treatment plan. We

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conducted this activity at our simulation center, which has 10 exam rooms, each with broadband Wi-Fi; telemedicine workstations; and video conferencing software. We used a post-session survey to measure student satisfaction with the simulation [4]. We scored items on a 5-point Likert scale with anchors of "strongly disagree" to "strongly agree".

3. Results

Forty-seven students completed the module; 26 completed the post-session survey (**Figure 1**). Of those who responded, students perceived some aspects of the simulations more positively (e.g., clear objectives) than others (e.g., managing technical challenges).
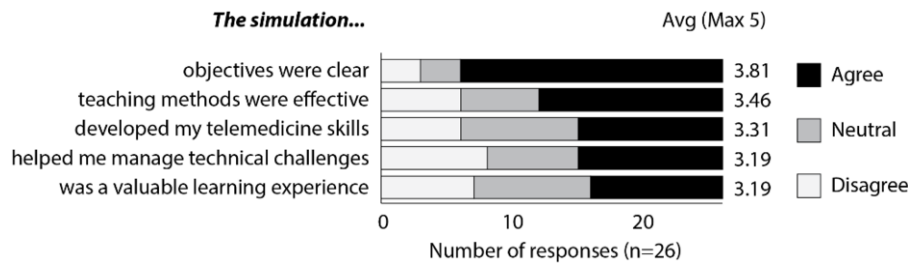

Figure 1. Results of our post-session survey.

4. Discussion

While most students completed the virtual encounter successfully, several had difficulty finding the digital images saved on the workstation. We observed students use several strategies to manage diagnostic uncertainty. For example, many proposed a working diagnosis and preliminary plan but arranged a future in-person visit to conduct additional tests. Most students found the session to be a valuable learning experience. During debriefings, many said they favored a live encounter over telemedicine when seeing patients, but most said they preferred telemedicine if seeking care as a patient. This simulation demonstrates a practical and effective strategy for teaching teledermatology.

References

[1] Farr MA, Duvic M, Joshi TP. Teledermatology During COVID-19: An Updated Review. Am J Clin Dermatol. 2021 Jul;22(4):467-475. doi: 10.1007/s40257-021-00601-y. Epub 2021 Apr 9. PMID: 33835345; PMCID: PMC8032846.
[2] AAMC, Telehealth Competencies Across the Learning Continuum, in, AAMC, Washington, DC, 2021.
[3] Palmer RT, Rdesinski RE, Galper A, Cantone R, Shaver J, Symkowick M, Biagioli FE. Assessing the impact of a telemedicine simulation on clinical learners. J Fam Med Community Health. 2017;4(5):1120..
[4] Levett-Jones T, McCoy M, Lapkin S, Noble D, Hoffman K, Dempsey J, Arthur C, Roche J. The development and psychometric testing of the Satisfaction with Simulation Experience Scale. Nurse Educ Today. 2011 Oct;31(7):705-10. doi: 10.1016/j.nedt.2011.01.004. Epub 2011 Feb 2. PMID: 21288606.