Teaching nursing management of diabetic ketoacidosis: a description of the development of a virtual patient simulation

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Abstract

Virtual simulation is an emerging educational approach around the world. Virtual patient simulation is an interactive computer simulation that recreates real-world scenarios with the objectives of training, education, and assessment for healthcare providers. However, many health professions education institutions are still not using it, or misusing it may be due to ignoring the way of approaching it. This article outlines the process of creating a virtual patient simulation for teaching diabetic ketoacidosis nursing management to undergraduate nursing students in compliance with healthcare simulation standards of best practice™.

After selecting the International Nursing Association for Clinical and Simulation Learning standards of best practice as guidelines for constructing a virtual simulation-based experience, an account was created on the Medicactiv platform. The guidelines for simulation design are made up of eleven criteria. These criteria concern needs assessment, objectives, simulation format, scenario, fidelity types, facilitative approach, prebriefing, debriefing, evaluation, preparation materials, and simulation pilot-testing. A scenario teaching diabetic ketoacidosis nursing management was first built on the Medicactiv authoring tool and then integrated into the platform. The main components of the authoring tool include simulation data, patient interview settings, consultation information, and author's information.

As a result, a virtual patient with diabetic ketoacidosis has been generated and is awaiting a consultation with a nurse to identify his diagnosis and to assure his reception, conditioning, follow-up, and management of his condition. The participating undergraduate nursing student will perform a history and clinical examination before completing a series of multiple-choice questions.

This research provides a guide for nursing educators who hesitate to use virtual simulation as an educational tool. The next step in this research will be to conduct a randomized controlled trial on this virtual patient simulation.



Fig. 1: Screenshot of the virtual patient.

Image



Recent Publications (minimum 5)

1. Watts, P. I., McDermott, D. S., Alinier, G., Charnetski, M., Ludlow, J., Horsley, E., Meakim, C., & Nawathe, P. A. (2021). Healthcare Simulation Standards of Best PracticeTM Simulation Design. Clinical Simulation in Nursing, 58, 14–21. https://doi.org/10.1016/J.ECNS.2021.08.009
2. Zaragoza-García, I., Ortuño-Soriano, I., Posada-Moreno, P., Sánchez-Gómez, R., & Raurell-Torredà, M. (2021). Virtual Simulation for Last-Year Nursing Graduate Students in Times of Covid-19: A Quasi-Experimental Study. Clinical Simulation in Nursing, 60, 32–41. https://doi.org/10.1016/J.ECNS.2021.07.003
3. Shorey, S., & Ng, E. D. (2021). The use of virtual reality simulation among nursing students and registered nurses: A systematic review. Nurse Education Today, 98, 104662. https://doi.org/10.1016/J.NEDT.2020.104662
4. Rouleau G, Pelletier J, Côté J, Gagnon MP, Martel-Laferrière V, Lévesque R, et al. Codeveloping a Virtual Patient Simulation to Foster Nurses' Relational Skills Consistent With Motivational Interviewing: A Situation of Antiretroviral Therapy Nonadherence. J Med Internet Res [Internet]. 2020 Jul 1 [cited 2022 Oct 7];22(7). Available from: /pmc/articles/PMC7391166/
5. MedicActiV | La plateforme de formation des professionnels de santé par simulation numérique. (n.d.). Retrieved September 28, 2022, from https://www.medicactiv.com/fr/



Mrs. Fatimazahra MAHOU is a Ph.D. student who is interested in simulation-based healthcare education in its virtual forms, such as virtual patient simulation and serious games.

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