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Exploring the Use of AI-Enhanced Virtual Reality in Teaching and Evaluating Communication Skills in Urology: A Pilot Study

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Abstract

Introduction: Effective communication is a core competency in healthcare, yet traditional training methods often face limitations in realism, scalability, and learner engagement. This study evaluated the perceptions of healthcare professionals regarding the use of artificial intelligence (AI)-enhanced virtual reality (VR) simulations for communication skills in urology.

Methods: A total of 45 healthcare professionals participated in this study using (AI)-enhanced virtual reality (VR) haematuria role play via Bodyswaps© software. Participants completed pre- and post-simulation questioners to measure perceptions of AI-VR's potential to improve communication skills, usefulness of the simulation, agreement with AI-generated feedback, realism compared to clinical practice, and overall enjoyability. Descriptive statistics, tow-sample test and one-sample t-tests were used to analyse the data, with significance set at $\alpha = 0.05$.

Results: Participants reported a moderate belief in the potential of AI-VR to improve communication skills prior to the simulation ($M = 3.844$, $SD = 0.9034$, $t(44) = 28.55$, $p < 0.0001$). Post-simulation evaluations showed significantly increased perceptions of usefulness ($M = 4.636$, $SD = 0.6851$, $t(43) = 44.89$, $p < 0.0001$). High levels of agreement with AI feedback ($M = 4.2$, $SD = 0.9195$) and its usefulness ($M = 4.5$, $SD = 0.6949$) were also reported. Participants positively rated the realism of the simulation ($M = 4.159$, $SD = 0.9135$) and found the experience enjoyable ($M = 4.465$, $SD = 0.8549$), with all results reaching statistical significance ($p < 0.0001$).

Conclusion: The findings suggest that AI-enhanced VR simulations are a highly effective and engaging tool for communication skills training in healthcare. The strong positive responses across all measured domains support further integration of immersive AI technologies into clinical education.