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Game-based learning to enhance clinical reasoning skills in health professions education

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Purpose In the Netherlands' healthcare environment, shaped by an aging population, health professionals frequently face complex clinical reasoning (CR) scenarios. Influences such as multimorbidity, technological advancements, and time constraints significantly impact their daily practice (Audétat et al., 2019; Scott, 2009). This emphasizes the need for adequate CR instruction in health professions education to prepare them for these challenges and reduce potential patient safety risks. Moreover, the increasing shortage of nurses, potentially leading to inadequate guidance for future nurses, highlights the urgency for innovative solutions to enhance exposure to CR scenarios. Game-based learning (GBL) emerges as a promising approach to support CR instruction in an immersive and safe environment (Koivisto et al., 2017). However, clarity regarding available games and the associated educational strategies for teaching CR remains lacking. Recognizing the pivotal role of reflection in education for effective learning, a similar role is expected in GBL. This study aims to explore available games to support the teaching of CR among future healthcare professionals and to understand how to incorporate reflection within or around these gaming experiences. **Method** First, a scoping review was conducted following PRISMA-ScR guidelines. We systematically searched 'Scopus', 'PubMed', 'CINAHL', and 'ERIC' databases using the search terms 'game-based learning', 'health professions education', 'clinical reasoning'. Three reviewers independently screened titles and abstracts based on preset criteria. Secondly, qualitative semi-structured interviews were then conducted with health professions educators using GBL in teaching CR. Thematic analysis of data was performed by two researchers. **Results and Discussion** GBL tools to teach CR in health professions education could be divided into two categories: computer-based (n=10) and real-life games (n=9), with one computer-based game featuring added virtual reality functionality. Computer-based games mainly comprised simulation games, while real-life games included escape rooms and board games. Additionally, only six games integrated reflection as a CR step, with only four describing an educational model. Educators can facilitate learners' reflection before, during and after game-based experiences to support CR, with options including self-reflection, peer-reflection, and instructor-led reflection. In our initial research, we identified a broad application of GBL to support the teaching of CR in health professions education, particularly involving older adults. Further research is necessary to understand the current practices and perspectives of health professions educators regarding the facilitation of learners' reflective practices, both before, during, and after engaging with game-based experiences. This forthcoming research, aimed at exploring the role of reflection in GBL for teaching CR, will be initiated in the coming months and subsequently discussed.

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