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Rheum4games: a game-based board review to enhance confidence and knowledge in rheumatology for internal medicine residents

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Abstract

Rheumatology education encompasses a broad range of topics that can be challenging for internal medicine residents to learn. Internal medicine residents have historically scored low within the rheumatology content area of the American College of Physicians (ACP) Internal Medicine In-Training Examination (ITE).5 Rheumatology concepts, as with many graduate medical education topics, have traditionally been taught in lecture format. Interest in the role of gamification in graduate medical education is growing, largely due to its positive impact on learner engagement and overall satisfaction.1-4 While numerous card and board games have been developed to teach topics in pre- and postgraduate medical programs, to our knowledge, none are specifically tailored for rheumatology ITE and ABIM-CE preparation within graduate medical education. Our learning objectives for the audience members of the Oregon Health and Science University's symposium is to increase interest in the role of gamification, and provide a framework for how gamification can be applied for different topics in medical education.

Our study aimed to evaluate the impact of incorporating a gamified rheumatology board review session into existing didactic curricula to improve ITE scores and enhance resident satisfaction with the teaching format. We partnered with five internal medicine residency programs, including four community-based programs and one academic program. We developed Rheum4Games, a board game based off of Snakes and Ladders where residents were split up into teams and answered questions from PowerPoint question decks in order to advance across the board. In order to develop our PowerPoint question decks, we utilized the American Internal

Medicine blueprint to ensure that our game questions were based on high-yield board material.6 Our question decks were extensively reviewed by two general medicine educators, one rheumatology fellow in-training, and three rheumatologists in academic/ community practice.

All residents completed a pre-session and post-session survey. Using Likert scales, the survey assessed residents' levels of motivation, engagement, satisfaction, and confidence with gamification compared to traditional didactics. Rheum4Games received positive feedback amongst residents. In a post-session survey, 98% of residents agreed or strongly agreed that the activity was enjoyable and increased their rheumatology knowledge. These findings highlight gamification's potential to boost learner satisfaction and engagement. Every learner is unique, and gamification serves as an innovative educational tool to engage those who may struggle with traditional didactic methods, thereby promoting greater educational equity. While our study centered on rheumatology, the principles of gamification can be broadly applied to various medical education topics.

We also evaluated the effectiveness of the intervention by comparing aggregate ITE rheumatology scores from the pre-intervention year (2023) to the post-intervention year (2024). Our initial analysis found no significant difference in the percentage of correct rheumatology scores on the ITE between Rheum4Games participants and non-participants from 2023 to 2024. However, our study highlights the challenges of uncontrollable variables in evaluating educational interventions. Additional analyses are planned to explore ITE performance variations between community and academic programs and assess the impact of intervention timing on outcomes.

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