Symptom Selection: A Dermatology Education Game

Eliessa Bell, Elena Bertozzi, PhD, Christopher Humphrey,
Frank H Netter MD School of Medicine at Quinnipiac University

SCAN ME

Try *Symptom Selection* for yourself!

Introduction

Skin complaints are among the top ten most common reasons for visits to primary care physicians reported by clinicians and patients. Most medical schools **require fewer than 10 hours of dermatology education** leaving many students feeling unprepared to identify dermatologic disease during their clinical years [1].

Additionally, there is a significant disparity in training when it comes to identifying pathology in skin of color. In one study, 47% of dermatologists felt that their training was inadequate to diagnose skin disease in skin of color [2].

Purpose

The purpose of this study is to determine if an online game can improve medical student confidence in identifying dermatologic conditions and to assess the utility of a dermatology education game.

Methodology

Development of *Symptom Selection* began humbly with a paper prototype of a matching game. A subsequent review of literature on the use of games in medical education aided in establishing a pedagogical strategy for the next evolution of *Symptom Selection,* a strategy based on behaviorism and cognitivism. According to these strategies, this game **prioritizes knowledge transmission through quizzes and simulations** focused on memory and skill development through repetition [3]. After partnering with a game developer, the project was moved to a digital platform and expanded to a series of minigames allowing the player to **practice identifying visual signs of disease and symptomatology in vignettes using these strategies.**

To build the content of the game, six diseases were chosen: **tinea infections, atopic dermatitis, rosacea, pityriasis rosea, acne vulgaris, and actinic keratosis**. These were chosen from AAFP competency guidelines in dermatology. Illness scripts highlighting the major characteristics of each disease were developed alongside curated sets of images depicting each condition across the spectrum of skin tone and in varying presentations of disease.
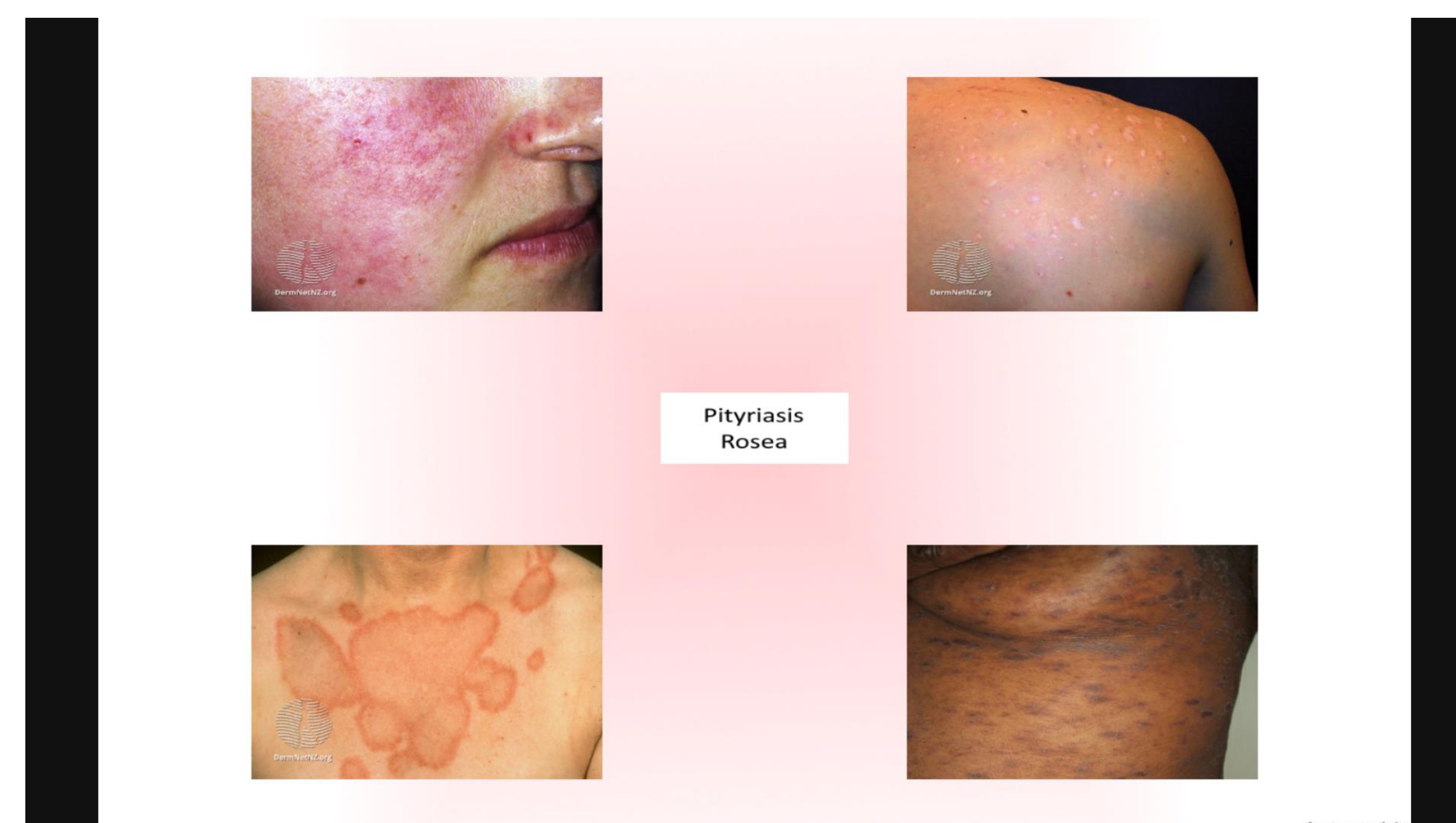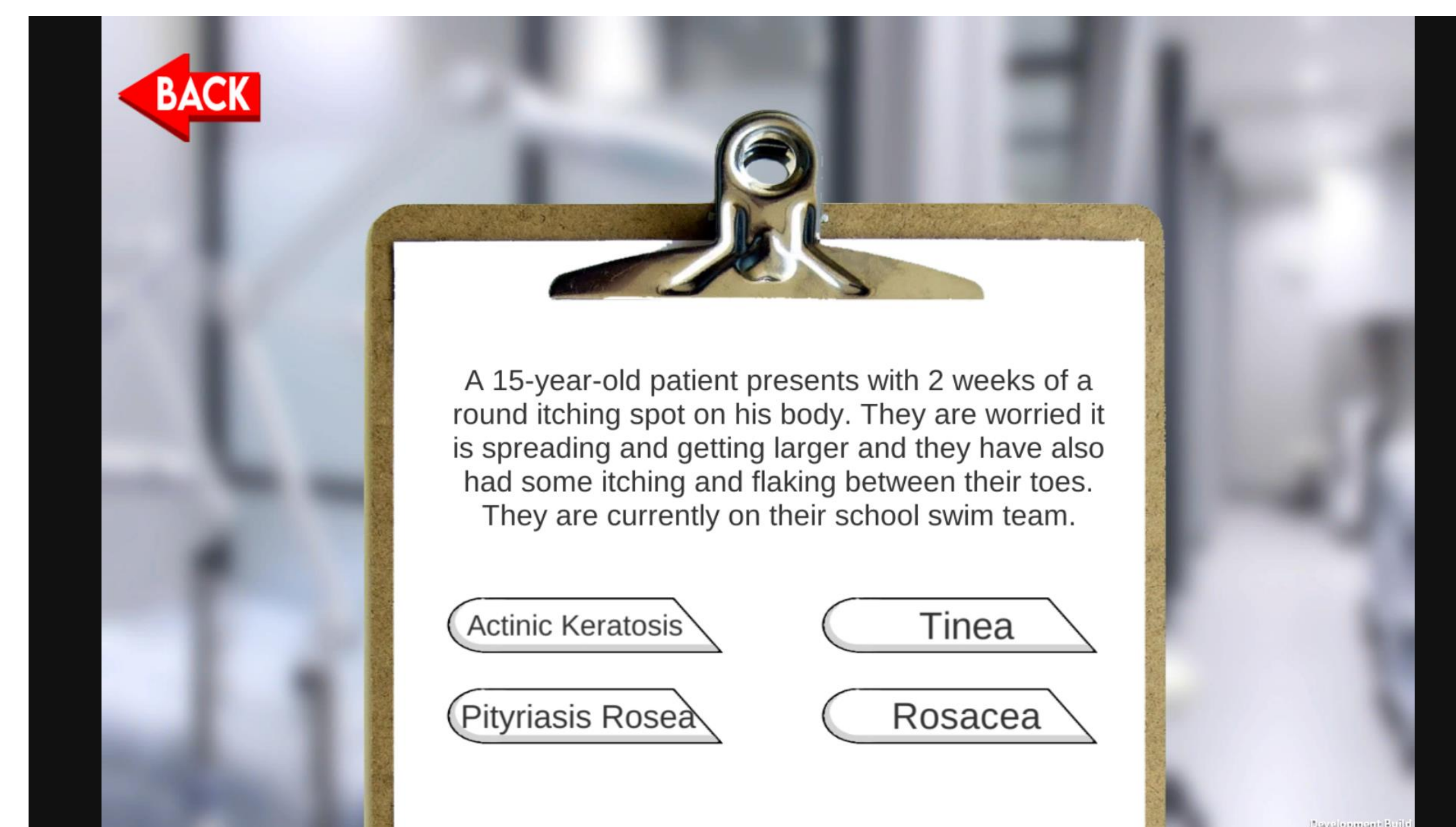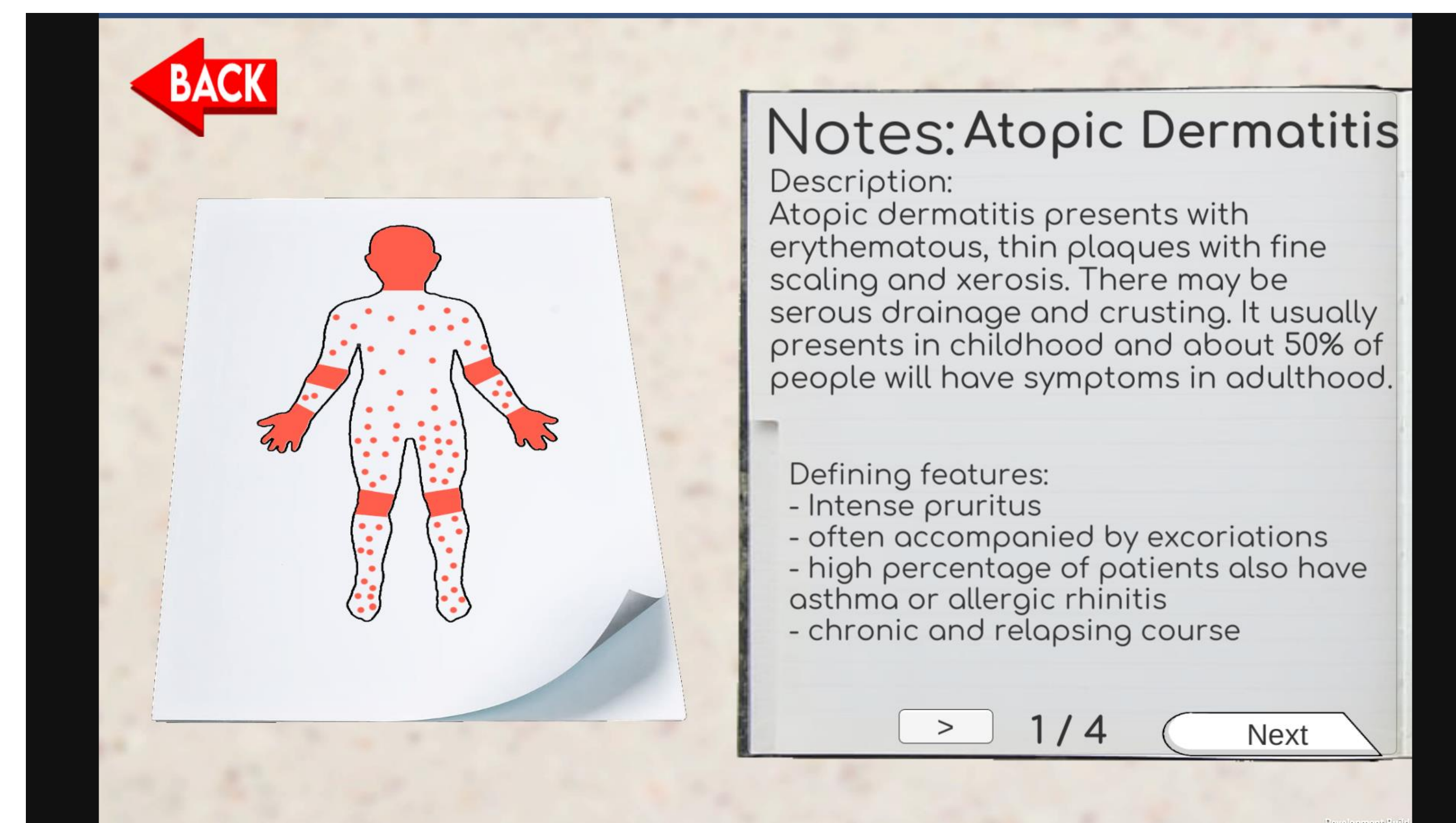

Results

After initial development was completed, the game was distributed to medical students for beta-testing which identified areas of improvement. Following refinement, the game was then published for online use and distributed to students at Quinnipiac University with a post-play survey.
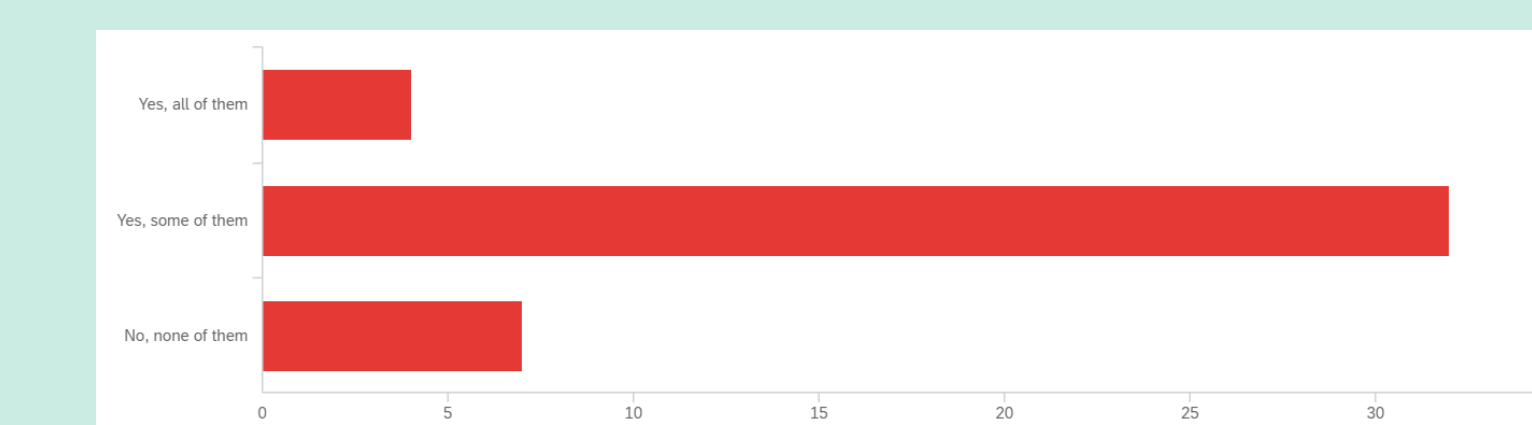
n = 43, M1-M4 students

Did playing this game increase your confidence in your ability to identify common rashes in clinical scenarios?
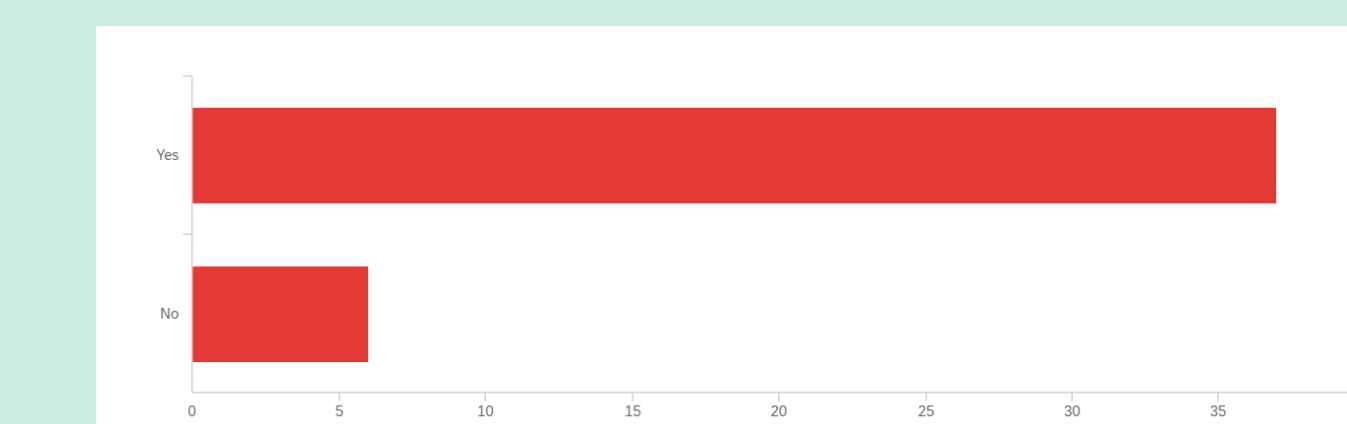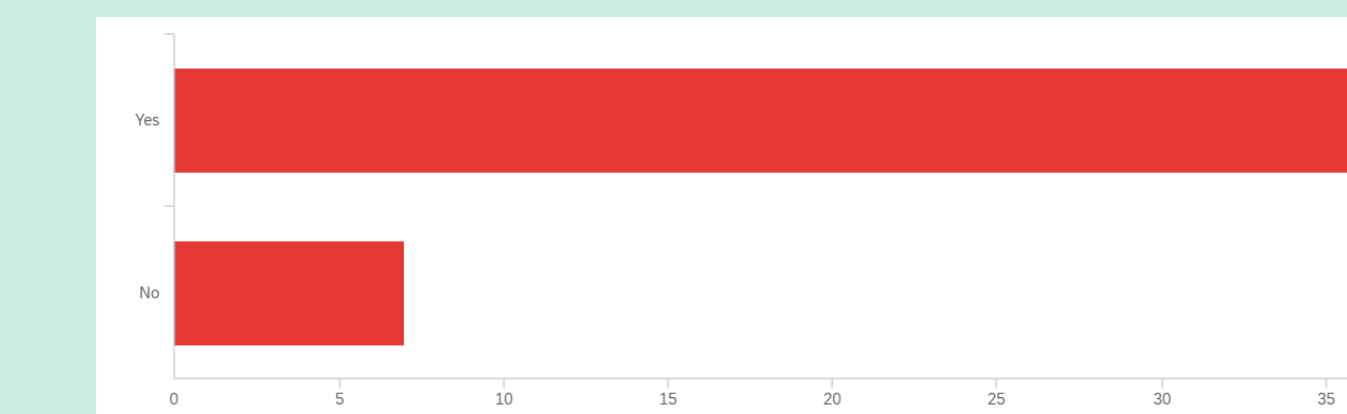
Yes: 86%
No: 14%

Have you ever seen the rashes in this game in your clinical experiences?

No: 9%
Yes, some: 74%
Yes, all: 16%

Would you find this game preferable to other study methods? (e.g. flashcards, lectures, etc.)

Yes: 84%
No: 16%

Conclusion

Medical education games can influence student perception and confidence in clinical skills.

Students show interest and engagement in a video game learning tool for dermatology subjects.

Future:
The next step for this project is to expand the content and assess efficacy of the game. If the game exhibits effectiveness, it could be integrated into the curriculum as a learning tool for dermatology.

Special thanks to VisualDx and DermNetNZ for contributing the images which make this game possible.

References:
1. Patrick E. McCleskey, Robert T. Gilson, Richard L. DeVillez, Medical Student Core Curriculum in Dermatology Survey, Journal of the American Academy of Dermatology, Volume 61, Issue 1, 2009, Pages 30-35.e4, ISSN 0190-9622, 2.
2. Lester, J., Taylor, S., & Chren, M. (2019). Under-representation of skin of colour in dermatology images: Not just an educational issue. British Journal of Dermatology, 180(6), 1521-1522.
3. Gorbanev, I., Agudelo-Londoño, S., González, R. A., Cortes, A., Pomares, A., Delgadillo, V., Yepes, F. J., & Muñoz, Ó. (2018). A systematic review of serious games in medical education: quality of evidence and pedagogical strategy. Medical education online, 23(1), 1438718.