



Interactive Nutrition App for Pediatric Oral Health Education

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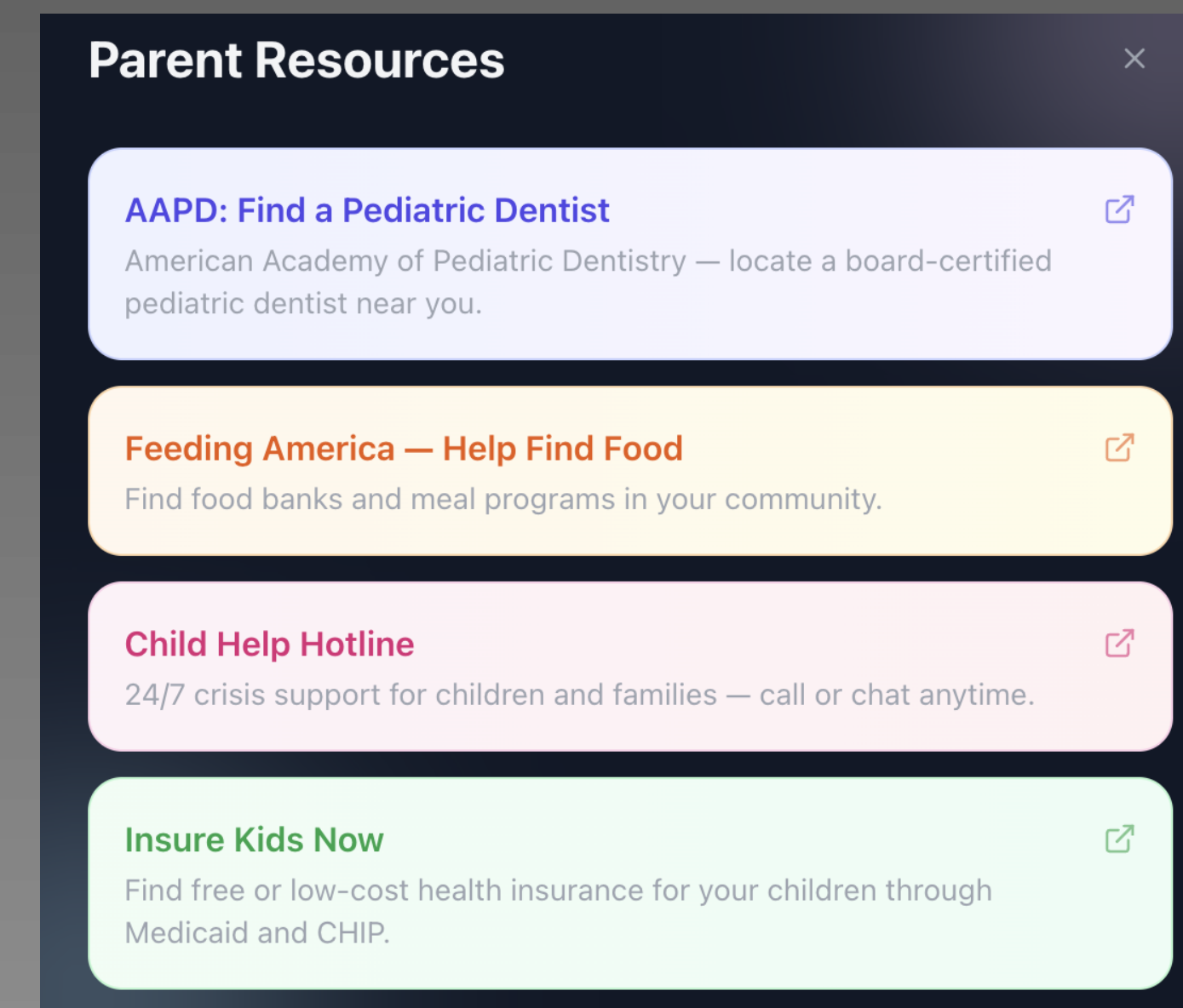
Introduction

Conventional pediatric oral health education lacks continual engagement, age-adapted design, and cultural inclusivity. As a result, caregivers and children may have limited understanding of dietary behaviors effects on dental caries risk systemic health risks.

Traditional chairside counseling may not translate AAPD guidelines into behavior-oriented decision-making tools. There is a need for accessible, interactive educational tools that reinforce preventative nutrition concepts in a format aligned with modern digital learning environments.

The purpose is to develop and evaluate a QR-accessible, gamified educational application designed to improve pediatric oral health-related nutrition knowledge and simulated dietary decision making among children and caregivers.

Resources Built into App



Objectives

1. Develop an accessible, gamified educational AI-application with AAPD dietary recommendations, simulating real-life food and beverage decision-making.
2. Evaluate feasibility and usability of the application in pediatric clinical/educational settings.
3. Compare the changes in oral-health nutrition knowledge and dietary decision-making accuracy between participants who complete the game versus who do not.

Research Methods

1. A gamified, AI-assisted educational application will be developed using the web platform Base44, simulating a “daily nutrition journey”. Each choice will influence cumulative scores related to caries risk and oral health outcomes. The application will be QR-accessible for use on personal devices/tablets.
2. Participants (children with their caregivers) will be observed during app interaction to assess usability and completion rates. Feasibility metrics will include ability to independently start, navigate, and complete the simulation without interruption.
3. A picture-based survey will be administered to both a control group (no app exposure) and the intervention group. The survey will assess food/beverage preferences and oral health nutrition knowledge after intervention. Responses will be scored using a predefined answer key reflecting AAPD dietary recommendations.
4. Statistical analysis will use Chi-square to compare group differences in categorical responses. Pre- and post-intervention scores will be analyzed to evaluate immediate knowledge and decision-making improvements.

Figure 1. AAPD Age-Guidelines Selection

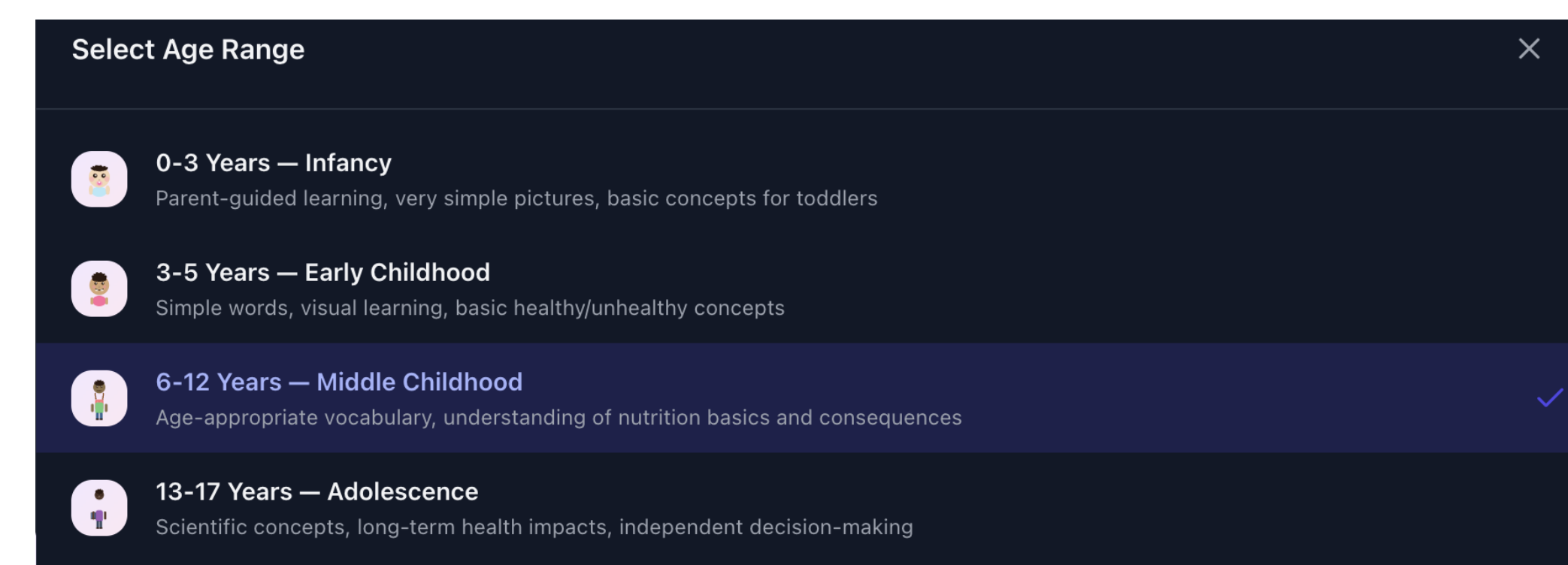


Figure 2. In-Game Application Example

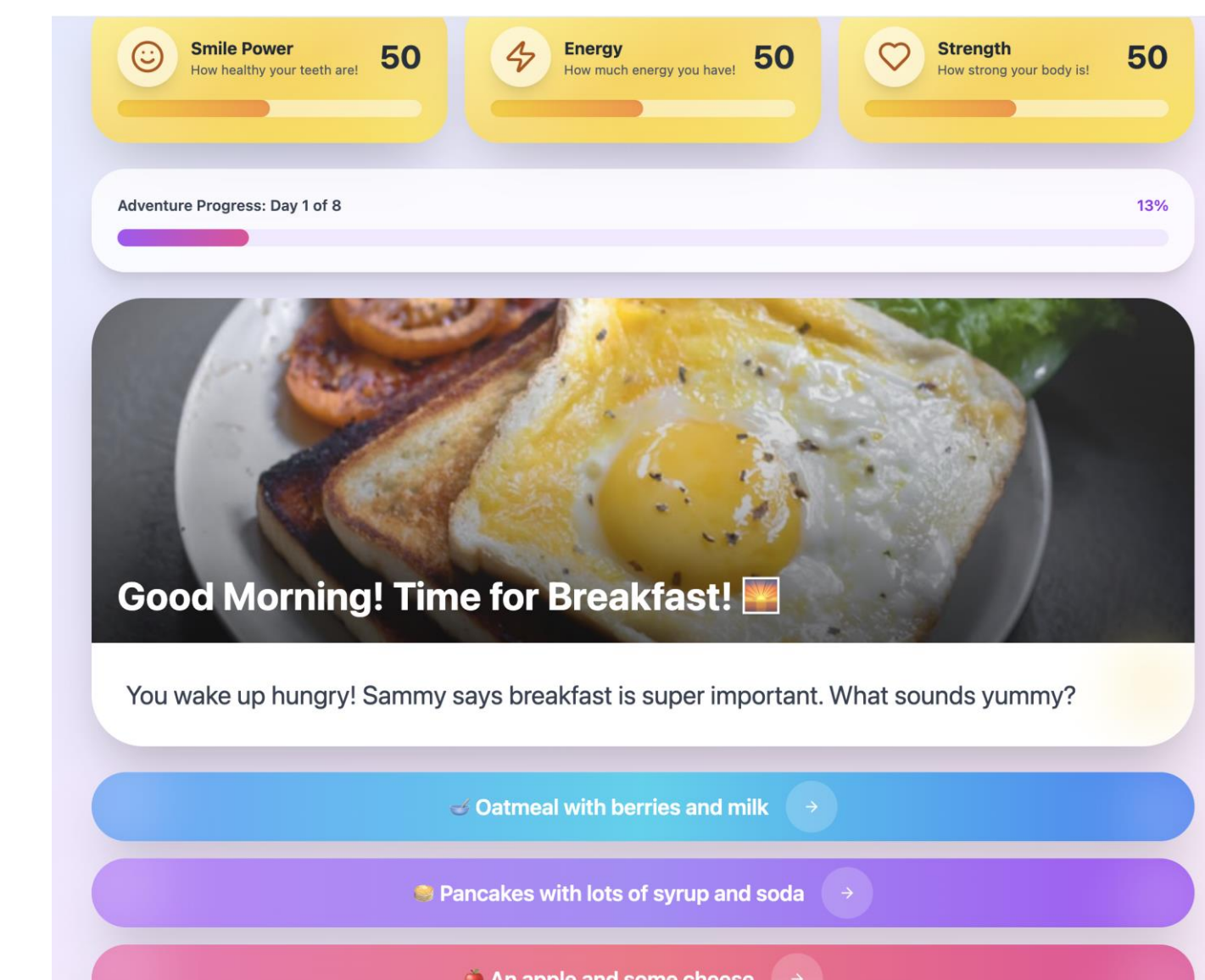
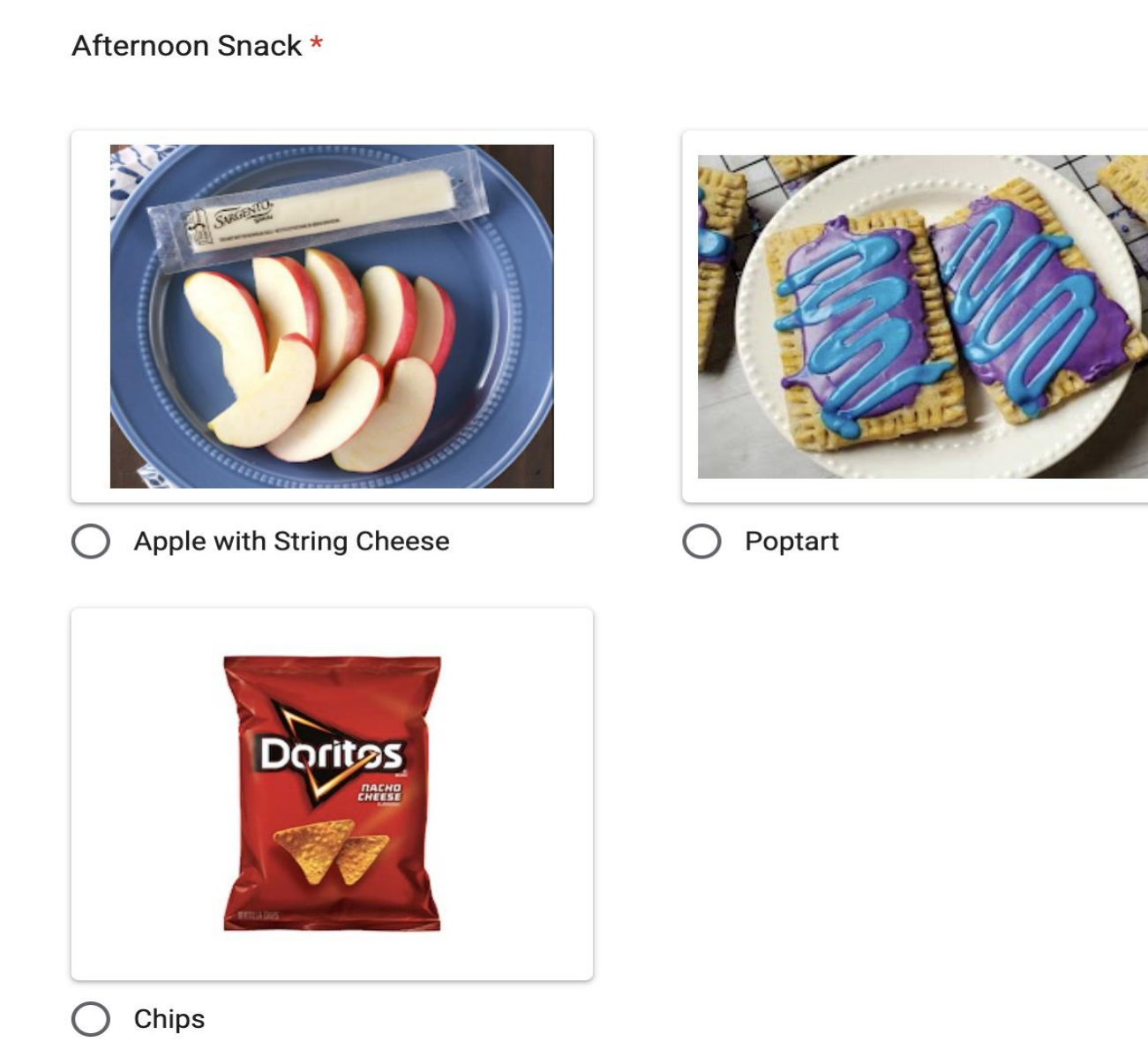


Figure 3. Post-Intervention Survey



Results

Table 1. Qualitative Analysis of Interventions Effectiveness in Oral Health Choices

Group	Time to Complete Post-Survey	Average Score on Post-Survey	Average Ability to Engage and Finish Post-Survey	Relative Score
Game Group				%
Control Group				%

Conclusions

The application is expected to demonstrate feasibility and usability in pediatric settings.

Participants are anticipated to show measurable improvement in oral health related nutritional knowledge and decision making compared to the controls.

The application is intended to serve as a complementary educational tool to enhance, rather than replace, conventional oral health counseling.

QR to Play Game



Acknowledgements

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2. Chaffee BW, Feldens C, Vitolo MR, Kramer PF. Feeding practices in infancy associated with caries incidence in early childhood. *J Dent Res.* 2013;92(2):162–168.
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4. Hammersley ML, Jones RA, Okely AD. Parent-focused childhood and adolescent overweight and obesity eHealth interventions: A systematic review and meta-analysis. *J Med Internet Res.* 2016;18(7):e203.