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Designing of a gaming application to educate school children about nutrition and health

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Introduction - Malnutrition, including undernutrition and overnutrition, is a major health issue among children aged 5 to 7 in Sri Lanka as it is a critical period for growth and lifelong habit formation. Traditional nutrition education methods in schools are often ineffective in engaging young learners. This study aimed to design an age appropriate, culturally relevant mobile gaming application to educate Sri Lankan children on nutrition and healthy behaviors through interactive learning.

Materials and Methods - This research designed a culturally tailored mobile gaming application targeting children aged 5 to 7, using a user-centered design. The app features a main game, Yum Yum Run, and four mini games named Balance the Meal, Nutri Quiz, Supermarket Quest, and Healthy Habit Rush which are designed to teach key nutritional concepts. The design process was informed by comprehensive literature reviews and analysis of effective educational games.

The design phase included creating intuitive, age-appropriate interfaces with features such as personalized avatars, voice instructions, and positive feedback. The game incorporated gamification elements like rewards, energy bars, and adjustable difficulty to maintain engagement and encourage repeated learning. The educational content emphasizes balanced diets, food group recognition, and effects of healthy versus unhealthy choices. Interactive modalities such as drag and drop, matching, and quizzes aligned with developmental abilities were used to enhance cognitive engagement. Parental involvement was integrated through a dedicated dashboard for progress monitoring and nutrition guidance. Interactive design ensured usability and active engagement, while limiting total daily playtime addressed concerns about excessive screen time.

Discussion - This game-based intervention shows promise in improving nutrition knowledge and promoting healthier habits by combining culturally relevant content with engaging gameplay and multi-sensory learning. Real world testing will be essential to assess impact and optimize the tool for wider use.