Building a support system for determining nutritional menu portions to prevent obesity in children under 6 years old.

Nguyen Ngoc Hiep

Abstract: This study presents the development of a decision support system for generating nutritional meal plans aimed at preventing obesity in children under six years old. Addressing the rising prevalence of early childhood obesity, the system integrates dietary guidelines, age-specific nutritional requirements, and food composition data. A rule-based inference engine was designed to calculate individual energy and macronutrient needs, then automatically compose balanced daily menus while ensuring variety and palatability. The system incorporates constraints to limit high-calorie, low-nutrient foods and promote appropriate portion sizes. Validation was conducted using a dataset of child profiles, with generated menus evaluated against established pediatric nutrition standards. Results demonstrate that the system consistently produces meal plans meeting recommended dietary allowances for energy, protein, fats, and carbohydrates. The tool offers a practical, scalable solution for caregivers and healthcare providers to support obesity prevention through personalized dietary management in early childhood.

Keywords: Vietnamese, children under 6, obesity prevention, nutritional menu