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Digital- and AI-Driven Transformation of Child Health Education: An Exploration

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Abstract

Background and Aims: Parents are the primary decisionmakers for their children's health but often face challenges in accessing timely and accurate information on infectious disease prevention. This study aims to evaluate the effectiveness and dissemination potential of an AI-powered Q&A assistant "Tian Tian" for health education on child infectious diseases.

Research Question: Compared to conventional health education, can the AI assistant more effectively enhance parental knowledge, improve preventive practices, and serve as a tool for dissemination within community networks

Methods: This study will conduct a two-arm randomized controlled trial. Participants: 100 parents of children aged 0–6 years will be recruited from pediatric departments of hospitals in Zhejiang Province and randomly assigned to either an intervention group using the AI assistant or a control group receiving conventional health education. Outcome Measures: The primary outcomes include changes in knowledge scores assessed using a validated questionnaire and observed preventive behaviors e.g., handwashing, vaccination adherence evaluated at baseline, immediately post-intervention short-term, and at a 3-month follow-up long-term. Key secondary outcomes are the tool sharing rate and download growth rate, measured via self-report and referral link tracking.

Anticipated Results: The authors hypothesize that the AI assistant group will demonstrate significantly greater improvement in knowledge retention and the adoption of correct preventive behaviors in both the short and long term. It is further anticipated that a higher proportion of parents in the intervention group will actively share the tool with other parents, indicating its perceived value and dissemination potential. The findings will provide a robust optimization model for AI-driven health communication tools targeting child caregivers