

SmartAPPetite for youth: development and evaluation of a smartphone app for improving adolescent food literacy and healthy eating

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Diet quality is a modifiable risk factor for several critical health conditions, such as heart disease and type II diabetes ⁽¹⁾. Interventions to promote healthy dietary behaviours during adolescence are important because lifelong eating habits begin in childhood, and diet quality tends to sharply decrease around age 14 and remain low into adulthood ⁽²⁾. Creative, research-driven solutions are required to address adolescent knowledge deficits regarding healthy diets to better support youth in navigating their daily food environments, and to mitigate diet-related disease burden. Smartphones are an attractive medium to deliver interventions due to their ubiquity among teens ⁽³⁾. SmartAPPetite was initially developed as a local food messaging app to provide users with knowledge about foods available locally and in season, and credible nutrition information approved by a registered dietitian ⁽⁴⁾. The app sends users personalised *food tips*, related *recipes*, and *vendor information* to inform and nudge users, from their personally defined food goals to healthier dietary behaviours. We will report on the background development of “SmartAPPetite”, the findings of a pilot study of an intervention for adolescents, and current research using this app. A pilot study was run with 60 adolescent participants, aged 13–18, in a high school located in the mid-sized city of London, Ontario, Canada.

Participants used the app for 8 weeks and completed surveys before and after the intervention. The self-report surveys included questions on nutrition knowledge, eating habits, and food preferences; participants also completed 24-hour food diaries (ASA24-Canada) before and after using the app. Regression analysis was used to analyse participants' intake of FV with various predictor variables, including food knowledge, sociodemographic characteristics, and the food environment. A parent survey was used to validate the sociodemographic variables reported by students. Focus groups were conducted with the participants (n = 40) to help assess the effectiveness of recruitment and retention strategies, performance of study tools and app features, and feasibility. Of the 60 participants, 80% stated that engagement with the app benefitted them in some way, and 98% would recommend the app to others. Focus groups analyses revealed helpful information about where participants habitually source nutrition information and showed that adolescent participants were most interested in messages tailored for them. Statistical analysis showed trends towards increased fruit (3.4±1.4 vs. 3.5±1.2) and vegetable (2.9±1.3 vs. 3.1±1.2) intake (times p/day baseline vs. endline), and decreased sport drink (0.6±0.9 vs. 0.4±0.8), and chocolate/candy (1.8±1.5 vs. 1.0±1.3) consumption. Findings suggest that a full-scale intervention is feasible, and prolonged use with the app could elicit positive impacts in diet quality. Smartphone apps provide an effective medium to provide adolescents with credible information on healthy living and healthy eating. The app has the potential to be adapted for other populations, and to promote local food consumption.

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