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A smart phone application for increasing fruit and vegetable knowledge and intakes: Development and initial testing

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Introduction: Previous work suggests low intakes of fruit and vegetables (FV) across the world, poor knowledge of the details of FV recommendations, and associations between the two. This work aimed to develop an interactive mobile phone application (app) to facilitate adherence to the UK 5-a-day FV recommendations, and reports on the findings and feedback from the first test of the prototype.

Materials and Methods: Requirements for the app were first gained from previous research and potential end-users via four public engagement workshops, and prioritised using the MoSCoW method. A prototype app was then designed and developed using an agile approach. The prototype app was then tested in a randomized controlled pilot trial for impacts on FV knowledge and FV intake. Ninety-four adult volunteers were randomized to either receive (N = 50) or not receive the app (N = 44) for two or four weeks, and FV knowledge, self-report FV intakes, and FV behaviour (complimentary drink choice), were assessed at study start and study end. App use and feedback were also investigated.

Results: Low knowledge of the FV recommendations centred around portion sizes and the need for variety, and an interactive mobile phone app was considered a suitable tool for improving knowledge in a practical manner, that would be available both at time of consumption and outside of these times. Findings revealed improved FV behaviour in volunteers who received the app for two weeks at study end: 16 app users chose a fruit drink, compared to 4 app users who chose a non-fruit drink, where 4 control volunteers also chose a fruit drink and 6 control volunteers chose a non-fruit drink. App users also suggested increased FV intakes, but changes were small, and possibly masked in questionnaire measures. Improvements in FV knowledge (of approx. 10%) were also found, but with no differences between groups. App usage was low and feedback suggested a desire for reminder notifications and a wish to return to the input for a previous day due to forgetting. Increased awareness of low FV intakes was also offered as feedback.

Discussion: Our prototype app was well received and of potential benefit. A final version of the app was subsequently developed incorporating the findings and feedback from the pilot test. Improvements in the final version of the app include a message to increase awareness of low intakes and an option to add notifications to increase use. Testing of the final app is now needed.

Conflict of Interest

There is no conflict of interest.