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# An exploration of the Change4Life Food Scanner app in improving children's diets

**Submission date**
06/05/2025

**Recruitment status**
No longer recruiting

**Registration date**
12/05/2025

**Overall study status**
Completed

**Last Edited**
03/07/2025

**Condition category**
Nutritional, Metabolic, Endocrine

[_] Prospectively registered
[_] Protocol
[_] Statistical analysis plan
[X] Results
[_] Individual participant data

## Plain English summary of protocol

Background and study aims
There are now many tools available online and on the mobile app market that can help people with their family's diet and help consumers make informed food choices. Amongst these is the Change4Life Food Scanner app. The Food Scanner app, funded by the UK Government, aims to encourage parents to improve their children's dietary intake by nudging parents to make healthier food choices. Despite the app's availability on the app market since 2016, it is not known whether the app is in fact effective. The aim of this study is to gather information on whether it is possible to evaluate the Change4Life Food Scanner app, to gain insight into whether parents think the app is acceptable, and whether the app improves dietary outcomes over a 3-month period.

Who can participate?
We are asking parents of children aged 4-11 years to take part in this study. As we want to get a better understanding of parental attitudes towards the Food Scanner app, we will be recruiting around 150 parents from all over Yorkshire and the Humber (United Kingdom).

What does the study involve?
Participants will be asked to complete tasks over a 3-month period. Before agreeing to take part, participants will be asked some questions to check that they are eligible to participate in this research. If they are eligible and they have agreed to take part, they will be taken to a page where they will be asked questions about themselves and their child, such as questions on height, weight, ethnicity, education and income. Participants will then be asked for their email address and contact number so that the research team can send them study materials.
Once participants have provided their email address and contact number, they will be contacted within 48 hours and asked to complete a 3-day food diary and a survey throughout the following week. Food diaries will be completed on a website called MyFood24. Participants will be sent a special link to this with further instructions on how to complete the food diary. A food diary requires participants to write everything their child ate and drank on a specific day. Participants will be asked to complete a food diary on two weekdays and one weekend day of their choosing, but these must all be within the same week (within a 7-day period). After completing the food diaries, participants will be asked to complete a survey. Most survey questions will have a selection of answers to choose from and will ask questions around the topics of food and

nutrition, quality of life and use of healthcare services. There may be some open-ended questions where participants will be asked to write their response. A food diary takes approximately 20 minutes to complete, and the survey takes approximately 15-20 minutes to complete, but this can vary.
Some participants will be randomly selected to download and use the Change4Life Food Scanner app when making food choices for their child. The app has been designed to provide dietary advice. We are interested in getting participants' opinions about this app. Those randomly selected to use the app will be contacted every 2 weeks throughout the 3-month study period to answer additional questions on their use of the app as well as their feedback and experience of using it. For this reason, it is essential that all participants have access to a smartphone and mobile data. If participants are not asked to download and use a mobile app, they are still expected to complete food diaries and survey material when requested.
One and three months into the study, all participants will be asked to complete an online 3-day food diary again and a survey. Some of the survey questions will be familiar, and some will be different to what was previously asked at the start of the study. Participants will also be asked to provide their feedback on the use of Myfood24 and completing food diaries in general.
All communication will be made through email and text messages. Participants will be sent the links to the food diaries and surveys by email and will be asked to start completing these within a week of receiving them. Participants will need to follow the unique links sent to them to complete food diaries and/or surveys.

What are the possible benefits and risks of participating?
It is very unlikely that the study will cause participants any distress as all study tasks will be carried out online, in their own comfort. Participants may find that the survey questions may be tiring to complete, however, we have tried to keep these as short as possible. If participants do experience any distress during the study, please contact the lead researcher, Dr Sundus Mahdi (sundus.mahdi@york.ac.uk). If any distress continues after taking part in the study, please contact the GP or visit the NHS Wellness pages: https://www.nhs.uk/conditions/stress-anxiety-depression/improve-mental-wellbeing/.
To thank participants for their 3-month participation, all individuals participating in this research will be rewarded with a £30 multi-use gift voucher. Those who have randomly been selected to download and use some mobile apps will receive an additional £5 gift voucher for their time. All participants will also be entered into a prize draw for a chance to win a Virgin Experience Days gift card worth £150, which provides a selection of adventures to choose from. Should a participant decide they no longer wish to participate in this study, they may be asked to complete a short online form, anonymously, providing reasons for their withdrawal. As a thank you for their time, they will be entered into a prize draw for a chance to win a £25 shopping voucher.

Where is the study run from?
Although the study has been designed and will run from the University of Sheffield, participants can take part from the comfort of their own home. Participants will not be required to attend the University of Sheffield for the completion of study tasks, and all tasks and outcome measures will be completed online.

When is the study starting and how long is it expected to run for?
August 2019 to October 2020

Who is funding the study?
The Wellcome Trust (108903/B/15/Z) (UK)

Who is the main contact?
Dr Sundus Mahdi, sundus.mahdi@york.ac.uk

# Contact information

### Type(s)
Public, Scientific, Principal investigator

### Contact name
Dr Sundus Mahdi

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# Additional identifiers

### Protocol serial number
Open Science Framework (https://osf.io/62hzt/)

# Study information

### Scientific Title
Study of the Change4Life food scanner app in improving the nutritional intake of children through parental behaviour change: a randomised pilot and feasibility study

### Acronym
SCAN-I-C

### Study objectives
1. The primary objective was to:
1.1. Assess the feasibility and acceptability of evaluating the effectiveness and cost-effectiveness of the Food Scanner app
1.2. Inform design considerations for a subsequent randomised controlled trial, such as effect size estimates

2. Study hypotheses:
2.1. The Change4Life Food Scanner app reduces energy and sugar intake of those in the intervention arm more than those in the control arm.

2.2. No differences in health economic outcomes (health-related quality of life and healthcare resource use) will be experienced between the intervention and control arms.
2.3. App engagement decreases over trial duration
2.4. Positive improvements in psychological predictors of behaviour change are reported in the intervention arm more than those in the control arm.

## Ethics approval required
Ethics approval required

## Ethics approval(s)
Approved 20/08/2019, School of Health and Related Research Research Ethics Committee (School of Health and Related Research, Regent Court, 30 Regent Street, Sheffield, S1 4DA, United Kingdom; +44 (0)114 222 5446; scharr-rec@sheffield.ac.uk), ref: 026380

## Primary study design
Interventional

## Study design
3-month single-centre non-blinded between-subject pilot randomized controlled trial and feasibility study

## Study type(s)
Prevention

## Health condition(s) or problem(s) studied
Prevention of overweight and obesity in children

## Interventions
Although the study aims to investigate the impact of the Change4Life Food Scanner app on children's dietary intake through parental behaviour change, participants are presented with a cover story in order to not bias self-reported food intake. Therefore, participants are invited to take part in a study investigating "parental attitudes towards dietary online tools" and are informed that some participants may be required to download and engage with apps.

Upon consenting to participate, participants are randomised (but not exposed) into a study condition (intervention or control/no treatment) with a 1:1 allocation ratio, which dictates the type of future correspondence they will receive. Participants are randomly allocated into a control or intervention arm using a pre-generated randomisation sequence developed through Microsoft Excel. A randomisation sequence of 50 will be produced at first, which will be followed by 20 sequences per block thereafter (a total of 4 blocks). Researcher blindness to condition allocation is not possible, as the distribution of study materials depends on this.

Participants are then contacted to complete baseline measures. Participants allocated to the intervention arm are presented with nutrition guidance targeting 4-11-year-old children obtained from the Change4Life webpages. This provides a relevant context to then instruct participants to download the Food Scanner app onto their smartphone and to use the app to make smarter choices when grocery shopping. Participants are presented with a validation question to ensure that they have read the materials and downloaded the app. As the study aims to evaluate a publicly available dietary app, prompting of app use is minimised to not impact the generalisability of results. Therefore, participants are not instructed how long to use the app for or how regularly to use it.

Those in the control group do not receive any dietary guidance and are merely informed at the end of the baseline survey that they will shortly receive weblinks via email to complete 3-day food diaries.

### Intervention Type
Behavioural

### Primary outcome(s)
1. Study feasibility is measured by calculating study completion at baseline, 1-month and 3-month follow-up, retention rates at 1 month and 3-month follow-up, and study compliance at 3-month follow-up.
2. Study acceptability is measured using a survey on study experience at 3-month follow-up.

### Key secondary outcome(s)
1. Dietary assessment (kcal and sugar [g]) using 3-day food diaries via myfood24 (2 weekdays and 1 weekend) of child food intake at baseline, 1-month follow-up and 3-month follow-up.
2. Health economic impacts of the Change4Life Food Scanner app (health related quality of life, healthcare resource use, school absenteeism and parent workplace absenteeism) measured using a short validated paediatric health related quality of life instrument (CHU-9D), healthcare resource use data and surveys enquiring about school absenteeism due to a health problem and workplace absenteeism due to child's health at baseline and 3-month follow-up.
3. App engagement measured using a short survey (number of days app used, average time spent using the app and number of items scanned) every two weeks over the 3-month trial period.
4. Predictors of behaviour change measured using the COM-B model (capability, opportunity, and motivation to change dietary behaviour) and Theory of Planned Behaviour (attitudes and perceived behavioural control of child sugar intake) at baseline and 3-month follow-up.

### Completion date
31/10/2020

## Eligibility

### Key inclusion criteria
1. Parent of a primary school child, aged 4-11 years old
2. Live in Yorkshire and the Humber
3. Own a smartphone
4. Have access to the internet inside and outside the home
5. Have enough data storage (at least 100mb) on smartphone
6. Have the availability to participate and engage in the study for three consecutive months
7. Are an active grocery shopper for the household or involved in decisions over children’s food
8. Their grocery shopping is dominantly undertaken in a grocery store/supermarket and not online

### Participant type(s)
Healthy volunteer

### Healthy volunteers allowed
No

### Age group
Adult

### Lower age limit
18 Years

### Upper age limit
80 Years

### Sex
All

### Total final enrolment
126

### Key exclusion criteria
1. Currently using the Change4Life Food Scanner app
2. Have a child with a health condition with special dietary requirements that could confound outcomes

### Date of first enrolment
11/01/2020

### Date of final enrolment
10/06/2020

## Locations

### Countries of recruitment
United Kingdom

England

### Study participating centre
**Sheffield Centre for Health and Related Research**
University of Sheffield
Regent Court
30 Regent Street
Sheffield
United Kingdom
S1 4DA

## Sponsor information

### Organisation

University of Sheffield

**ROR**
https://ror.org/05krs5044

# Funder(s)

**Funder type**
Charity

**Funder Name**
Wellcome Trust

**Alternative Name(s)**
Wellcome, WT

**Funding Body Type**
Private sector organisation

**Funding Body Subtype**
Trusts, charities, foundations (both public and private)

**Location**
United Kingdom

# Results and Publications

**Individual participant data (IPD) sharing plan**
The datasets generated during and/or analysed during the current study will be available upon request from Dr Sundus Mahdi (sundus.mahdi@york.ac.uk).

Raw data will be shared as an SPSS file and will be anonymised. Data will be available from June 2023 and will be available for 20 years. Data will be shared with those conducting research evaluating the Change4Life Food Scanner app and/or those interested in conducting analyses relating to dietary outcomes, psychological predictors of behaviour change, health-related quality of life, or any other key outcomes measured. Ethical approval was obtained to share the anonymised dataset with researchers wanting to undertake secondary data analysis. Consent from participants was obtained to use anonymised data for research purposes.

**IPD sharing plan summary**
Available on request

**Study outputs**

| Output type | Details | Date created | Date added | Peer reviewed? | Patient-facing? |
|---|---|---|---|---|---|
| Results article | | 02/07/2025 | 03/07/2025 | Yes | No |

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|---|---|---|---|---|---|
| Participant information sheet | Participant information sheet | 11/11/2025 | 11/11/2025 | No | Yes |