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Testing a new smartphone app (SwapSHOP) to improve the nutritional quality of food shopping

Submission date
15/09/2020

Recruitment status
No longer recruiting

Registration date
30/10/2020

Overall study status
Completed

Last Edited
12/01/2024

Condition category
Nutritional, Metabolic, Endocrine

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

Plain English summary of protocol

Background and study aims
As a nation we eat more added sugar, saturated fat, and salt than recommended for good health. These nutrients contribute to major chronic diseases, including cardiovascular disease (CVD) or diabetes, either directly, or through effects on cholesterol, blood pressure, insulin sensitivity or body weight. Food purchasing is a key precursor of food consumption and improving the nutritional quality of food purchases presents a clear opportunity to intervene. This study aims to test whether a smartphone app can help people to buy healthier foods when shopping for groceries.

Who can participate?
Males or females, over the age of 18 years, who are looking for support to improve their diet but not on a clinician supervised diet or a restricted diet, and who own a smartphone (Android or iOS) with access to the internet and email account. They must be responsible for at least some of their household grocery shopping and regularly shop in Tesco, Sainsbury's, Waitrose, Asda, Morrisons or Iceland.

What does the study involve?
The study involves using the SwapSHOP smartphone app to scan product barcodes to record all the foods purchased during a grocery shop. During the intervention period, there will be three groups (salt, sugar or saturated fat swaps) that will receive healthier swap suggestions for some food products that are high in salt, sugar or saturated fat. Monitoring of food purchases will be done by scanning product barcodes, which will then be stored on the app. The control group will not receive healthier swap suggestions but will be asked to continue scanning the barcodes of all products purchased. The percentage of participants in the intervention group that use the app to obtain healthier swaps will be measured, as well as recruitment rates, the time needed for recruitment, the average number of shopping trips where the app was used to obtain a swap per week, the number of times the app was used to scan products for a swap per trip, the number of swaps made overall per week and per shopping trip, and the nutrient reduction per swap made. The researchers will also assess the acceptability of the swaps suggested, and the changes in total sugar, saturated fat, and salt in food purchases between baseline and follow up and between each intervention group compared to the control group.

What are the possible benefits and risks of participating?
One possible benefit is that improving the quality of the food purchased during a grocery shopping trip can quickly translate into health benefits. There are no known risks associated with the study. The app will make recommendations consistent with UK healthy eating guidelines, and the questionnaires do not cover any topics usually considered sensitive, therefore the researchers do not anticipate that they will cause distress.

Where is the study run from?
University of Oxford (UK)

When is the study starting and how long is it expected to run for?
October 2019 to December 2021

Who is funding the study?
National Institute for Health Research Applied Research and Care (ARC) Oxford (UK)

Who is the main contact?
Dr Carmen Piernas-Sanchez
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Contact information

Type(s)
Scientific

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Additional identifiers

Protocol serial number
R67216/RE001, 08/01/2020 version 2.0

Study information

Scientific Title
A community-based feasibility randomized controlled trial to test a behaviourally informed smartphone app (SwapSHOP) to improve the nutritional quality of food shopping

Acronym
SwapSHOP

Study objectives
There is no hypothesis for this study as it is a feasibility study.

This study aims to test the feasibility of delivering dietary advice through SwapSHOP, a new behaviourally-informed smartphone app which allows users to scan barcodes of grocery products from major UK supermarkets, providing nutritional information and suggesting personalised healthier alternatives (e.g. lower sugar, saturated fat or, salt). A full trial to show that this intervention helps improve people's health outcomes (e.g. blood pressure, weight or cholesterol) would be large and expensive. Before this is justified, the researchers need to ensure that: a) people are willing and able to use the app as intended; b) the research methods run as planned; c) using the app shows early signs that this can help people reduce their intakes of added sugar, saturated fat, and salt.

Ethics approval required
Old ethics approval format

Ethics approval(s)
Approved 15/01/2020, Medical Sciences Interdivisional Research Ethics Committee (Research Services, University of Oxford, Wellington Square, Oxford, OX1 2JD, UK; +44(0) 1865 616577; ethics@medsci.ox.ac.uk), ref: R67216/RE001

Primary study design
Interventional

Study design
Individually randomized six-arm parallel-group controlled trial

Study type(s)
Other

Health condition(s) or problem(s) studied
Public health - behaviour change

Interventions
For the baseline 2 weeks, all participants will be asked to start scanning and recording all their food purchases using the SwapSHOP app. During this baseline 2 weeks, the app will only allow for scanning and storing purchases, but will not show any functionality regarding healthier swaps. Only those who complete the 2-week baseline period will be randomised. The additional swaps functionality will be activated by the trial team after randomisation.

Randomisation:
Once participants have completed the baseline assessment and baseline data collection (2 weeks of scanning all their supermarket shopping) the research team will randomise them to one of the intervention arms (salt, sugar or saturated fat swaps) or control following a 3:1 ratio (intervention: control) within each strata (sugar, salt or saturated fat), using computer-generated randomisation. Participants who do not complete the baseline data collection will not be randomised and will be replaced. Randomisation will be stratified by the nutrient of concern using block randomisation using blocks of 4 and 8.

Following randomisation, participants will be contacted and asked to start using the app with the active healthier swap functionality and other behavioural components for the next 2 weeks. At the end of the 2-week intervention period, they will then be contacted and asked to start scanning and recording all of their purchases for the final 2-week follow-up period, the same way they did over the baseline period. The control group will be asked to carry on scanning their purchases until the end of follow up.

Intervention Type
Behavioural

Primary outcome(s)
Progression criteria are set based on an expectation that 80% of participants within the active intervention group will use the app to obtain healthier swaps at least once in the first 2 weeks after randomisation and 70% of participants overall will complete follow-up.
The researchers calculated a 95% confidence interval for these proportions and the proposed sample size (n=120) and set the progression criteria approximate to the lower bound.
1. At least 70% of participants in the active intervention group use the app to obtain healthier swaps on at least one occasion by the end of the second week after randomisation
2. That 60% of participants in total (intervention and control) complete follow-up by scanning all their purchases for a minimum of 2 weeks over the entire follow up period (4 weeks)

Key secondary outcome(s)
Feasibility outcomes:
1. Recruitment rates: total recruited (including number invited, eligible, consented, number which completed all baseline assessments, and randomised)
2. Period of time needed for recruitment of the final sample
3. Outcome reporting: number of participants who fail to scan their purchases for 2 weeks at baseline and follow up; number of participants who fail to complete the end-of-study questionnaires.

Process measures:
Summary of app-related usability (within-app automatic recording) and acceptability measures collected through the end-of-study questionnaires at follow up:
1. Average number of shopping trips where the app was used to scan products in order to obtain a swap per week
2. Number of occasions the app was used to scan products for a swap per trip
3. Number of swaps made overall per week and per shopping trip
4. Nutrient reduction per swap made
5. Use of specific functionality e.g. goal setting, feedback
6. End-of-study questionnaires to understand if the feedback and swaps provided through the app are acceptable; if the app scans the majority of products and if this has prompted other behaviours such as reading labels.

Exploratory effectiveness measures:
1. This includes estimates (mean (SD)) of changes in total sugar (%energy, kcal per £), saturated fat (% energy, kcal per £) and salt (g/100gr) in food purchases, between baseline and follow up and between each intervention group compared to control.
2. The researchers will also calculate estimates (mean (SD)) of changes in total energy (kcal/£), total fat (% energy, kcal per £), energy density of the food shopping (kcal/g), fibre (g/1000 kcal), basket cost (£, £ per Kg), % energy coming from specific food groups which contribute the most

to sugar, salt and SFA, including bread, desserts, dairy, meat, processed meat, ready to eat meals, soft drinks, among others.

Completion date
31/12/2021

Eligibility

Key inclusion criteria
1. Male or female, aged over 18 years old
2. Willing and able to give informed consent for participation in the study
3. English speaking and able to understand the demands of the study
4. Looking for support to improve their diet
5. Own a smartphone (android or iOS), has access to the internet and email account on their phone
6. Willing to download and use a smartphone app to scan and track all their supermarket shopping
7. Responsible for at least some of their household grocery shopping and regularly shop in Tesco, Sainsbury's, Waitrose, Asda, Morrisons or Iceland (e.g. at least once a week in a physical store or online store)
8. Will scan and record all supermarket food purchases over a baseline 2-week/run-in period

Participant type(s)
All

Healthy volunteers allowed
No

Age group
Adult

Lower age limit
18 Years

Sex
All

Total final enrolment
112

Key exclusion criteria
1. Already on a clinician supervised diet or a restricted diet
2. Are currently using apps to monitor the quality of their food shopping (excluding apps to track and monitor food intake)
3. Currently participating in another study aimed at dietary change or asking them to change the way they shop for food
4. Planning on going away from home (holiday or other) for more than 2 consecutive weeks during the study period

Date of first enrolment

12/04/2021

Date of final enrolment
30/06/2021

Locations

Countries of recruitment
United Kingdom

England

Study participating centre
University of Oxford
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Sponsor information

Organisation
University of Oxford

ROR
https://ror.org/052gg0110

Funder(s)

Funder type
Government

Funder Name
National Institute for Health Research Applied Research and Care (ARC) Oxford

Results and Publications

Individual participant data (IPD) sharing plan

The datasets generated during the current study will be available upon request from Dr Carmen-Piernas Sanchez (carmen.piernas-sanchez@phc.ox.ac.uk).

IPD sharing plan summary

Available on request

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article		11/01/2024	12/01/2024	Yes	No